

N. R. FIELD SHEET

Form 10-300
(Dec. 1968)

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY - NOMINATION FORM

(Type all entries - complete applicable sections)

STATE: MARYLAND	
COUNTY: ALLEGANY	
FOR NPS USE ONLY	
ENTRY NUMBER	DATE

1. NAME

COMMON:
C & O CANAL

AND/OR HISTORIC:
C & O CANAL

2. LOCATION

STREET AND NUMBER:

CITY OR TOWN:
Washington, D.C. to Cumberland, Md. (Western Terminus)

STATE: **D.C. to Cumberland, Md.** CODE: **21502** COUNTY: **Allegany** CODE:

3. CLASSIFICATION

CATEGORY (Check One)	OWNERSHIP	STATUS	ACCESSIBLE TO THE PUBLIC
District <input type="checkbox"/> Building <input type="checkbox"/>	Public <input checked="" type="checkbox"/>	Occupied <input type="checkbox"/>	Yes: <input type="checkbox"/>
Site <input type="checkbox"/> Structure <input type="checkbox"/>	Private <input type="checkbox"/>	Unoccupied <input type="checkbox"/>	Restricted <input checked="" type="checkbox"/>
Object <input type="checkbox"/>	Both <input type="checkbox"/>	Preservation work in progress <input checked="" type="checkbox"/>	Unrestricted <input type="checkbox"/>
PRESENT USE (Check One or More as Appropriate)			
Agricultural <input type="checkbox"/>	Government <input checked="" type="checkbox"/>	Park <input checked="" type="checkbox"/>	Transportation <input checked="" type="checkbox"/>
Commercial <input type="checkbox"/>	Industrial <input type="checkbox"/>	Private Residence <input type="checkbox"/>	Other (Specify) <input type="checkbox"/>
Educational <input checked="" type="checkbox"/>	Military <input type="checkbox"/>	Religious <input type="checkbox"/>	
Entertainment <input checked="" type="checkbox"/>	Museum <input type="checkbox"/>	Scientific <input type="checkbox"/>	

4. OWNER OF PROPERTY

OWNERS NAME:
UNITED STATES DEPARTMENT OF INTERIOR (National Monument)

STREET AND NUMBER:

CITY OR TOWN: **Washington** STATE: **D. C.** CODE:

5. LOCATION OF LEGAL DESCRIPTION

COURTHOUSE, REGISTRY OF DEEDS, ETC:
Allegany County Courthouse (Western Terminus)

STREET AND NUMBER:
Washington Street

CITY OR TOWN: **Cumberland** STATE: **Maryland** CODE: **21502**

APPROXIMATE ACREAGE OF NOMINATED PROPERTY:

6. REPRESENTATION IN EXISTING SURVEYS

TITLE OF SURVEY:

DATE OF SURVEY: Federal State County Local

DEPOSITORY FOR SURVEY RECORDS:

STREET AND NUMBER:

CITY OR TOWN: STATE: CODE:

SEE INSTRUCTIONS

STATE: COUNTY: ENTRY NUMBER DATE

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(Yellow)

7. DESCRIPTION	
CONDITION	(Check One) Excellent <input type="checkbox"/> Good <input type="checkbox"/> Fair <input checked="" type="checkbox"/> Deteriorated <input type="checkbox"/> Ruins <input type="checkbox"/> Unexposed <input type="checkbox"/>
INTEGRITY	(Check One) Altered <input checked="" type="checkbox"/> Unaltered <input type="checkbox"/> Moved <input type="checkbox"/> Original Site <input checked="" type="checkbox"/>
DESCRIBE THE PRESENT AND ORIGINAL (if known) PHYSICAL APPEARANCE	
<p>1828-July 4--Meeting to plan Canal to Cumberland, Md.</p> <p>1836-Announcement that the appropriation had been exhausted. Panic occurred in Cumberland, Md., and town lots were offered at insignificant prices. A Town Meeting was held and resolution passed urging the Legislature to appropriate \$2,500,000 to continue work. A committee was named to go to Annapolis and present the petition of <u>CUMBERLAND PEOPLE to continue the Canal. IT WAS THE PEOPLE OF CUMBERLAND WHO FOUGHT FOR IT'S COMPLETION TO THE WESTERN TERMINUS IN DOWNTOWN CUMBERLAND, Md. (NOT AT NORTH BRANCH, Md. Ten miles from the Western Terminus)</u>. Subscription of \$1,375,000 gave Maryland full control, 1839. <u>CUMBERLAND, Md., Supported the Canal for 74 years.</u> Many residents descend from persons connected with the Canal.</p> <p>1850--June 11, The western level was ready and at 5 p.m. Chas. B. Fisk, the Chief Engineer, opened the wickets in the feed gates and allowed the waters of the Potomac River to fill the new channel.</p> <p>1924--C & O Canal closed because of damage by flood waters. The Canal property was acquired by the B&O Railroad.</p> <p>1938--B&O RR sold the Canal property to the U.S. Government for \$2,000,000. 22 miles made into scenic park at Wash.D.C.</p> <p>1950--Rep. Glenn Beall, Sr. sponsored bill (64-Stat.905) which <u>allowed the U.S. Dept. of Interior to trade the land as a convenience to the railroad.</u></p> <p>1961--Jan. 18--Pres. Dwight Eisenhower, as one of his last acts of office designated the <u>CANAL AS A NATIONAL MONUMENT--the full 186 miles to Cumberland, Md. (NOT TEN MILES SHORT)</u></p> <p>Trading of Canal land continued through 1970-- (see next page)</p> <p>.....</p> <p>U.S. SENATE HEARING: 1970--Dec. 15--Mayer Thomas F. Conlon, speaking for the City of <u>CUMBERLAND, Md.</u>, and Mrs. Mary C. Miltenberger, speaking for the Preservation Society of Allegany County, opposed the Bill, which <u>Excluded CUMBERLAND, MD.</u></p> <p>1970--Rep. J. Glenn Beall, Jr. backed a Canal Bill that passed the House that will <u>not include Cumberland, Md., in the 5 year plan. The U.S. Dept. of Interior has not included nor does it mention one cent to be spent, in Cumberland, of the 20 million dollars.</u></p> <p>A National Park Service Employee, in reply to a question at a Civic Club Meeting said "Cumberland will get a map and toilets". In checking the plans one does not find such things on the list.</p>	

SEE INSTRUCTIONS

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8. SIGNIFICANCE

PERIOD (Check One or More as Appropriate)

- Pre-Columbian 16th Century 18th Century 20th Century
 15th Century 17th Century 19th Century

SPECIFIC DATE(S) (If Applicable and Known)

AREAS OF SIGNIFICANCE (Check One or More as Appropriate)

- | | | | | | | |
|----------------|--------------|--------------------------|----------------|-------------------------------------|-----------------|--------------------------|
| Aboriginal | Education | <input type="checkbox"/> | Political | <input type="checkbox"/> | Urban Planning | <input type="checkbox"/> |
| Prehistoric | Engineering | <input type="checkbox"/> | Religion/Phi- | | Other (Specify) | <input type="checkbox"/> |
| Historic | Industry | <input type="checkbox"/> | losophy | <input type="checkbox"/> | _____ | |
| Agriculture | Invention | <input type="checkbox"/> | Science | <input type="checkbox"/> | _____ | |
| Art | Landscape | <input type="checkbox"/> | Sculpture | <input type="checkbox"/> | _____ | |
| Commerce | Architecture | <input type="checkbox"/> | Social/Human- | | _____ | |
| Communications | Literature | <input type="checkbox"/> | itarian | <input type="checkbox"/> | _____ | |
| Conservation | Military | <input type="checkbox"/> | Theater | <input type="checkbox"/> | _____ | |
| | Music | <input type="checkbox"/> | Transportation | <input checked="" type="checkbox"/> | _____ | |

STATEMENT OF SIGNIFICANCE (Include Personages, Dates, Events, Etc.)

17½ million tons of coal were taken from Allegany County and loaded in Cumberland, Md. during the 74 years of operation.

MANIPULATORS are being allowed to present CANAL HISTORY INCORRECTLY.

1970--Fall--HUNDREDS OF RESIDENTS AND VISITORS (CANAL HIKERS, ETC.) SIGNED PETITIONS FOR VISITOR'S CENTER TO BE BUILT AT WESTERN TERMINUS, WHERE it rightfully belongs.

When "Coxey's Army" arrived in Cumberland, on its way to Washington in 1894, with Gen. Jacob Coxey's group of unemployed seeking relief and trying to gain favor for his plan for the unemployed...the men were placed on CANAL BOATS IN CUMBERLAND (not North Branch, Md.) and taken to Washington.

1969--Jan.23-STATE ROADS COMMISSION traded 183.55 acres in Washington County, Md., for the 16.02 acres of prime land of the Western Terminus in Cumberland, Md. (Allegany Co.)
This transaction was handled in Arlington, Va. (" record)

1970--Map # 21 of the OFFICIAL CANAL MAPS, based on complete field inspection shows Cumberland marked "detail omitted" with the statement "Canal Bed from 183.5 to Cumberland filled as a result of road construction". WHAT ROAD ?

1970--Rep. J.Glenn Beall, Jr. backed a Canal Bill, which passed that will not include Cumberland, Md. The Boundaries Map of the National Park Service plainly showed the development area of the Bill to end at North Branch, Md. with a \$695,000,000 Visiter's Center.

WHO MISLEAD THE UNITED STATES SENATE ?

The Level Walkers, Hikers and Bicycle Riders enjoy a beautiful stretch of Tow-Path and will long remember the skyline of CUMBERLAND, MARYLAND AS THEY REACH THE WESTERN TERMINUS.

C & O Canal Association of Allegany County (Cumberland, Md.) only one along the whole length of the Canal. WHY ? Could it be because it prometes stepping the CANAL AT NORTH BRANCH, MD., instead of Cumberland, Md. where it rightfully belongs ?

SEE INSTRUCTIONS

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9. MAJOR BIBLIOGRAPHICAL REFERENCES

Scharf History of W. Md.
 Thomas History of Allegany County
 Lowdermilk History of Cumberland, Md.

Newspaper articles--J.Wm. Hunt, local historian
 " " Hazel Groves Hansrote, "

Records, Pictures, Data on file--Transportation Room--History House, 218 Washington Street, Cumberland, Md.

10. GEOGRAPHICAL DATA

LATITUDE AND LONGITUDE COORDINATES DEFINING A RECTANGLE LOCATING THE PROPERTY			O R	LATITUDE AND LONGITUDE COORDINATES DEFINING THE CENTER POINT OF A PROPERTY OF LESS THAN ONE ACRE		
CORNER	LATITUDE	LONGITUDE		LATITUDE	LONGITUDE	
	Degrees Minutes Seconds	Degrees Minutes Seconds		Degrees Minutes Seconds	Degrees Minutes Seconds	
NW	° ' "	° ' "		° ' "	° ' "	
NE	° ' "	° ' "		° ' "	° ' "	
SE	° ' "	° ' "		° ' "	° ' "	
SW	° ' "	° ' "		° ' "	° ' "	

LIST ALL STATES AND COUNTIES FOR PROPERTIES OVERLAPPING STATE OR COUNTY BOUNDARIES

STATE:	CODE	COUNTY	CODE
Washington, D.C.		Washington, D.C.	
to		to	
Cumberland, Md.		Allegany County-	

11. FORM PREPARED BY

NAME AND TITLE:
Hazel Groves Hansrote (Mrs. Charles J. Hansrote, Sr.) - Chairman

ORGANIZATION: **Maryland Historical Trust--Allegany County** DATE: **May 3, 1971**

STREET AND NUMBER:
519 Hill-Top Drive,

CITY OR TOWN: **Cumberland** STATE: **Maryland** CODE: **21502**

12. STATE LIAISON OFFICER CERTIFICATION

NATIONAL REGISTER VERIFICATION

As the designated State Liaison Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the National Park Service. The recommended level of significance of this nomination is:

National State Local

Name _____

Title _____

Date _____

I hereby certify that this property is included in the National Register.

 Chief, Office of Archeology and Historic Preservation

Date _____

ATTEST:

 Keeper of The National Register

Date _____

SEE INSTRUCTIONS

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NATIONAL PARK SERVICE

**NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY -- NOMINATION FORM**

FOR FEDERAL PROPERTIES

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DATE ENTERED *approved 8/9/79*

Already on Register

SEE INSTRUCTIONS IN HOW TO COMPLETE NATIONAL REGISTER FORMS
TYPE ALL ENTRIES -- COMPLETE APPLICABLE SECTIONS

1 NAME

HISTORIC

Chesapeake and Ohio Canal

AND/OR COMMON

Chesapeake and Ohio Canal National Historical Park

2 LOCATION

The District of Columbia and Maryland bank of the Potomac River
from Georgetown, D.C., to Cumberland, Maryland

STREET & NUMBER

NOT FOR PUBLICATION

CITY, TOWN

CONGRESSIONAL DISTRICT

VICINITY OF

D.C.; 6th and 8th of Maryland

STATE

CODE

D.C. (001), Montgomery (031),
Frederick (021), Washington (043)
Allegany (001)

DC (11), MD (24)

3 CLASSIFICATION

CATEGORY	OWNERSHIP	STATUS	PRESENT USE
<input checked="" type="checkbox"/> DISTRICT	<input type="checkbox"/> PUBLIC	<input checked="" type="checkbox"/> OCCUPIED	<input type="checkbox"/> AGRICULTURE <input type="checkbox"/> MUSEUM
<input type="checkbox"/> BUILDING(S)	<input type="checkbox"/> PRIVATE	<input type="checkbox"/> UNOCCUPIED	<input type="checkbox"/> COMMERCIAL <input checked="" type="checkbox"/> PARK
<input type="checkbox"/> STRUCTURE	<input checked="" type="checkbox"/> BOTH	<input type="checkbox"/> WORK IN PROGRESS	<input type="checkbox"/> EDUCATIONAL <input type="checkbox"/> PRIVATE RESIDENCE
<input type="checkbox"/> SITE	PUBLIC ACQUISITION	ACCESSIBLE	<input type="checkbox"/> ENTERTAINMENT <input type="checkbox"/> RELIGIOUS
<input type="checkbox"/> OBJECT	<input checked="" type="checkbox"/> IN PROCESS	<input type="checkbox"/> YES: RESTRICTED	<input type="checkbox"/> GOVERNMENT <input type="checkbox"/> SCIENTIFIC
	<input type="checkbox"/> BEING CONSIDERED	<input checked="" type="checkbox"/> YES: UNRESTRICTED	<input type="checkbox"/> INDUSTRIAL <input type="checkbox"/> TRANSPORTATION
		<input type="checkbox"/> NO	<input type="checkbox"/> MILITARY <input type="checkbox"/> OTHER:

4 AGENCY

REGIONAL HEADQUARTERS: (If applicable)

National Park Service, National Capital Region

STREET & NUMBER

1100 Ohio Drive, S.W.

CITY, TOWN

STATE

Washington

VICINITY OF

D.C. 20242

5 LOCATION OF LEGAL DESCRIPTION

COURTHOUSE,
REGISTRY OF DEEDS, ETC.

Land records in courthouses of above jurisdictions. C&O Canal
Company records in Record Group 79, National Archives.

STREET & NUMBER

CITY, TOWN

STATE

6 REPRESENTATION IN EXISTING SURVEYS

TITLE Historic American Buildings Survey*
Historic American Engineering Record*

DATE NPS List of Classified Structures**
Prentice-Hahn Survey**

FEDERAL STATE COUNTY LOCAL

DEPOSITORY FOR
SURVEY RECORDS

Library of Congress*

National Capital Region Headquarters**

CITY, TOWN

STATE

Washington

D.C.

(Handwritten signature)

7 DESCRIPTION

CONDITION		CHECK ONE	CHECK ONE
<input type="checkbox"/> EXCELLENT	<input checked="" type="checkbox"/> DETERIORATED	<input type="checkbox"/> UNALTERED	<input checked="" type="checkbox"/> ORIGINAL SITE
<input checked="" type="checkbox"/> GOOD	<input checked="" type="checkbox"/> RUINS	<input checked="" type="checkbox"/> ALTERED	<input type="checkbox"/> MOVED DATE _____
<input checked="" type="checkbox"/> FAIR	<input type="checkbox"/> UNEXPOSED		

DESCRIBE THE PRESENT AND ORIGINAL (IF KNOWN) PHYSICAL APPEARANCE

This documentation of the historic resources of the Chesapeake and Ohio Canal National Historical Park is limited to the canal proper (including prism, locks, lockhouses, aqueducts, culverts, dams, weirs) and other visible historic features in the park contemporary with the period of the canal's operation. Because a comprehensive survey of prehistoric and historic archeological resources in the park has not yet been undertaken, such resources will be the subject of an addendum or separate nomination at a later date.

Built between 1828 and 1850, the canal ran 184.5 miles from Georgetown, D.C., to Cumberland, Maryland. During its active operation until 1924 it suffered periodic damage from floods, war, and other causes which, together with normal deterioration, required the repair and replacement of many structural components. Such periodic damage has continued to the present (the 1972 "Agnes" flood being the most notable recent contributor). Since the canal company property was acquired by the Federal Government in 1938, the National Park Service has repaired or rebuilt the towpath in many places to maintain its continuity for recreational purposes. The Service has also restored or stabilized many of the badly deteriorating locks, culverts, and other structures. The canal today thus reflects considerable reworking during and since its historic period (1828-1924) while retaining its essential element of continuity from Georgetown to Cumberland.

Accompanying sheets numbered 1 to 163 and photographs provide a detailed description of the historic and present appearance of the canal and related and contemporary historic structures and sites. Known park properties not covered in this documentation are not considered historic and do not contribute to the significance of the park for National Register purposes. It is possible that additional features of contributing value may be disclosed in future park investigations, at which times they may be documented in addenda to this submission.

All historic objects and documents original to or historically associated with the property described herein and in National Park Service ownership and control are also defined as components of this property for the National Register. Included are artifacts and specimens associated directly with the canal and associated structures, with other historic structures in the park, and with people and events connected with the history of the canal from 1828 to 1924. Such objects are listed and described in the park's museum catalog, maintained at the park headquarters at Sharpsburg, Maryland.

8 SIGNIFICANCE

PERIOD	AREAS OF SIGNIFICANCE -- CHECK AND JUSTIFY BELOW			
___PREHISTORIC	___ARCHEOLOGY-PREHISTORIC	___COMMUNITY PLANNING	___LANDSCAPE ARCHITECTURE	___RELIGION
___1400-1499	___ARCHEOLOGY-HISTORIC	<input checked="" type="checkbox"/> CONSERVATION	___LAW	___SCIENCE
___1500-1599	___AGRICULTURE	___ECONOMICS	___LITERATURE	___SCULPTURE
___1600-1699	<input checked="" type="checkbox"/> ARCHITECTURE	___EDUCATION	<input checked="" type="checkbox"/> MILITARY	___SOCIAL/HUMANITARIAN
___1700-1799	___ART	<input checked="" type="checkbox"/> ENGINEERING	___MUSIC	___THEATER
<input checked="" type="checkbox"/> 1800-1899	<input checked="" type="checkbox"/> COMMERCE	___EXPLORATION/SETTLEMENT	___PHILOSOPHY	<input checked="" type="checkbox"/> TRANSPORTATION
<input checked="" type="checkbox"/> 1900-	___COMMUNICATIONS	___INDUSTRY	___POLITICS/GOVERNMENT	___OTHER (SPECIFY)
		___INVENTION		

SPECIFIC DATES 1828-1924

BUILDER/ARCHITECT Benjamin Wright et al.

STATEMENT OF SIGNIFICANCE

The Chesapeake and Ohio Canal, today largely unwatered and overgrown and with most of its structural features in varying states of deterioration, is yet one of the most intact and impressive survivals of the American canal-building era. While recognizable segments of other early-19th-century canals exist and while a few other canals of the period have been rebuilt for modern shipping, the C&O Canal is unique in that it remains virtually unbroken and without substantial modification affecting its original character for its entire length of some 185 miles. Such physical changes as have occurred since the canal ceased operation in 1924 have been largely dictated by nature: a softening of prism contours, extensive vegetative overgrowth, widespread decay and collapse of wood and stone structures. Beyond the restored and rewatered 22-mile portion from Georgetown to Violet's Lock, much of the canal now has the character of a ruin. Yet the fact that the entire towpath to Cumberland may still be traveled and the survival--in whole or part--of most of the principal canal structures afford the many hikers and bicyclists who follow the route a fine opportunity to appreciate the magnitude of this historic engineering achievement.

History

The Chesapeake and Ohio Canal Company was chartered in 1825 to construct a shipping canal connecting tidewater on the Potomac River in the District of Columbia with the headwaters of the Ohio River in western Pennsylvania, thereby providing an economical trade route between the eastern seaboard and the trans-Allegheny West. The company acquired the rights of the Potomac Company, formed by George Washington and associates after the Revolution to improve navigation on the Potomac. That venture had attempted to achieve its objective by deepening the channel and cutting skirting canals around impassable rapids, but the flow of the river proved too erratic to make these measures successful. This experience led the C&O Canal promoters to adopt plans for a separate canal paralleling the river.

The company began operations in 1828 with a subscribed capital of about \$3.6 million. Among the stockholders were the Federal Government, the states of Maryland and Virginia, and the cities of Washington, Georgetown, and Alexandria, D.C. Estimates of the total cost of the eastern section of the canal from Georgetown to Cumberland, Maryland, ranged from \$4.5 to \$8 million. As engineers the board of directors selected men with experience on northern and foreign canals. Chief Engineer Benjamin Wright of New York had been actively involved with the Erie Canal and was then chief engineer on the Chesapeake and Delaware Canal. Other members of the board of engineers included John Martineau, a close associate of Wright, and Nathan S. Roberts,

(continued)

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another noted New York engineer. Charles B. Fisk of Connecticut served as chief engineer from 1835 to 1852.

President John Quincy Adams turned the first spadeful of earth in ceremonies at Little Falls, Maryland, on July 4, 1828. On the same day, construction of the Baltimore and Ohio Railroad westward from Baltimore was begun--a move that would have significant implications for the ultimate fate of the canal and the canal era generally.

From the start, numerous difficulties retarded the progress of canal construction. An acute labor shortage forced the company to campaign for workers from other states and abroad. Numerous disputes arose with landowners who resisted efforts to purchase the right-of-way. A protracted legal controversy with the B&O Railroad involving the right-of-way between Point of Rocks and Harpers Ferry impeded construction of both the canal and the railroad there until 1832. Increased costs of labor, materials, and land during the inflationary period of the late 1820s and 1830s caused construction expenses to rise sharply and far exceed the original estimates. The State of Maryland came to the rescue of the financially troubled company in the mid-1830s by purchasing over \$5 million more in stock, thus becoming the majority stockholder. But difficulties continued, augmented by labor unrest among the predominantly Irish workers and the financial Panic of 1837. Between 1842 and 1847 construction was at a standstill. The canal was finally completed to Cumberland in 1850, bringing the total cost of the project to over \$11 million. The original plans to extend the waterway over the Alleghenies had long before been abandoned.

Boats began to appear on the canal soon after the first short section between Little Falls and Seneca was completed in 1831. As water was admitted to the upper divisions reaching out into western Maryland, trade on the waterway increased as cargos of flour, grain, building stone, and whiskey began to move down to Georgetown. Not until the canal reached Cumberland, however, did the tonnage transported reach an appreciable figure. Large quantities of coal from the rich mines of the Georges Creek region west of Cumberland then began to be transported to the tidewater. During the years following the Civil War the coal trade increased rapidly until in 1871, the peak year, some 850,000 tons were carried down the canal. In some years of this period the canal company made a considerable operating profit, which was quickly applied to improving the waterway and to the payment of back interest on the tremendous debt. During these few profitable years more than 500 boats were in frequent operation on the canal.

In the late 1870s the canal trade began to decline as many of the Allegheny coal operators began to ship over the B&O Railroad, the canal's greatest competitor. This development, together with the effects of the nationwide economic depression in the mid-1870s and major floods in 1877 and 1886, again put a severe strain on canal company finances. In 1889 an enormous flood forced the canal company into receivership, and the B&O

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Railroad emerged as the majority owner of the company's bonds. In 1924, by which time the railroad had captured almost all of the carrying trade of the canal in addition to its ownership, another damaging flood struck. This time the repairs necessary to resume operation were not made, and the active era of the canal came to an end.

In 1938 the railroad, hurt by the Depression, sold the entire canal to the U.S. Government for approximately \$2 million, which was applied to the railroad's debt to the Reconstruction Finance Corporation. The canal was placed under the National Park Service, and some restoration was carried out under Depression work relief programs. In 1961 President Eisenhower proclaimed it a national monument. An act of Congress in 1971 authorized the acquisition of additional land/^{and} establishment of the Chesapeake and Ohio Canal National Historical Park.

The principal areas of the canal's historical significance may be summarized as follows:

Architecture and Engineering. The canal survives as an excellent illustration of 19th-century canal-building technology. The magnitude of the engineering achievement is exemplified by the 184.5-mile length of the canal, its 74 lift locks to accommodate a rise of 605 feet, the 11 stone aqueducts spanning major Potomac tributaries, 7 dams supplying water to the canal, hundreds of culverts carrying roads and streams beneath the canal, and a 3,117-foot tunnel carrying the canal through a large shale rock formation. Many of the canal structures, notably the aqueducts, the tunnel portals, the culvert face walls, and the early lockhouses, were also architecturally treated with such aesthetic features as pilasters, belt courses, and variations in stone texture added for visual enhancement.

Commerce and Transportation. The canal served as the major commercial artery in the Potomac Valley above tidewater during the mid-19th century. Along it were conveyed significant quantities of the food, fuel, and building materials required by the growing National Capital. The canal influenced the creation and expansion of numerous businesses along it, many of which tapped the canal water as a power source as well as using the waterway for shipping.

Conservation. Although the builders of the canal could hardly have foreseen it, their creation has led today to the preservation of a large portion of the Maryland bank of the Potomac in a relatively unspoiled state. Natural growth reclaimed much of the canal property after 1924, and the transfer of this land to the National Park Service in 1938 resulted in its conscious preservation for its historical, natural, and recreational values. The canal company land now serves as the nucleus of a still-expanding park enlarged by the acquisition of much additional land on both sides of the original right-of-way.

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Non-Canal Historic Resources

The Chesapeake and Ohio Canal National Historical Park includes a number of historic features that are not primarily canal-related. These have been treated along with the resources of the canal proper in the descriptive and photographic documentation accompanying Section 7. Virtually all of them are significant today as elements of the canal's historic scene, i.e., the cultural environment existing during the period of the canal's operation. In addition, some of them possess historic architectural, engineering, military, or commercial significance. Those features whose significance transcends their contribution to the canal's historic scene are covered below.

Fort Duncan and Associated Earthworks (mile 62.5). Fort Duncan and its associated batteries are significant as well preserved remnants of the Union defenses of Harpers Ferry during the Civil War.

The Union forces occupying Harpers Ferry in 1862 failed to erect more than elementary defenses, an omission contributing to the successful Confederate siege and assault leading to the surrender of 12,693 Federal soldiers on September 15, 1862. The Union Army of the Potomac soon reoccupied the town and the commanding heights across the Potomac and Shenandoah Rivers, and the Union high command decided to fortify the position to avoid repetition of the costly experience. Between October 1, 1862, and June 1863 Maryland Heights and Loudoun Heights were converted to fortresses of great strength.

The present documentation covers only those defensive works within the present Chesapeake and Ohio Canal National Historical Park. Others exist within the boundaries of Harpers Ferry National Historical Park and on private land.

Ferry Hill Plantation House (mile 72.82). This property is significant for its association with the early ferry across the Potomac River and as the boyhood home of Henry Kyd Douglas, a Confederate officer on Stonewall Jackson's staff.

The house was begun in 1812 by Henry Thomas Swearingen, of the family of Thomas Van Swearingen who began operation of the Potomac ferry to Shepherdstown in 1765. In 1816 the property was sold to John Blackford, who operated the ferry and the plantation until his death in 1839. His son Henry sold the property to Robert Douglas in 1848. Henry Kyd Douglas, son of Robert, spent his boyhood at Ferry Hill. In 1862 Federal troops occupied the house after the battle of Antietam and confined Robert because of his Confederate sympathies. During that battle the house had served as a small hospital for several Confederate officers, including the son of Robert E. Lee. The house was used by Confederate Major General Edward Johnson on his route to Pennsylvania

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in 1863.

The architectural significance of the house has been impaired by extensive alterations and modifications.

Burnside House (mile 89.21). The house is architecturally significant as a good surviving example of a mid-18th century house of unusual configuration. The property included a distillery in the 18th century, and it is likely that the three adjoining but unconnected portions of the structure housed distillery employees. An unconfirmed story that Lord Fairfax sent young George Washington here to purchase whiskey warrants further investigation.

Bollman Bridge, Williamsport (mile 99.65). Built in 1879, the Bollman Bridge at West Salisbury Street is a significant engineering resource because of its association with Wendell Bollman, one of the pioneers who ushered in the modern era of structural engineering by introducing iron as a primary structural material. As the first civil engineer to evolve a system of bridging in iron to be consistently used on an American railroad (the Baltimore and Ohio), Bollman made a significant contribution to the history of civil engineering.

Although Bollman used the iron Pratt bridging design in erecting the bridge at Williamsport rather than the iron truss system he had patented in 1852, the structure is significant as one of his few surviving works and as his only bridge over the canal.

Cushwa Warehouse, Williamsport (mile 99.72). The Cushwa Warehouse, dating from the early 19th century, is a significant historic commercial resource because of the role it played in trade on the canal and in the economic development of Williamsport. Operated by the principal firm wholesaling and retailing coal, flour, iron, cement, and plaster in Williamsport for more than a century, the warehouse business had an important impact on the regional development of commerce and transportation arteries in the Williamsport-Hagerstown vicinity and surrounding Washington County.

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Williamsport Power House (mile 99.75). The Williamsport Power House was built by the Hagerstown Railway Company in 1896 as the first power source for the new electric trolley line running from Williamsport to Hagerstown. It survives to represent the beginnings of a transportation era in Washington County lasting until 1954. Electricity generated here was also sold for lighting and other purposes, so that this first power house in the county also represents the beginnings of the electric utilities industry in the area.

With the rapid extension of the trolley lines, the Williamsport Power House soon became inadequate and was replaced around 1900 by a new facility in Hagerstown. In 1911 the abandoned structure was conveyed back to the Cushwa family, the original owner of the property, and was used thereafter for the storage of coal, sand, and other materials. The National Park Service acquired the property in 1974.

Adaptive Use of Buildings

The primary significance of virtually all buildings included in this documentation lies in their exterior appearance and their contribution to the historic scene. Continued or adaptive use of habitable or otherwise functional buildings has occurred without detriment to their primary values and is encouraged as a means to their preservation.

9 MAJOR BIBLIOGRAPHICAL REFERENCES

See accompanying continuation sheet. A comprehensive bibliography is on file in the office of Professional Services, National Capital Region.

10 GEOGRAPHICAL DATA

ACREAGE OF NOMINATED PROPERTY 20,239
 UTM REFERENCES See continuation sheets.

A	ZONE	EASTING	NORTHING	B	ZONE	EASTING	NORTHING
C	ZONE	EASTING	NORTHING	D	ZONE	EASTING	NORTHING

VERBAL BOUNDARY DESCRIPTION

The National Register boundary is that authorized for the Chesapeake and Ohio Canal National Historical Park by Public Law 91-664, which makes reference to five boundary map sheets numbered CHOH 91,000. Copies of the sheets accompany this documentation. The boundary has been carefully reproduced in larger scale on the accompanying U.S.G.S. quadrangles. The riverbank generally constitutes the southern edge of the park; the inland edge varies widely in distance from the canal prism.

LIST ALL STATES AND COUNTIES FOR PROPERTIES OVERLAPPING STATE OR COUNTY BOUNDARIES

STATE	CODE	COUNTY	CODE
District of Columbia (11); Maryland (24)		counties of Montgomery (031), Frederick (021),	
Washington (043), Allegany (001).			

11 FORM PREPARED BY

NAME / TITLE
Philip S. Romigh, Architect, 12/76; Barry Mackintosh, Historian, 3/79
 ORGANIZATION
National Capital Region, National Park Service
 STREET & NUMBER
1100 Ohio Drive, S.W.
 CITY OR TOWN
Washington
 STATE
D.C.
 TELEPHONE
(202) 426-6660

12 CERTIFICATION OF NOMINATION

Park automatically listed in National Register upon authorization by Congress.
 STATE HISTORIC PRESERVATION OFFICER RECOMMENDATION
 YES ___ NO ___ NONE ___

STATE HISTORIC PRESERVATION OFFICER SIGNATURE

In compliance with Executive Order 11593, I hereby nominate this property to the National Register, certifying that the State Historic Preservation Officer has been allowed 90 days in which to present the nomination to the State Review Board and to evaluate its significance. The evaluated level of significance is National State Local.

FEDERAL REPRESENTATIVE SIGNATURE [Signature] DATE 6/1/79
 TITLE Asst. Dir., Cultural Resources

FOR NPS USE ONLY
 I HEREBY CERTIFY THAT THIS PROPERTY IS INCLUDED IN THE NATIONAL REGISTER
Canal Shull DATE 8-9-79
 DIRECTOR, OFFICE OF ARCHEOLOGY AND HISTORIC PRESERVATION
 ATTEST Chema Spivey DATE 8-9-79
 KEEPER OF THE NATIONAL REGISTER
Regional Coordinator

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- *Unpublished National Park Service research studies available in the office of Professional Services, National Capital Region.

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UTM References

UTM references are keyed by numbers in parentheses. The numbered points run from Georgetown to Cumberland along the river side of the park and return along the inland side.

<u>Point No.</u>	<u>UTM Reference</u>	<u>Quadrangle</u>	<u>Point No.</u>	<u>UTM Reference</u>	<u>Quadrangle</u>
(1)	18/321650/4307935	Washington West	(34)	18/247840/4388250	Hedgesville
(2)	18/321610/4307370	"	(35)	18/247520/4385530	"
(3)	18/318190/4308380	"	(36)	17/756880/4387730	Big Pool
(4)	18/314080/4314370	Falls Church	(37)	17/751520/4394400	Cherry Run
(5)	18/304880/4316660	"	(38)	17/747710/4396430	"
(6)	18/305380/4322660	Rockville	(39)	17/742000/4397700	Hancock
(7)	18/297940/4326460	Seneca	(40)	17/734820/4390060	Bellegrove
(8)	18/289520/4326910	Sterling	(41)	17/734830/4388910	"
(9)	18/281650/4334090	Waterford	(42)	17/733140/4389040	"
(10)	18/282540/4338070	"	(43)	17/727980/4390900	"
(11)	18/288100/4344370	Poolsville	(44)	17/725190/4387250	Paw Paw
(12)	18/285520/4347380	"	(45)	17/721060/4389100	"
(13)	18/281050/4349180	Pt. of Rocks	(46)	17/724430/4383680	"
(14)	18/278820/4352680	"	(47)	17/718360/4384900	"
(15)	18/272520/4354350	Harpers Ferry	(48)	17/721970/4380600	"
(16)	18/269430/4355830	"	(49)	17/717480/4376920	"
(17)	18/265030/4335940	"	(50)	17/709220/4377160	Oldtown
(18)	18/262100/4357840	"	(51)	17/704380/4379030	"
(19)	18/263760/4360520	"	(52)	17/700850/4378510	Patterson Creek
(20)	18/263020/4362700	Sheperdstown	(53)	17/694510/4382220	"
(21)	18/264600/4363210	Keedysville	(54)	17/691540/4385190	Cresaptown
(22)	18/262900/4367760	Sheperdstown	(55)	17/694600/4387320	Patterson Creek
(23)	18/258940/4368600	"	(56)	17/690540/4388150	Cresaptown
(24)	18/259540/4373910	"	(57)	17/691840/4391050	Cumberland
(25)	18/261950/4374760	"	(58)	17/692000/4390670	"
(26)	18/255000/4375420	"	(59)	17/691140/4388170	Cresaptown
(27)	18/256030/4377980	Williamsport	(60)	17/693040/4388730	Cumberland
(28)	18/253900/4377600	"	(61)	17/696040/4387830	Patterson Creek
(29)	18/251590/4382870	Hedgesville	(62)	17/692370/4384530	Cresaptown
(30)	18/256420/4383190	Williamsport	(63)	17/694740/4384400	Patterson Creek
(31)	18/256720/4387560	"	(64)	17/695040/4382830	"
(32)	18/252280/4388680	Hedgesville	(65)	17/700620/4379240	"
(33)	18/252850/4386740	"	(66)	17/703990/4379840	"

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Point			Point		
No.	UTM Reference	Quadrangle	No.	UTM Reference	Quadrangle
(67)	17/711540/4378040	Oldtown	(88)	18/262820/4376130	Williamsport
(68)	17/717180/4377460	Paw Paw	(89)	18/260820/4368580	Shepherdstown
(69)	17/718000/4385960	"	(90)	18/264070/4367750	Keedysville
(70)	17/723140/4384700	"	(91)	18/264900/4363550	"
(71)	17/719480/4387460	"	(92)	18/264460/4356900	Harpers Ferry
(72)	17/720410/4389540	"	(93)	18/269580/4356590	"
(73)	17/722980/4388680	"	(94)	18/279260/4354090	Pt. of Rocks
(74)	17/727780/4391780	Bellegrove	(95)	18/281280/4350250	"
(75)	17/734120/4389120	"	(96)	18/289440/4345180	Poolesville
(76)	17/737100/4395080	Hancock	(97)	18/285300/4337680	"
(77)	17/741600/4398050	"	(98)	18/282890/4338140	Waterford
(78)	17/748000/4396720	Cherry Run	(99)	18/282730/4333540	"
(79)	17/751980/4394400	"	(100)	18/286160/4332790	Sterling
(80)	18/243300/4388030	Hedgesville	(101)	18/287640/4328940	"
(81)	18/246840/4389720	"	(102)	18/293240/4327000	"
(82)	18/251730/4389270	"	(103)	18/297160/4328120	Seneca
(83)	18/257910/4387740	Williamsport	(104)	18/300590/4326820	"
(84)	18/257120/4383010	"	(105)	18/306770/4322160	Rockville
(85)	18/252560/4381910	Hedgesville	(106)	18/305680/4317630	Falls Church
(86)	18/257570/4379430	Williamsport	(107)	18/314740/4315290	"
(87)	18/257490/4375990	"	(108)	18/318960/4308380	Washington West

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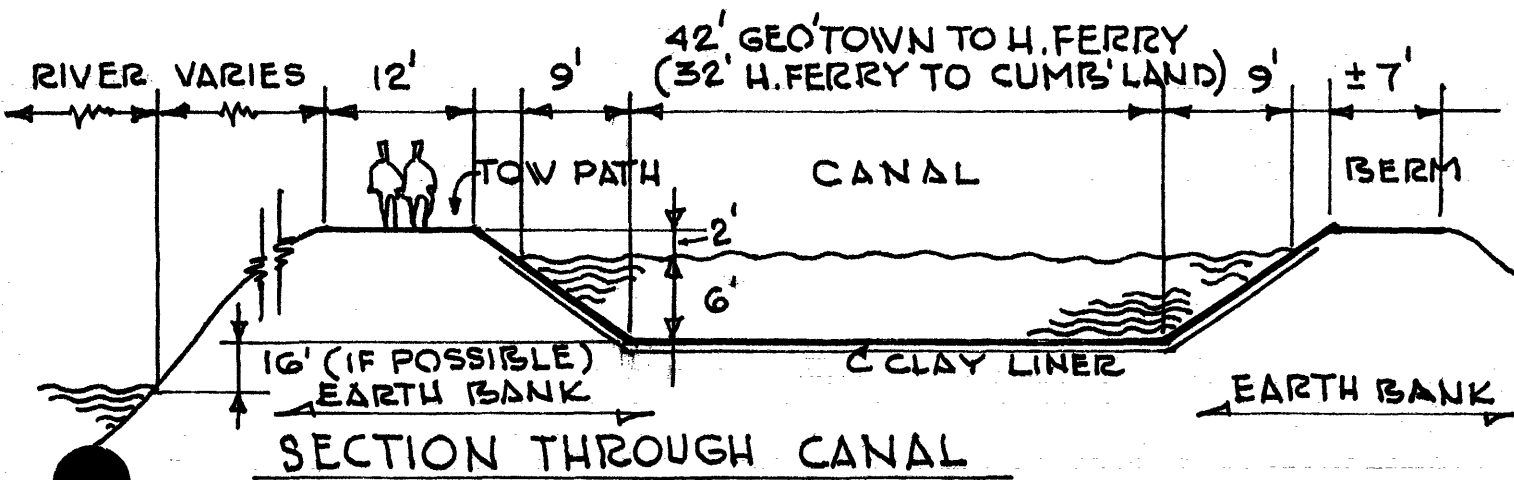
FOREWORD OF TYPICAL STRUCTURES & BUILDINGS

The component parts of the canal were standardized for ease, speed, and economy of construction. Thus there is a typical canal cross section, typical lock, typical lockhouse, and typical structure or building for the repeated elements. The following structures and buildings are those typical elements. Variations from these standards, only, will be noted in the item-by-item listing of the further text. Because aqueducts varied widely, each will be covered individually in the text.

A. - CANAL:

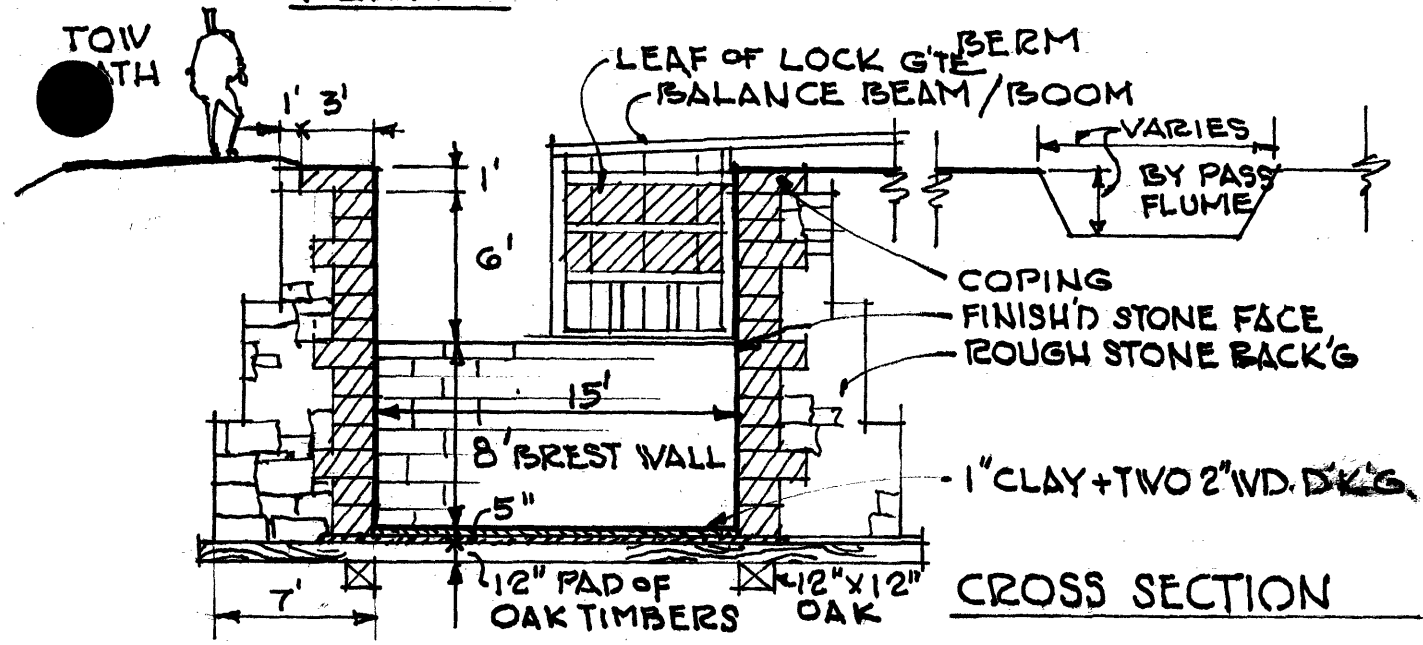
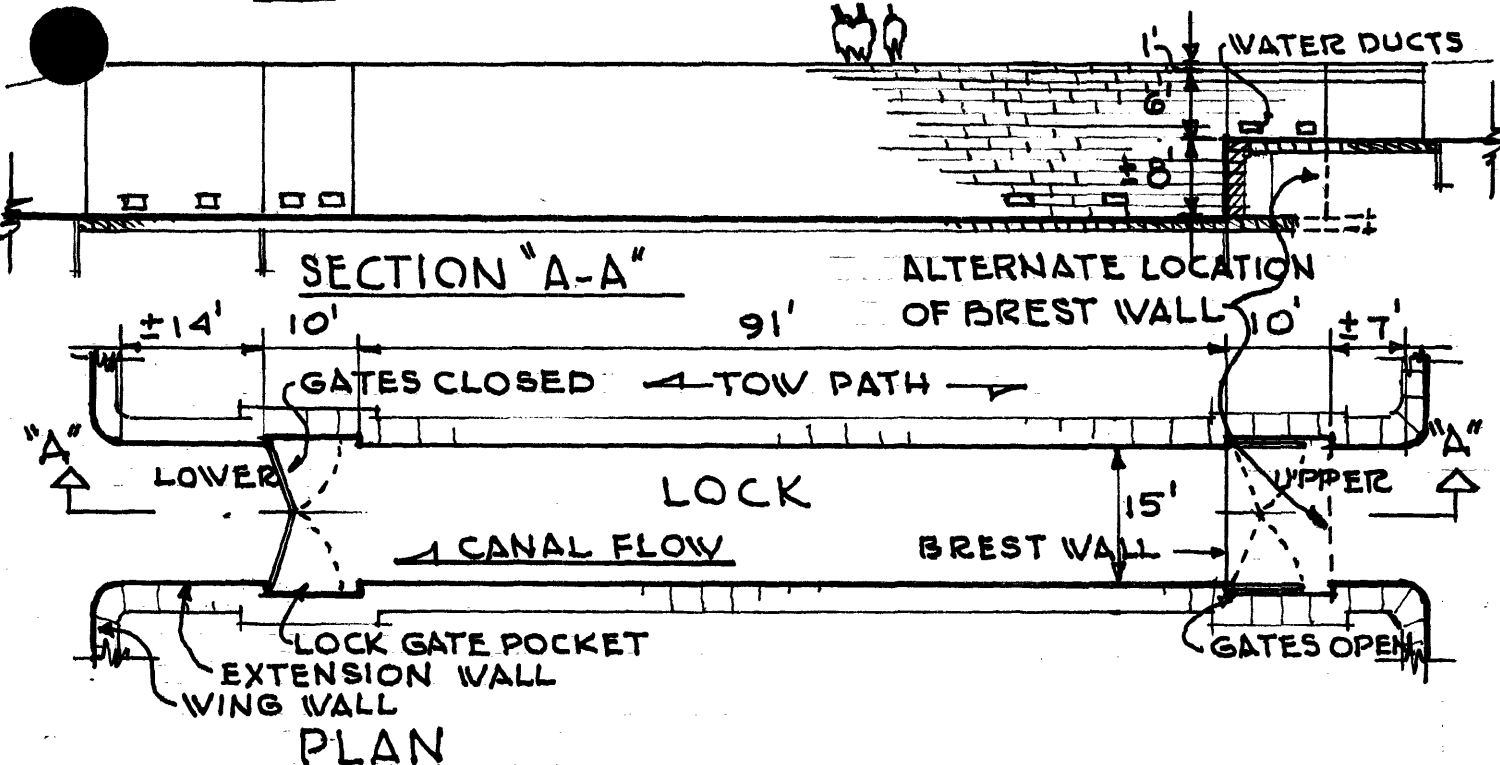
From Georgetown to Harpers Ferry: A canal cross section to carry 6' depth of water (with the exception of Little Falls to Georgetown, where 7' was maintained so that some water could be drawn off to provide water power for nearby mills and foundries), 42' wide bottom; sides on a slope of 1' vertical to 1½' horizontal giving top width of canal of 60', the sloping sides were to rise 2' above water level, and entire canal bed was waterproofed, with a clay liner. Much of the canal had earthen sides and bottom, but dry wall stone sides were used on curves, areas subject to floods, and places where unusual strain was likely to be exerted on the canal walls, and in a few restricted locations the canal was blasted out of natural rocks. From Georgetown up to the Alexandria Aqueduct a specified 12' towpath was on the berm (land side) of the canal, and at that point a bridge afforded access to the towpath on the river side of the canal for all the remaining miles. The towpath was specified to have a smooth, hard surface and surfacing was of crushed rock or whatever was available in the immediate area. For rain water drainage, the towpath sloped 1" to 1' toward the Potomac.

From Harpers Ferry to Cumberland: the canal narrows to a 50' top dimension and a 32' wide bottom. All other elements remain as above.



B. - Locks:

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From the sea level elevation of zero feet for the Potomac at Georgetown, the river rises to the inland elevation of 605' at Cumberland. This change of elevation of 605' was divided up into 74 increments of change, thus giving the majority of locks an 8' vertical movement of water to be accomplished and accommodated. The use of the canal was totally dependent on the proper functioning of the locks. A standard plan was

developed and the written specifications required a wood foundation of oak timbers, stone of high quality, carefully cut and finished and properly laid in cement mortar. The workmanship was of high standards to be accepted. Minor variations in the locks were made at specific locations to suit existing local conditions, but the plans, and the specifications of 1829 and 1830 (which move the brest wall from the down edge to the up edge of the upper lock gate pocket thereby requiring two tall lock gates), held until the 1848-1850 period when restricted time and finances forced the Canal Company into many changes in the locks. The lock trench was dug or prepared to an exact surveyed depth. Unless solid rock was found at the proper depth, a bed was laid of 12" x 12" oak timbers, approximately 30' long, placed perpendicular to the run of the lock, and with their sides butted. This wood pad was underlaid by 12" x 12" timbers with their ends butted to give a continuous length of timber under the face of the two parallel lock walls. Three-inch thick plank sheet piling from the top of the pad to 5' below was placed at the up and down canal lock ends of the pad plus at two intermediate locations. Two-inch wood decking was placed over the timber pad and butt-laid perpendicular to it. The decking was laid to continue under the lock wall face stones. The lock walls were 15' apart and built of cut and finished stone with minimum dimensions of 2½' long, 1' high, and 18" thick, carefully set in cement mortar in regular courses. The walls were topped off with a coping stone of 12" height and 3' top exposed thickness with a minimum of 3' length. The top lock side edge of the coping stone was rounded with a 1" radius. Under the coping stone the face wall was backed up by a rough cut stone wall laid to give a total wall thickness of 4' at the top, increasing to 7' at the bottom in two equal steps. The height of the lock wall was dependent on the change of level of water to be accomplished in the lock, but a typical height of 15'-3" would include 2" finished decking butt laid crossways of the lock, 1" clay, 6' water level, 8' change of water level, plus 1' coping. The main body of the lock was approximately 92' long. At each end, each side of the main body walls a 10' long, 16" increase of width was laid to become a lock gate pocket. Typically the down canal edge of the upper lock gate pockets was the location of the 8' high stone, cross lock wall, known as the brest wall. It was here that the bottom of the lock moved up to the top of the brest wall for the remainder of the upper lock. It was the height of this brest wall that gave the lock the ability to change the water level more or less than 8'. Above the upper lock gate pockets the lock walls moved back to the 15' clear width and continued in straight run (known as extension wall) for approximately 7', at the end of which they curved out in a quarter of a circle to run about 12' perpendicular to the lock walls. (known as wingwalls) to either bank of the above canal. Immediately below the lower lock gate pockets the lower extension walls run for about 14', with a clear width of 15', curve out in a quarter circle and run for 12' plus as wingwalls perpendicular to the lock. Water ducts were placed at the bottom level of the walls in the upper pockets and main body of the lock. Water was controlled by iron wicket gates in the pocket wall that could be adjusted by iron stems that emerged through the coping stones. To fill the lock, when the top lock gates were in their normal closed position, the lower gates were closed, the upper water wickets opened, and the lock filled, then the upper gates could be opened, a

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barge passed into the lock, upper lock gates closed and the boat and water lowered to the lower level. A similar system of ducts ran from the lower gate pockets to the lower extension walls to lower the built up head of water in the lock. These water ducts rapidly filled with debris and were difficult to clean, and were eliminated above Lock #27. The wicket gates in the lock gates were increased in size on all locks to facilitate the changing of water levels. The stones forming the lower edge and corner of the gate pockets were of a special curved section to house the heavy timber gate post, whose bottom rested on a metal pivot set in stone, and top was secured by iron straps that were bolted and let into the top side of the adjacent coping stones. One leaf of the heavy timber framed wood gates was attached to each gate post. The gates, when closed were about at a 60° angle from the lock pocket wall and their meeting rails were at an angle to insure a complete and tight fit. This angular closure was supported on the lock floor by a heavy timber stop composed of a member across the lock, with two members up from at a 30° angle and meeting at a peak in a triangle. An interior supporting member ran from the long member to the interior side of the meeting of the other two. A 24' long boom of 12" x 12" timber was attached to and angled up from the top of each gate which gave the leverage necessary for the gate keepers to open the gates. The lock gate height depended on the lift of a lock, but for a lift of 8' gates in the lower pocket would be just over 14' high and the upper gates just over 8' high. For the locks where the brest wall was moved to the upper edge of the upper lock gate pockets, both pairs of gate were the "tall" gates.

C. - Lockhouse: built in the 1830-1850 period, with over-all dimensions approximately 18' x 30' (long side facing the lock), 1½ story, stone foundation, with exterior walls of stone (20" thick), brick, or wood, (usually vertical board and battens). Simple gable, wood shingled roof, usually about 45° slope. Dormers appear to be later additions. Full basement, often with rear side fully exposed and with entrance. One window each gable end in the ½ story, with window repeat on the first floor, center door with symmetrical window each side on the long side facing the canal, and windows repeating those on the canal side on the back side. Earliest houses had central chimney with brick stack providing two fireplaces on first floor. Later version had flush centered chimney on each end, brick exposed above the ridge, providing stove stacks. First floor interior plastered and divided into two rooms. Wood interior stairs access to finished attic, that was used for sleeping purposes. The interior finish and trim were simple and the workmanship uniformly good on the early houses. The houses of the 1848-1850 period show evidence of necessary economy and are little more than adequate in construction but similar to a small farm house of the period.

D. - Culvert: The construction of a canal on the D.C. and Maryland banks of the river would block the natural passage of inland drainage into the Potomac; therefore, it was necessary for the Canal Company to construct culverts (for minor creeks) and aqueducts (for major creeks) to carry the water from those drainages under the canal. The culverts ran under the berm bank, the canal, and the towpath bank and were formed with two separated parallel vertical stone walls resting on a heavy timber

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grillage and covered by an arch or barrel of stone or brick. At the point that the culvert emerged from the bank, the surrounding bank was held in check by a retaining or face wall, supported as need be by wingwalls. The culvert opening width varied widely depending on the inland drainage necessary. In some instances where the path of the canal moved inland from the river bank, leaving considerable flood plain, a 10- to 20-foot-wide culvert opening provided vehicular passage to the isolated farm or grazing land or to an already established ferry boat landing that provided transportation for the exchange of products between Maryland and Virginia and West Virginia via the Potomac.

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C & O CANAL NATIONAL HISTORICAL PARK

MILEAGE

0.00 (0-1)* Tide Lock - (0-2) Dam - (0-3) Wastegate, and (0-4) Mole:

Completed by May 1831 , with rise of 6'-0" from Potomac River to Rock Creek. Located on the upriver side of the mouth of Rock Creek, at the juncture with the Potomac River. An extensive (0-4) mole was constructed adjacent to the up-river side of the lock with finished masonry on the Potomac side and on both banks of Rock Creek. At about mid-lock on the down-river side of the tide lock, a finished masonry (0-2) dam once extended perpendicular to the run of the lock walls for some 200', thus with mole and dam forming a tidal basin of some size where the barges unloaded their goods. The lock provided the entrance from the lower Potomac River to the elevated Rock Creek behind the dam. The upper portion of the wall was a tumbling dam to keep the water at a desired operating level. Due to floods and natural wear and tear the wall was repeatedly repaired and now all that remains is approximately 40' of battered concrete wall from mid lock perpendicular to the run of the lock.

(0-3) Wastegate: On the down-river end of the 40' remaining concrete dam is a series of 6 wooden lift gates used to control the water level of Rock Creek basin. Gates and concrete dam probably replacements after major flood in 1889 severely damaged this area.

(0-1) The lock entrance, built by O.H. Dibble, contractor, finished in 1831, from the Potomac River to the Rock Creek basin was 15' in width with masonry walls of 11' on the up-river side and 12' on the down. This lock was a total of 143'-11" long between gate pockets with double gates at each end. The lock walls are in relatively good condition, but the lock itself is well silted over.

(0-4) The earth mole remains.

(0-1) The lock walls have been repaired many times and little remains of the original fabric.

(0-2) Nothing is left of the original dam.

* Designation number, in which 0 = Tide Lock LEVEL, and 1 = first structure at that level. Each lock becomes an additive to the LEVEL.

- 0.01 (0-5) Rock Creek Basin: Within 60' after having passed through the tide lock, a 90° turn is made to enter Rock Creek Basin. The mole on the Rock Creek side was 842' in length by 160' wide except at the city (Georgetown), where it narrows to 80'. The interior of the boat basin on both sides was walled for a total length of 4,500' and enclosed an area of 8½ acres, thus, an enclosed portion of nearly ½ mile in length with a width of 100'. Little remains of the basin. Encroaching buildings have cut its width to little more than a narrow channel flowing along the mole side.
- 0.35 (0-6) Beginning of Towpath on Berm: The towpath wall now extends 24', but in mostly new work. It is believed it originally extended 10½' on the line of the lock, then turned 180° on a 5½' radius. The berm side towpath originally extended from Lock No. 1 to 34th Street, then later on to Alexandria Aqueduct.
- 0.38 (1-1) Lock No. 1, Georgetown: After following Rock Creek towards "M" Street, almost under the present Rock Creek freeway, the canal makes a 90° turn to the left, leaving the Rock Creek Channel, and the canal was dug for the remainder of its 184-mile length. A few hundred yards from this turn, Lock No. 1 was built. Lift 8', completed in 1830, built by contractor Dibble, Beaumont, and McCord. The lock measures 91'-4½" between gate pockets that are 16" deep and 10'-2½" wide. The lock continues approximately 10½' beyond each pocket. The lock is the normal 15' width. At the end of the extension of the lock, wall width is added by a 180° turn at a 5½' radius. The lock has been often repaired but some of the walls are intact. The lock is much silted over. Although originally planned for, no lock houses were built in the Georgetown area.
- 0.41 (1-2) Side Pond - (1-3) Boat Basin: The side pond on the immediate up-stream side of Lock No. 1 admitted water with a 15'-3" entrance, but with water of only 3' at entrance. Use unrecorded. The boat basin is approximately 100' by 46' in width. Walls are of native rubble stone on both sides from Lock No. 1 to No. 2. Though many times repaired, the walls are intact currently. The boat basin and side pond are well silted in. Unloading of the canal boats took place on the south side usually. Snubbing posts (wood posts for boat tie-up purposes) were along this wall and close to most lock entrances. Basin walls are in fair repair.

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MILEAGE

0.42 (1-4) Bridge over Lock No. 2 at 29th Street: (formerly Green Street). The 1830's bridge was originally a low arched stone bridge. Replaced in 1867 with a higher iron span, and in the early 1900's by concrete span with steel hand-rails. It was here that the towpath was continued on the berm side and the cross-over to the river side was just above the Alexandria Aqueduct.

Four Georgetown Locks Repaired by CCC in 1938-1939
Period of the Canal

0.42 (2-1) Lock No. 2: 8' lift, completed in 1830, built by contractor, Dibble, Beaumont, and McCord. 0.04 mile above Lock No. 1, and 0.97 mile below Lock No. 3, located between "K" & "M" Streets on 29th Street in Georgetown. Lock was 15' in width and 90' between gate pockets with 46' wide basin on up, (120' long), and down, (100' long), ends of Lock. Lock built of Aquia Creek Freestone, but many repair jobs have included from concrete to granite. Wood gates at up and down ends of Lock are attempted replicas of the originals. The lock walls are good condition with joint, excellently repointed probably by CCC workers in 1939.

0.49 (3-1) Lock No. 3 - (3-2) 30th Street Bridge: 8' lift, completed in 1830, built by contractor Dibble, Beaumont, and McCord. Construction similar to Lock No. 2, and with 90' between gate pockets. Built of aquia freestone. The four locks in Georgetown are approximately a city block apart. (3-2) The lower lock extension walls carry the abutments for the bridge over the lock at 39th Street. It was only this bridge that connected Georgetown directly to the mole wharf. The original low arched stone bridge became an iron span in 1867 replacement. There are boat basins above and below the locks with dry rubble walls, much repaired, in contrast to the carefully cut stone used in the locks.

0.54 (4-1) Lock No. 4 and (4-2) Bridge: 8' lift, completed in 1830, built by firm of Dibble, Beaumont, and McCord. Located 0.05 mile above Lock #3, and 4.48 miles below Lock No. 5 and under T. Jefferson Street, south of "M" and north of "K" Street. Width of Lock, 15' and 89'-10" between lock gate pockets. Construction, similar to previous locks, of carefully cut Aquia Creek Freestone walls, with wood timbers and T & G board bottom. Some bottom is intact and the walls, though repaired, are in fair condition. Bottom remains damp and is somewhat silted in. (4-2) The bridge is at the lower extension wall of the lock and was originally a 15' wide, stone arched bridge, similar to the

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previous bridge. Finished in 1831 by firm of D.B. & McCord. The top of the arch was so low that at time unloaded boats had difficulties in passing under. In 1867 the stone bridge was raised, abutments raised, and an iron bridge replacement was made. Lower portion of bridge abutments is original circa 1830 construction.

0.55 (4-2) The Jefferson Street Bridge: Single, low arch construction of stone, finished in 1830. Replaced with raised iron span in 1867. Portion of original abutments remain.

0.59 (4-3) Congress Street Bridge (31st Street): Originally built in 1830 by firm of Dibble, Beaumont, and McCord of cut stone, span of 40', low, stone arch over the canal. Replaced in 1867 with iron spans with a row of pipe piers plus mid-canal as a bridge support. Portions of original abutments remain. 1867 pier remains mid-canal, and is topped by 20th-century concrete bridge with open railing.

0.61 (4-4) Water Intake: About 80' above 31st Street bridge on berm side of canal, approximately 8' high by 7' width. Now blocked off by stone wall 30" back from canal face and topped off with thin concrete slab. Time of change is indefinite.

0.68 (4-5) Wisconsin Avenue Bridge: Built in 1831 and only intact bridge of the period in the Georgetown area. Built of finished Aquia Creek Freestone in a gentle arch approximately 20' high above towpath and spanning 54', towpath and canal. Contains inscribed keystone on both faces, listing U.S. President, Canal Company president, and other dignitaries. keystones are badly deteriorated. Wrought iron, simple railing on upper sides of bridge. Repair is good, but needs careful cleaning and some repointing.

(4-6) Commemorative Marble Obelisk: Located at the level of the Wisconsin Street Bridge and at its northwest corner. Placed in 1850. Total monument is approximately 8' high, consisting of a 4' square base with inscription, and the remainder an obelisk. The inscription reads:

"Chesapeake and Ohio Canal
Commenced at Georgetown, July 4,
1828
Chief Engineer, Benjamin Wright
Completed to Cumberland
Oct'r 10th, 1850
Chief Engineer
Charles B. Fiske"

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- 0.80 (4-7) Potomac Street Bridge: early wood bridges carried traffic over East and West Potomac Streets. Only a post 1890 metal footbridge remains at East Potomac Street.
- 0.81 (4-8) Wilkins-Rogers Milling Company-Post 1900 Intake: Perpendicular to the Canal a trench was dug to divert some of the canal water to the mill for running the water wheels for power. Water was rented by the inch. This became a source of unending revenue to the Canal Company. Concrete faced intake remains, and in fair condition. Mill is extant.
- 0.84 (4-9) Footbridge at 33rd Street: A wooden bridge was built in 1831 to cross the Canal at the street whose name has been "Duck Lane", then "Market Street", now 33rd Street. The bridge spanned the canal and towpath. The steel span that exists today is circa 1870 replacement and is still only for pedestrians and cyclists.
- (4-10) 34th Street Bridge: Originally a wooden bridge. Was there that the towpath crossed from berm to river side until 1856. In 1856 the towpath was continued on the berm side to the Alexandria Aqueduct. The existing steel bridge is a circa 1900 replacement.
- 0.98 (4-11) Wilkins-Rogers Milling Company Dual Water Intake: Adjacent intakes, separated by approximately 12" concrete pier on south bank of canal. Is immediately adjacent to the down stream side of the current F.S.Key Bridge. This mill is not represented in the Canal Company's annual report up to the 1900 report, so is post 1900 construction.
- 1.07 (4-12) Alexandria Aqueduct: Built between 1833 and 1843 to carry canal traffic over the Potomac to Alexandria, Virginia. During the Civil War, the canal was drained and the aqueduct became only a bridge. After the war, repair was made and the canal was reinstated. The Aqueduct was bought by the Federal Government in 1887 and was converted into a bridge. Continued in use until 1923. Only remaining original structure is the Georgetown abutment of 2 arches (and one of these was raised to accommodate trains, and although faced in probably original stone, the interior of the raised portion was of concrete) and a stone pier on the Virginia side. A small portion of cast iron fencing lines the down-stream side of the Georgetown Aqueduct abutment and with its supports, is original.

Large stone arches formed the abutments in Georgetown and on the Virginia side. Large stone piers in the Potomac

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carried a wood canal trunk and towpath. Was rebuilt several times and under government ownership, wood was replaced with iron bridge.

- 1.09 (4-13) Towpath Crossover Bridge: Circa 1856. The towpath originally had been on the berm side of the canal to the 34th Street Bridge, where a bridge crossed the canal and path continued on the river side. In 1856 the use of the 34th Street Bridge was discontinued and the towpath remained on the berm side to a new bridge built just up-canal from the Alexandria Aqueduct. This moved the tow animals to the river side from this point to Cumberland. A stone ramp remains on the berm side only and was probably the approach to the bridge. Nothing remains of the bridge on its river side approach.
- 1.48 (4-14) Foundry Branch Road Culvert: Built circa 1830. Stone faced outflow culvert with a 22' span and 10' rise. Built to serve as access road to Foxhall Foundry, whose ruins lie adjacent to the towpath in the immediate vicinity. Fair repair.
- 1.51 (4-15) Spillway and Footbridge at Foxhall Road: The towpath at this location was depressed to the top of the six foot level of water in the canal, allowing excess water in the canal a natural escape on the river side of the canal. A wood bridge was constructed at the outer edge of the towpath over the depression allowing pedestrians to cross dry shod while the animals on the canal side of the towpath walked often in the water. Built circa 1835. Spillway has been concreted over to halt erosion and existing wood bridge is one of many replacements.
- 1.52 (4-16) Wasteweirs No. 1, and (4-17) No. 2: No. 1 circa 1830, (4-17) No. 2 circa 1890. Just above the spillway is (4-16) Wasteweer No. 1, now filled in with earth; (4-17) Wasteweer No. 2 is approximately 100' above No. 1, and each of the three openings is equipt with a screw type lift gate. Both weirs are collected into a concrete culvert which passes under the circa 1900 railroad. Both weirs were constructed of stone with rectangular openings. Condition of each is fair.
- 2.26 (4-18) Georgetown Canal Incline: Finished in 1876. The early 1870 period of the canal was its peak of prosperity, and barge congestion in the lower end of the canal resulted. To relieve this congestion, an incline was built between the Canal and the Potomac, a distance of 600'+. This would allow the barges to discharge their goods on the

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river front wharfs of Georgetown and Washington. A caisson 113' long by 17' wide by 8' deep, that ran on rails on a 1 to 10 pitch, was backed up to a gate in the canal, barge and water flowed into the caisson, and by steel cable through pullies was let down to a gate on the Potomac edge, which, when opened, allowed the barge and water to flow out into the river. The Potomac Valley flood of 1889 washed away most of the incline, as well as doing vast damage to the canal itself and the river edge. By this time the peak of use of the canal had passed, and the need of the incline was over. It was not repaired and replaced. The tow path side of the canal was earth filled, the river side silted in, and only some stone work close to the tow path remains.

- 3.13 (4-19) Abner Cloud House: Abner Cloud purchased the river front farm land in 1795 and built his stone house in 1801. The 28'-9" by 30'-6" house is two storey with a fully exposed basement on the river front, and a wide chimney on the up river side for two fire places a floor for the three floors. The front to back hall occupies the full down river end of the house. The house has been unoccupied for many years and has fallen in disrepair. The exterior is being restored in the summer of 1976 with the interior reconstructed for adaptive use.* *Restoration completed 1978.
- 3.18 (4-20) Battery Kemble Culvert: Circa 1830, six foot wide stone culvert with barrel of 3' radius. The inflow stone face is exposed and in fair repair. The outflow side is joined by a concrete continuation that was added post 1900 when the rail road was built on the tow path side of the canal.
- 3.21 (4-21) Road Culvert at Fletcher's: Stone culvert, circa 1830, of 14' width covered by an arch with 9½' rise. Concrete extension added in early 1900s when rail road was built on the tow path side. Edes Mill, an early mill using the river water for power, plus a long established commercial fishery center made traffic heavy over to the river and access necessary. The current Fletchers Boat House is a continuation of early boat renting in the area. Only partial foundations remain of Edes Mill. The inflow stone face needs some repointing and is in fair shape, the outflow concrete is in good condition.
- 3.23 (4-22) Wasteweir No. 3: A concrete replacement or repair of an earlier stone dual openings closed by wicket gates probably to provide water for power of Edes Mill. Faces wall through the tow path bank.
- 3.64 (4.23) Railroad Bridge: Built about 1906. The B & O spur to Georgetown crossed from the river side of the canal to the inland side on its way down to D.C. Canal Road and Arizona Ave. intersection. Concrete abutments carry the metal bridge over the canal with a clearance of 13½' above tow path.
- 3.86 (4-24) Chain Bridge Spillway No. 2: Spillway, c.1830, is 354' in length, the longest on the canal. Tow path bank was depressed 2', the level of the canal water, to allow excess water to spill off and drain back down to the river. Regularly spaced wood posts carried a narrow wood foot bridge for the mule tender across the depressed area.

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Originally stone faced, this spillway was given a concrete overlay in 1936 to repair flood damage, and was reconstructed in 1973.

4.17 (4-25) Chain Bridge: Original covered wooden bridge, spanning the Potomac, was built in 1797. In 1808 the bridge was rebuilt and became a suspension bridge hung on heavy chains attached to high stone abutments on the river banks. Upon building the canal, a wooden bridge spanning the canal and towpath was constructed as the approach to the Chain Bridge. The current steel bridge is a modern replacement.

5.00 (4-26) Inlet Gates, Little Falls Skirting Canal: Finished in 1832. The inlet gates allowed additional water to flow into the canal to maintain the seven foot depth of water that was used from this point to Rock Creek and the Tide Lock. A portion of the build-up of water caused by the dam at the top of Little Falls, (at 5.64 miles), was channeled off to supply needed water at this point. This channel utilized the circa 1800 canal dug by the Potomac Company to pass Little Falls. This area is a flood plain and has required constant repair. A great amount of concrete work put in by the Canal Company in the late 1800's was replaced by the Canal Company receivers in 1936. Further repair was made by the CCC in 1938-1942. Gates at the dam, the inlet canal, gates at the towpath side, are Canal Company receivers or CCC replacements, and although in good repair, contain little fabric of the original work. A wood cross-over bridge passes over the inlet channel. The bridge is a modern replacement of earlier wood bridges required by the towpath users to cross this skirting canal.

5.02 (5-1) Lock No. 5: Finished in 1830, built by A. Knapp & Co. contractors. Eight foot rise. Built of Aquia Freestone. One hundred-one feet, five inches between lock pockets which are 17" deep x 10' in length. This area is subject to flood damage requiring frequent repair. The upper gates, extension, and wings were elevated 5' in concrete post 1942 by the Park Service starting approximately 25' before the upper end of the lock. Major repairs (usually in concrete) were done by the Canal Company receivers in 1936 and by the CCC in the 1938 to 1942 period.
(5-2) A Bypass Flume starting 100' above the head of the lock, parallel to the lock, and discharging just below the lower end of the lock, was made unoperative by the 5' concrete elevation addition. Water overflow was then provided by an underground 24" diameter cast concrete pipe from above the lock to just below the lower end of

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the lock. The gray granite work of the lock and wingwalls is original, but additions and repairs have been made in concrete and are 25 to 75 years old. All lock gates and hardware are modern.

- 5.40 (6-1) Lock No. 6: Lock is 0.38 mile above Lock No. 5 and 1.6 miles below Lock No. 7. Built by A. Knapp and Company, finished in 1830, 8' rise, 90'-8" between lock pockets. Lower lock pocket is typical, upper has been extended to 20'-6½" length, thereby shortening the upper lock extension wall. This was probably done for the installation of a drop gate, which replaced the swinging gates, in the 1875 period. Original stone was a grayish tan sandstone backed by rubble of local granite. Lock is in flood plain requiring frequent repair. Recent floods of 1936, 1942, and 1972 have caused major damage, and repair has been made usually in concrete. Gates and hardware are modern.
- (6-2) The Bypass Flume: built at the same time as the lock, consists of a concrete head wall with stop plank slots built approximately 40' above the lock. The flume is a dry laid stone ditch on the berm side of the lock, discharging about on a line with the lower wingwalls of the lock.
- 5.40 (6-3) Lockhouse: on berm side of Lock No. 6, a man-made island location as the flume passes on the land side of the house. Built in 1830 by A. Knapp and Company of typical stone, (exterior white washed), with full basement. Structure destroyed by flood in 1847, rebuilt in 1848. The basement walls to the south are extended out 6', thereby providing the base for a wood floor porch off the main floor and a covered entrance to the basement. Has been restored and interior renovated, condition is good, house is occupied.
- 5.64 (6-4) Dam No. 1 (Little Falls): In 1750 a 5'-high loose rock dam was placed above Little Falls from the Maryland shore to Snake Island then onto the Virginia shore. In 1828 Dibble, Beaumont, and McCord were awarded the contract to rebuilt a dam, in the same location, for the Canal Company. After a year of construction the dam was incomplete and the contract was terminated. A group of contractors, plus Canal Company employees finished the dam, carrying it to the Virginia shore in 1832. This dam was to divert water from the Potomac to provide sufficient water for the canal from this location down to the tide locks. The dam has suffered extensive damage in each major flood and little remains except for piles of rubbish.

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- 5.74 (6-5) Culvert No. 2: Built in 1830. Stone headwall on river side and berm side with 8' to 12' wingwalls extending out at an angle of 26°. Arched opening of 6' span, under towpath, canal, and berm. Distance from arch keystone to upper canal wall of 10'. Converted to drop inlet with iron grate when parkway was constructed on the berm side of canal. Trash and leaves fill grating and so require constant maintenance (unprovided).
- 5.78 (No number as complex has nothing to do with C & O Canal) Little Falls Dam and Pumping Station: A modern (1959) pumping station has been built on either side of the canal with a bridge connecting link over the Canal and towpath. A new concrete dam spanning the Potomac has been constructed just above historic Dam No. 1 to provide part of the D.C. water supply. Dam and pumping station are unavoidable intrusions on the historic scene.
- 7.00 (7-1) Lock No. 7: Fenton and Borsteder, contractors, finished construction of lock in 1830. Walls of gray granite with coping of Aquia Creek Freestone. Fine workmanship and construction has resulted in this lock being quite intact. Some repointing is necessary below the water level. Company records state that Lock No. 5, No. 6, and No. 7 were extended 10' to accommodate larger barges. The extension was made by removal of the breast wall and rebuilding of the lock walls up-canal from that point to a lower uniform level. Just above the upper lock pocket the wood platform was built on which rested the drop gate. The mechanism and the drop gate for this lock is in place with the heavy timber platform under the gate that houses machinery and makes the change of level for the lock. Other levers and machinery for the drop gate are on the berm lock wall.
- (7-2) Bypass Flume: for Lock No. 7 starts approximately 50' from the bottom end of the lock. Water enters the flume through the upper berm wingwall and becomes a wide rubble ditch passing behind the lockhouse. The re-entrance to the lower canal is through a much eroded lower berm wingwall. Any former construction has washed away.
- (7-3) Lockhouse No. 7 (No. 5 historically): Typical stone house, built in 1829 by James O'Brian, Contractor. A porch with shed roof runs across the entire upstream end of the house and is of unknown vintage. It is located on man-made island formed by berm side of canal and by bypass flume. Full basement. The George Washington Memorial Parkway runs within 100' of the rear of the house. Two dormers rear, one front has been added in the ½-story

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roof, in 1936, when due to flood damage, much rebuilding was necessary. House is in good condition.

7.10 (7-4) Lock No. 7 Wasteweir: A screw type lift gate, between concrete cross-towpath walls 5'-4" apart, allows drainage of water to 4' diameter culvert pipe under the towpath. This discharges into a concrete ditch. Built in early 1900's.

8.33 (8-1) Lock No. 8: 8' lift. A. Knapp and Company, original contractor, finished by others in 1830. Lock No. 8 is lowest of a series of 7 locks (known collectively as "Seven Locks") within a distance of 1 1/4 miles. Built of red sandstone from Seneca quarry. The distance between lock pockets is 90'-6". The lock has often been repaired and cement, brick, and granite has been substituted for original sandstone. Both upper and lower gates (modern replacements) have wicket gates near their bottoms to allow water passage. (The footbridge just above the upper lock gates is modern.)

The canal above this lock is about 100' wide for some distance, possibly serving as a boat basin.

(8-2) Bypass Flume: From the upper lock extension a flume with riprap floor, approximately 8' wide, with dry laid sloping stone walls of 3' to 4' height. The flume arcs round on the berm side forming an island on which the lock house is placed. Outlet widens as it re-enters the canal just below the lock.

(8-3) Lockhouse No. 8, (No. 6 historically): Typical stone house set 60' back from berm side of upper lock pocket. Built by James O'Brian in 1830. Full basement. Modern additions of 1 dormer front, 2 rear, and small covered porch covering rear door. Repair is good.

8.40 (8-4) Culvert #9: Culvert running under canal with stone walls on exterior faces of berm and towpath. The culvert is 4' wide with a 2' diameter arch ring of granite.

8.67 (8-5) Culvert #10: Similar to above but of 6' width and 3' diameter arch ring.

8.70 (9-1) Lock No. 9: 8' lift. W.W. Fenlon and Company, contractor, finished in 1830. Built of granite (from quarry near by Lock No. 7) with Aquia Freestone coping. Original cement mortar gave way to leaks immediately and requiring careful repointing. Original swinging gates in upper end replaced by drop gate, in the 1875 period, approximately 10' above location of original gates, thereby increasing

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the lock length to 101'-8". This increase was planned in the period of maximum prosperity of the canal so that larger and more heavily laden boats could be accommodated. Only a few of the locks were changed before the panic of the mid-70's caused a major loss of shipping. The lock walls have been often repaired using granite, sandstone, and concrete. The upper end of the lock and approximately 16' of the walls below the drop gate is in need of replacing stones, repointing, and realignment. The 12' rock filled wood cribbing each side at the upper end of the canal is a 1939 replacement. Drop gate and mechanism for lowering is in place, a 1934 restoration.

- (9-2) Lock No. 9 Bypass Flume: Inlet is approximately 10' upstream from the upper lock breast wall, a 3' deep ditch, 5' to 6' in width and lined with native rubble stone. Built in 1830. It runs parallel to the canal approximately 36' from the berm side. It discharges over a lowered 9' section of berm wingwall (now capped with concrete) into the canal.

- 8.77 (9-3) Lock No. 10 Lockhouse (No. 7 historically): Typical stone house with full basement. Built by J.W. Maynard in 1830. Located 100' down from Lock No. 10 and served both Locks No. 9 and No. 10. Dormers, covered stoop over door facing the canal, and porch across upper end of house are later additions. House is refurbished and in good condition. It is occupied as living quarters.

- 8.79 (10-1) Lock No. 10: 8' lift. Started in 1828 by Kavenaugh, Knox, Hale, and Nichols, contractors, finished by Douglas and Small, contractors, in 1830. Built of gray granite and the areas that were not rebuilt have lasted well. Originally the distance between lock gate pockets was standard, but circa 1875 a drop gate was installed forward of the upper lock gate, thereby giving a dimension of 101' between gate pockets. The circa 1875 work, in almost all cases, was poorly done and the usual 10' rebuilding to the lock upper end shows much deterioration. The rock filled wood cribbage that channeled the barge, at the upper end, to the drop gate were about 12' in length and consisted of a partial triangle 3' to 4' wide on the upper end and 5' to 7' wide close at the wingwalls. Those that currently survive are C.C.C. or modern replacements. Lock No. 10 needs resetting, replacement, repair, and repointing soon over an area of 19' on the upper end of the lock. Drop gate and mechanism for lowering is in place, a 1930 restoration.

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- (10-2) Lock No. 10 Bypass Flume: The current concrete floored and walled flume is a post 1875 replacement of what was probably a dry wall stone flume. The ditch is approximately parallel to the lock and re-enters the canal about 50' from the lower end of the lock. The bridge over the flume and the lock is a modern structure used for maintenance in this general area.
- 8.93 (10-3) Rock Run Culvert: Built in 1830. Built on an angle (under the berm, canal, and towpath) approximately 152' in length. The 12'-6" wide barrel arch, with rise of 5'-6", is horizontal. The side walls of the culvert taper from 8' high and the outflow to 5' at the inflow. The outflow wall is of gray sandstone and the inflow of red sandstone. The outflow wall runs for an extensive distance, due to the flood plain of Rock Run and is buttressed. The culvert needs much repair.
- 8.97 (11-1) Lock No. 11: 8' lift. Finished in 1830 by Kavenaugh, Knox, Hale, and Nichols, contractors. Built of rubble granite and faced with Seneca Freestone set in mortar rather than grout. The towpath wall has nearly 10% replacement of several kinds of stone, some cement, and brick. The berm wall has only about 4% replacement. The berm wall coping is out of line 1" to 2", probably due to dense vegetation behind, and the towpath wall has tilt and distortion. The length is typical, as are the upper and lower swing gates. Vegetation needs to be cleared away. The tilt of the wall needs arresting, and repointing is also needed. Existing lock gates are post 1930 restorations.
- (11-2) Lock No. 11 Bypass Flume: The flume is about 16' from the berm wall and parallel to. The outlet above the canal leads into a low walled ditch 6' wide of stone, with sloping low rubble stone side walls. These walls have been recently laid in mortar. The flume terminates about 8' below the lower berm wingwall in a nicely done tumble, (rocks laid to create a "falls" effect to diminish erosion).
- (11-3) Lock No. 11 Lockhouse¹¹ (No. 8 historically): Built in 1830, 42' from towpath and in line with the upper gate pocket. Typical stone construction with full basement. Little evidence of reconstruction, but in fair condition. Unoccupied.
- 9.00 (11-4) 9 Mile Marker: Original mile marker at side of towpath.
- 9.29 (12-1) Lock No. 12: 8' lift. Fenton and Borsteder, contractors, finished the lock in 1830. Built of gray granite with dark red sandstone coping. One-third of coping has been replaced with granite. In the 1875 period the lock was extended by 10' by removal of the upper breast walls. The walls were rebuilt to full depth and the original gate

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pockets obliterated. A new drop gate and mechanism was installed up ten feet from the formerly located swing gates, making the lock 100'-11" long. Both upper drop gate, and lower swinging gates are Park Service replacements, using original, serviceable hardware, plus necessary replacements. Wooden gates are a close approximation of originals. The pedestrian bridge spanning the lock midway is modern. The upper approach to the drop gate is formed on either side with rock filled wood cribbage extending approximately 14' up from the wingwalls with a wider mouth that tapers to the width of the drop gate. The 1875 construction was poor and needs repair of stone work, resetting and repointing. A noticeable bulge in the first 30' from the upper end of the towpath side of the lock needs to be corrected.

(12-2) Lock No. 12, Bypass Flume: Original construction of lock included a masonry bypass culvert, with wicket gates, in the lower portion of the upper lock pockets, as is evidenced by breather holes in the coping above the bypass opening. The culvert was difficult to keep clear and maintain. When the culvert filled with debris, a flume consisting of a shallow ditch with sloping side walls of dry laid rock, was installed. The flume commenced above the upper drop gate, water controlled by a stop plank gate, describes an arch around the lock and re-enters the canal approximately 40' below the lower lock gate pocket over a natural outcropping of stone tumble. Records do not state when the flume was constructed.

9.37 (13-1) Lock No. 13: 8' lift. Finished by Wood and Kendall, contractors in 1830, of granite with Seneca Freestone coping. The distance is 94'-4" between typical lock pockets containing upper and lower swing gates. Many of the locks were built with culverts above the upper gates and re-entered just below, (some have been filled in with stone facing and their location is obscure), but Lock No. 13 was specifically built with no culverts. A contemporary wood pedestrian bridge crosses the canal about 20' below the upper gate pocket. The Washington Beltway crosses over the lower end of the lock walls and the early lockhouse, shown in a 1942 photograph, was obliterated in construction of the super highway. Lock gates are Service constructed replicas utilizing original hardware that was serviceable. Some stones in the lock need to be reset and some repointing is necessary, but in general the lock is in good condition.

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- (13-2) Lock #13 Bypass Flume: Starting slightly above the lock, on the berm side and controlled by lift plank gate, a flume consisting of low dry wall, stone, sloping walls with about a 6' riprap bottom, provides for water passage that terminates just below the lower portion of the lock in an extended rock tumble. Probably installed originally with the building of the lock, the flume has been rebuilt several times.
- 9.47 (14-1) Lock #14: 8' lift. Also built by Wood and Kendall, contractors, the lock was finished in 1830. 1871-2 Canal Company reports state that Locks #14 & #15 were completely rebuilt during that period, due to side wall failures. Lock #14 is a little over 500' above #13. Built of granite, with rebuilding using the original stone and replacements only as necessary. The distance between lock gate pockets is 93'-4½". The original low culverts around the upper lock gates were retained in the 1871-2 rebuilding and have survived with their cast iron wicket gates still operable through a stem let through the coping stone. The culvert survival is unusual. Their maintenance was difficult and most were walled off early enough so that the weathering of their closure is not distinguishable from the surrounding stone. Wickets were added in the bottom of the lock gates to allow the passage of water in lieu or in addition to the culverts. The lock is in good shape with repointing necessary, especially below the water line. The lock gates are Service restorations. Surviving hardware has been used when available. Lock #14 is the last of the closely spaced locks known "Seven Locks", in which the water level increases 56' in a relatively short distance. A photograph, c.1938, shows a 2-story wood house on a masonry foundation of near typical dimensions on the towpath side of the lock, but no evidence remains - apparently a total flood victim.
- (14-2) Bypass Flume: The stone upper berm wing wall has been joined by a continuation in concrete, probably built in the 1930s, with a lift gate entrance to the bypass flume about 10' from the stone. This leads to 36' of earth-covered 30" dia. cast iron pipe, then a wide ditch leads to the outflow over the lower wing wall.
- 9.67 (14-3) Wastew weir: Approximately 1,000" above Lock #14 an outlet for surplus canal water was installed c.1900 through the tow path side. The weir consists of three 3½' openings separated by concrete piers. The two outer openings contain cast iron wicket gates, controlled from above, and the center opening has a slot each side in the concrete for a wood plank lift gate. The two outer sides of the weir are concrete walls from the canal to the river side of the tow path bank, with a concrete slab over, with pipe railing, for use as a tow path bridge. The weir is in fair repair.

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- 9.97 (14-4) Canal Overflow: A map of 1896 indicates two overflows in this vicinity. It is likely that they stemmed back to circa 1830, as it was normal planning to have overflows in areas of heavy runoff, as this area is. The towpath was depressed to the canal water level for a distance of 144 feet. This depression and the slope on the river side of the towpath were covered with native stone riprap, which still exists, but the depression has been filled into normal towpath level with materials of different color, thereby making the fill obvious.
- 10.02 (14-5) Culvert: Arched span of 4' on 4½' high sidewalls. Ring of arch of Seneca Freestone. Head and wingwalls laid in semi-circular plan. Outflow face in fair condition.
- 10.43 (14-6) Road Culvert at Carderock: A granite arched culvert with 6' rise, 11'-9" width at arch spring, battering on each side to bottom 9'-9" width. Side walls are 6' high to spring of arch. Passes under berm, canal, and towpath. Riprap floor of native stone set on edge extending about 20' beyond outflow, but surfaced in 6" to 8" concrete in the 1930's period. Outflow arch ring of shaped granite, inflow of alternating granite and red sandstone. Headwalls are bulging outward due to roots of heavy vegetation above. Both face walls, though intact, are rapidly deteriorating.
- 10.67 (14-7) Canal Overflow: At approximately 1700' above culvert at 10.43, the towpath was depressed for a distance of 132'. A map of 1896 indicates the overflow and it is probably that it was first intalled in the 1830 period. The towpath and river side sloping wall were ripraped with native stone. The dip is currently covered with new fill. ,
- 11.76 (14-8) Culvert No. 17: Built circa 1835 of stone. Spring of arch width 10' with rise of 5'. Only the arch is visible on the outflow side; if there are side walls they are covered. Old road leading away from outflow indicates that this was a wagon passage to the land on the river side of the canal. The culvert inflow is much blocked with debris. A 10' to 12' headwall extends up from the inflow opening for several hundred feet as the creek that the culvert provides drainage for runs along the berm side for this distance. A wingwall extends out for 6' on the down side of the inflow to channel the waterflow into the culvert. The condition of the masonry in the culvert is good, but trash and growth need to be cleared away.

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- 12.26 (14-9) Culvert No. 18: Built circa 1835 of stone. Has span of 8' with an arch rise of 2'-6". Roots are badly bulging headwalls. Both inflow and outflow sides need to be corrected. Much repointing is necessary.
- 12.62 (14-10) Widewater: In the construction of the canal in this area, circa 1830, an old river channel was utilized rather than constructing a new canal from the foot of Lock No. 18 through No. 15. Floods and high water have occurred often enough to create this channel to help carry excess water of the Potomac River. The channel widens to approximately 500' for a length of 3/4 mile and has a depth of 40' and is known as widewater. This area suffered in all floods but major damage was done in the 1936 flood, and again from Hurricane Agnes in 1972. Is now (1976) repaired.
- 13.01 (14-11) Wastew weir: This weir is unique in its placement, being neither in the towpath or berm grades, but rather in a natural ravine between the towpath and the river. The towpath breaks, originally bridged in wood (a C.C.C. concrete replacement remains), to lead into the wide, rocky ravine. About 400' from the bridge the ravine narrows and is blocked by a stone wall with three openings about 3' wide separated by 12" wide concrete piers that help support the drop plank gates that control the release of water from the canal. The weir was reconstructed in the summer of 1975.
- 13.45 (15-1) Lock No. 15: 8' lift. Lock No. 15 is the lower lock of six in a distance of one mile that are known collectively as "Six Locks". Built by A. Knapp, contractor (as were all six) and finished in late 1830. The surfaces of the lock are Seneca Freestone (red sand stone), backed by rubble granite. The lock was built on the west bank of the channel, which is close to 100' in width here and has a bottom elevation lower than that of the canal. The area has frequent storm damages and the lock has suffered, requiring extensive repair. Completely rebuilt in the 1871-1877 period, major repair was done by the Service in 1939-1942 in concrete. Hurricane Agnes caused great damage and the area is at present (1976) under expensive and extensive rebuilding by the Service.
- (15-2) Bypass Flume: the area has suffered so many floods that little remains of the flume. The canal above and below was wide and the lower berm wingwall is a replacement concrete dam from the lower lock to the berm bank. The original wall was stone and wood cribbage.

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- (15-3) Lockhouse: the original typical 1½-story stone house was demolished in the 1889 flood. About 1900 a wood replacement was built, but it was totally demolished by fire. Presently no traces of a house remain.
- 13.63 (16-1) Lock No. 16: 8' lift. Finished by A. Knapp, contractor, in late 1830. Located approximately 950' above Lock No. 15 and in the same overflow channel and subjected to the same storm damage. Facing of Seneca Freestone backed by granite rubble. The lower berm wingwall was extended to the nearby steep cliff at the east of the lock. Originally this extension was of rock filled wood cribbage. In 1939 a concrete replacement was installed with a depressed spillway as a drain for excess water. As the area has been subject to many severe floods, much rebuilding of Lock No. 16 has taken place. Major reconstruction took place in the 1939-1942 period, mainly of concrete. There is a discernable tilt in the lock walls mainly from mid-point to the lower lock pocket. A masonry culvert was built on each side above the upper lock gate, discharging just below the gate. In-take was controlled by operating a lever arm protruding through the coping stone which activated a cast-iron wicket gate for filling the lock. The culvert openings are intact. The 1972 hurricane inflicted severe changes in this lock and area and it is currently, (1976), under repair.
- (16-2) Bypass Flume: This lock and flume are in the old river channel similar to Lock #15. The flume is unusually wide and deep. The former rock and wood cribbage dam extension of the lower berm wingwall that was the outlet of the flume was replaced in the 1930's by a concrete dam of which the mid 25' section in the length of about 50' was lowered as a spillway. Nineteen seventy two storm damages repaired in summer of 1975.
- Lock No. 16
- (16-3) Lockhouse (No. 10 historically): Erected in 1837 on the berm side and near the lower end of the lock to service Locks No. 15 and 16. It is at the base of a steep rise and its elevated full basement gives it the appearance of a 2-story house. It is a typical stone 1½-story lockhouse with fireplaces at each end of the building, two dormers front and back, and a small stoop with a high stairway leading up to the entrance door on the front side facing the canal. Although structurally sound, it is unoccupied and has been vandalized. Windows and all interior fittings are gone. Some repointing of the stone work is required and the roof needs repair.

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- 13.75 (16-4) Stop Gate: Approximately 2,000 feet above Lock No. 16 was erected a stone and earth levee, (on a 1 to 1 slope), to the height 10' above the towpath, running from the cliffs on the east of the berm wall and on the towpath side of the river. An early flood had proven the danger of the company's utilization of this overflow channel of the Potomac. The levee was built to reduce future damage to the canal. Stop gate slots 28' apart were built on the berm and towpath side of the canal and in times of high water, a wood barrier was inserted horizontally into these pockets, closing off entrance of water into the canal and diverting it back to the river. The berm side levee was washed out in the 1936 flood and the eastern 52'-3" was replaced with a buttressed concrete wall, and the remaining 20' was recapped with concrete. The levee terminates of either side of the canal in an 8' wide stone masonry abutment, that rises about 18' above the bottom of the canal. The 2 abutments end with wingwall built at an angle to give additional support. The stop gate slots are built into this abutment. The bridge or winch house above this stop gate, with its lifting machinery for the stop planks is completely gone. Pictures exist of the canal spanning winch house at Lock No. 4, and this one must have been similar; basically a wooden covered bridge resting on the stone abutments on either side of the canal. The stop gate area was damaged in the 1972 hurricane and has been repaired (1976).
- 13.99 (17-1) Lock No. 17: 8' lift. Finished by A. Knapp, contractor, in late 1830. It is a typical lock, and typical of the "six locks". Is built of Seneca Freestone backed by granite rubble. Above the upper lock gate the extension walls and wingwalls have been often repaired. The existing concrete work is from the 1939-1942 period. The upper berm wingwall extends in an earthen dam at an angle of about 20° upstream for some 90' toward the berm bank. The last 14' is modern and of stone and concrete, built to lock height. The center of this dam is depressed as an entrance to a bypass flume, which continues along the bluff to re-enter the canal below the louver berm wingwall. The walls of the lock are mainly original with minor patching and occasional replaced coping stones. It appears that the towpath side was rebuilt at some period for between gate pockets there is a 2" batter built into the face stones. The lock gates are Service built and installed replicas of the originals, utilizing much of the original hardware. In a short distance below the lock, the canal had deepened to about 30', the level of the bed of the old river channel. The towpath is built up of dry laid stone with a river side batter of 1' in 6' and has a low side

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wall. The stone-work in the upper lock pocket and for 20' below needs repointing. Otherwise the lock is in fair shape. A frame lockhouse for No. 17, built circa 1890, has completely disappeared.

- 14.09 (18-1) Lock No. 18: 8' lift. Finished in late 1830 by A. Knapp, contractor. A typical lock of Seneca Freestone. Locks No. 18, No. 19, and No. 20 are in the immediate vicinity of the Great Falls area of the Potomac River. It is a rocky area and the river is divided up into several channels due to large natural rock outcroppings. The eastern channel runs along side the battered built up stone dry wall that bounds the towpath of the canal. In times of flood, the towpath has washed out and the canal has become a channel for the river. It was this face that led to the construction of the stop gate above Lock No. 16. The canal between Locks No. 17 and No. 18 is approximately 100' wide and is the bed of an old river channel confined by the towpath wall. The gates, circa 1939, are Service-made replicas of the originals, using intact hardware. The lock is in good condition. The upper lock gate pocket and extension needs repointing, with occasional repointing below.
- (18-2) Lock No. 18 Bypass Flume: The flume commences in the lock upper wingwall and is of about 10' width, of native stone, dry wall, bottom and sides, parallel to the lock and approximately 20' away from the berm side. It discharges back into the canal in the lower berm wingwall over a natural rock outcropping.
- (18-3) Lockhouse (No. 11, historically): Built of native stone and Seneca Freestone and of typical construction with full basement. Located about at midsection of the lock, berm side. House served Locks No. 17 and No. 18. Completed in 1830, burned circa 1930, and only basement walls and partial walls above remain. Had central chimney with backup fireplaces on main floor.
- 14.17 (19-1) Lock No. 19: 9' lift. Constructed by Fenlon and Borstader, contractors, finished in fall of 1830. This lock is located only about 425' above Lock No. 18, and less than 700' below Lock No. 20, evidence of the rapid fall of the Potomac in the Great Falls area. The lock is typical of the "Six Locks". Minor repair has been made to the lock walls with brick and concrete inserts. Some repointing is needed. Although the walls are plumb, the total wall, berm or towpath, or both, have shifted so that the present lock width is approximately 14'-3", not wide

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enough to take the typical 14'-6" wide barge. The river side of the towpath is riprapped in native stones on a 1 to 2 slope, and this continues up well past Lock No. 20 as the east branch of the Potomac runs along the edge. The lock gates and hardware are modern with only some of the original gate straps being utilized. This lock is generally in good shape.

- (19-2) Lock No. 19 Bypass Flume: The upper berm wingwall is extended with a dry wall, stone wall, which allows the passage of excess water into the flume. There is no stop gate and the elevation of the flume ditch allows all water to pass that is above the normal canal operating level. The rough stone flume is 6' to 10' in width, parallel to the lock, and emerges at the lower berm wingwall over a natural rock outcropping.
- 14.30 (20-1) Lock No. 20: 8' lift. Uppermost of "Six Locks". Built by A. Knapp, contractor, and finished in fall of 1830. Originally built of Seneca Freestone, but replacements, in the many repair jobs, have been of limestone, granite, concrete, and common brick. There is evident tilting in the lock walls as the clear measurement midpoint of the lock is 14'-2". The original bypass flume has disappeared and a modern, covered pipe takes water from the upper wingwall to the lower wingwall. The river side of the towpath is well riprapped, on a batter, to the river's edge. All lock gates and hardware are modern except the early type gate straps that have been utilized. The lock has bypass cast iron wickets in the upper gate pocket leading into a masonry channel which discharges in three openings in the lock for filling the lock. This lock has stop plank slots above the upper lock pocket and use is unknown. This was not the typical lock extension. General repair of the lock is good.
- (20-2) Lockhouse and/or Tavern (Variously known as Great Falls Tavern or Crommelin House): Probable contractor was Fenlon and Borstader, same as for Lock 19. Completed in 1829. Typical stone story-and-a-half house with end wall chimney, except that it was built on flat ground and the basement was little more than crawl space. It was placed mid-lock and approximately 60' back from the berm wall of the lock. In 1831 the Canal Company was convinced that this was the proper location of an Inn and proceeded to authorize the money for its construction and for W.W. Fenlon, the Lockkeeper, to also be the Innkeeper. The roof of the original house was raised and a stone second story was added. A two-story 18' wing with basement was built of brick to the south, butting onto and of the same

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width as the original house. A 2½-story wider wing of brick was butted on the north end of the original structure. The plan of the building now took the form of a "T". The lengthened building became nearly as long as the lock itself. The whole of the roof was covered in shake shingles and there were dormers only in the new north wing roof. The original stone walls and all new walls were covered in a lime and sand plaster, and the north wing, only, was scored to simulate stone. All walls were then painted, an unusual fact for all other canal structures were white-washed. The authorization for the two-story porch on the east side in front of the original structure and a one-story porch across the original structure and the south wing came in 1831, and probably finished in 1832. At some time prior to 1849, the tavern was renamed "Crommelin House" in respect to a Dutchman who was instrumental in effecting Dutch loans to the Company at the period. Various buildings have existed in conjunction with the tavern operations, kitchens, storage rooms, quarter, and private residences, but these are now gone, with the exception of a contemporary wood toilet building, further back from the tavern, for the conveniences of the visitors, a pump house and a Control Gate House, all north of the tavern. About 30' to the rear of the control gate house is a 1½-story, white painted brick building, similar in size to a lockhouse, built c. 1870. The interior houses the machinery for the pumps for the water supply for this area. The building is in fine repair.

Washington Aqueduct Control Gate House: In the mid-1850's the District of Columbia decided to tap the waters above Great Falls for additional water supply for the city. Great Falls Tavern became the center of a construction site. The facilities of the tavern were used and temporary offices and housing was built. The aqueduct for carrying the water was started here. A permanent control building was placed about 90' north and 30' east of the northeast corner of the tavern. This structure is of rusticated red sand stone with trim and corner quoins of smooth cut stone. It is a high one-story building with slate covered Mansard roof in the Victorian French Renaissance manner, with overall dimensions of about 75' (facing the canal) by 40'. The building is in fine condition and was made a National Historic Landmark in 1975. The building and the property on which it sits is under the control of the U.S. Army, Corps of Engineers.

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- 14.33 (20-3) Masonry Spillway: A 70' long depression of the towpath to the normal operating level of water in the canal from the upper towpath wingwall to the wasteweir above. The spillway was stone surfaced and is now filled in with earth to regular towpath level.
- 14.34 (20-4) Wasteweir: At the termination of the spillway is a stone walled weir running under the towpath. This weir is divided into four 2½' wide openings separated by concrete columns. Outflow of water from the canal was controlled by a cast iron wicket gate in each of the four openings activated by a stem, up through a pipe sleeve, to emerge above the towpath level. A concrete slab, or bridge, was added post 1930 spanning the void in the towpath. It is likely that the original columns and bridge were of heavy timbers. The river side of the towpath in this area is a near vertical stone wall that extends 20' below the upper lock pocket of Lock No. 20.
- 15.26 (20-5) Culvert No. 21 (Cool Spring Branch) and
15.85 (20-6) Culvert No. 22 (Sandy Landing): Two arched stone culverts of approximately 8' span leading under the canal from the land side to river side as drainage for natural ravines in the interior land. Both are in poor condition and much overgrown with natural vegetation.
- 16.54 (21-1) Lock No. 21, (Known as Swains Lock and earlier as Oak Spring Lock): 8' lift. Partial construction by Holdsworth and Sherwood, contractors, completed by R. Gosting, contractor, in spring of 1831. Typical lock construction of Seneca Freestone, but with pebble finish. Most face stones are original with minor patching of concrete. There has been movement in lock walls as just above the lower gate pocket and the dimension between walls is 14'-1". Lock built with masonry culvert around upper lock gates, controlled by cast iron wicket gates. About 5' above the upper gate pockets is a stop plank slot on each side, the second instance in locks in this area. The use of such is unknown. The vehicular bridge across the lock walls just below the upper gate pocket is modern with no known original counterpart. Upper and lower lock gates are Service built and installed. Lock needs some repointing but condition generally is good.
- (21-2) Lock No. 21 Bypass Flume: The upper berm wingwall is abutted by a nearly vertical, dry laid rock wall of about 14' in length leading into a concrete section with slotted depressing for a stop plank gate, entrance to the bypass flume. The flume walls and bottom are concrete covered to approximately mid-lock, then an open ditch with stone rip-rap floor and walls 3' to 4' high. The flume terminates over the lower gate wingwall.

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- 16.65 (21-3) Lockhouse No. 21: Typical stone 1½-story house, but no basement, located mid-lock on the berm side and by the bypass flume. After 1889 an addition was made to the upstream end of the house of 14'-6", of same width, roof line, and material, but with the main floor level 1' below that of original. The chimney on the upstream end of the original house was probably enlarged when the addition was butted on to that end, and a small chimney was added to the down stream end of the original building. The house is in good condition and is occupied at present.
- 16.67 (21-4) Wasteweir: A 6' wide concrete weir adjoins the upper towpath wingwall. It is slotted either side for stop planks to control the water level. The concrete is dated 1906. The flow of excess water is caught by a 4' diameter cast iron pipe under the towpath to emerge on the river side of the path. The weir is bridged by a concrete slab with wood rail.
- 16.76 (21-5) Canal Overflow: A 160' long depression of the towpath to operating level of water in the canal, built circa 1830. The surface was stone paved and river side of towpath's sloping retaining wall was covered with stone riprap. The depression was filled by the Service up to towpath level except a short length that still allows excess water to overflow. Originally, spaced wood posts were provided to receive walk planks for a dry crossing by pedestrians, as was the case in other overflows.
- 17.02 (21-6) Mile Post: Bottom third of original stone mile marker. Only the bottom portion with "W.C." remains of original inscription which read "17 MILES TO W.C.".
- 17.74 (21-7) Culvert No. 25 (Known as Watts Branch Culvert): Watts Branch is a winding stream that drains an extensive and varied terrain extending five miles back from the canal. Built of gray Seneca sandstone, 115' long, span of 20' covered by an arch of 10' radius, circa 1830. Outflow in fair condition, but needs repointing. Inflow of upper wingwall mostly gone; lower wingwall more intact but in bad shape. Culvert is much clogged and area overgrown.
- 19.63 (22-1) Lock No. 22 (Known as Pennyfield Lock): 7' lift. Finished by F.C. Cooper, contractor, in spring of 1831. Built of Seneca Freestone of typical length, gate pockets, and extensions. Before 1900 to increase the depth of the lock, bolts were let into the coping stones and wood timbers were laid horizontally to add 8". Circa 1900 the towpath timbers were removed and replaced by 8" of concrete. This lock was built with masonry culverts around

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the upper gates and the original cast iron wicket gates are in place for the letting in of water. The stem for operating of the wicket gates comes up through the coping on the towpath side only. The upper berm wingwall of stone laid with mortar is butted and extended some 40' with a dry laid stone wall to the bypass flume intake. This lock was also built with a stop plank slot in the upper extension walls. They are located 6'-4" above the upper lock pocket, but only the berm slot is complete. The slot on the towpath side occurs only in a few stones giving evidence of rebuilding of this area of wall at some period. Most of the stone in the lock is original, but some replacement is needed. Repointing is needed particularly below the water line. The berm side just above the lower gate pocket has a noticeable bulge that requires correction. The upper and lower gates are Service built and installed with portions of the original hardware. The vehicular bridge mid-lock is modern construction.

(22-2) Lock No. 22 Bypass Flume: Original flume rebuilt by CCC in 1939-1942 period. Entrance in extension of upper berm wingwall and controlled by stop plank gate housed in slots in a depression built into the wall. The flume has a concrete and stone riprap floor of 8' to 10' wide with native rubble stone side walls 4' to 5' high. It re-enters the canal at the lower berm wingwall with a built-up stone tumble. The rush of water in the flume fell 8' in approximately 150' so constant repair was necessary and has resulted in varied construction by the lockkeeper, who was entrusted with its maintenance.

19.64 (22-3) Lockhouse No. 22: Circa 1830, located mid-lock, approximately 40' towards the river from the towpath wall of the lock. Typical 1½-story stone house with full basement. Main floor on long side facing lock has small stone stoop, but elevation on narrow side of house falls away from the lock. House has flush exterior chimney at each end and no first floor end wall windows. Stonework is roughly coursed grayish green shale except for cut Seneca red sandstone door and window lintels and sills. Circa 1900 photograph shows house to be white washed, with narrow three division glass transom over door, and 6 over 6 sash windows. A narrow door yard, full width of house, was bounded by an approximately 3½' high white washed picket fence of uneven width boards with exposed sharply pointed ends. House had shingled roof, but is now covered with metal roofing. Condition of house is good. House is unoccupied.

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19.64 (22-3A) Pennyfield House: L-shaped 2-story frame house estimated to date from 3d quarter of 19th century. Shiplap siding; shutters on windows. Covered porch extends along canal facade and up-canal end of house. Porch roof and gabled roof of house covered with wood shingles. Occupied and in good condition.

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- 19.67 (22-4) Wasteweir: A short distance above upper gate wingwall of Lock No. 22 a concrete wasteweir was constructed circa 1900. It is not known if this is a replacement of an original stone structure. Any evidence of former structure was obliterated by construction of the existing. Weir consists of 3 openings, approximately 3½' wide and separated by 12" wide concrete piers running under towpath and topped by concrete slab with pipe railing canal and river side. Outer sides of weir, both canal and river sides, are buttressed with triangular wingwalls. The outer openings on canal side have cast iron wicket gates controlled by stem up through towpath slab. Mid opening is slotted for modern stop gate. Concrete in good repair, railing is much out of line.
- 20.01 (22-5) Culvert #30, Muddy Branch: Built circa 1835 of Seneca red sandstone. A 16' span with arch of 8' radius running under berm canal and towpath for inland drainage. Due to silting of the drainage, any side walls under the spring of the arch are covered. This carefully laid up culvert was severely damaged in the 1972 hurricane, when the outflow side, the downstream wingwall was washed out as well as a large section of the head wall. On the inflow side, the downstream wingwall collapsed and the upstream partially so. Both sides require repair, re-pointing, and resetting. The top of the arch is exposed in the canal bed. Culvert was restored in the summer of 1975.
- 22.02 (22-6) Historic Milestone: Pre-1850 stone marker approximately 2'6" high, with rounded head. Nicely incised Roman style lettering, inscription reading: 22 Miles to W.C. . Marker back 10' from the towpath on the river side, and now badly worn.
- 22.12 (22-7) Inlet Lock No. 2: The lower towpath 10'-6" extension wall of Lock No. 23 turns 133° on an 18' radius and joins into the lower berm wall of the Inlet Lock. It is probable that the Inlet Lock was built after the completion of Lock No. 23 so as to water the canal from this point down. The contractor is unknown but the specification for the stone work, although still Seneca freestone, was changed from the smooth faced stone the Lock to a rough faced and rough coursed of the Inlet Lock. The Inlet Lock is 88'-5" between Lock gate pockets and 15' wide. The Inlet Lock was elevated approximately 40", no doubt at the same unspecified time as Lock No. 23. The raising of the walls served as a guard lock to protect the lower canal in times of high water. With the completion of this source of water from the Potomac, the Canal was

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opened up from Lock No. 23 to Lock No. 5 in late 1830 until late November freezes came. This was the first operable section of the C & O Canal. In the early spring of 1831 this section was opened up again and through the spring and summer months mile by mile more canal was put in operation. In September of 1831 the canal was open from Lock No. 23 to the Tide Lock in Georgetown. The Inlet Lock is in fair condition, having suffered some damage in the 1972 hurricane. Both pairs of inlet gates are Service installed replicas of original construction. The mule bridge that was required by the interruption of the towpath by the Inlet Lock has not been reinstalled, instead a double plank walkway with handrail has been built atop the gates that adjoin the canal.

- 22.12 (23-1) Lock No. 23 (Violets Lock): 8'-6" lift. Built by Holdsworth and Isherwood, contractors, and completed in late 1830. Typical lock of Seneca freestone. At an unspecified time (no doubt as result of previous flood damage), the upper end of the lock walls was raised 40" by removal of the coping stone, inserting two thick courses of blue-gray limestone, and replacing the red sandstone coping. This raising continued on the berm side down 18½-7" from the upper gate pocket. The upper gate lock pocket was built with a masonry bypass on each side with three outlets into the lock below the pocket. The towpath upper pocket culvert entrance has been stoned in, but the berm side is intact although without the cast iron wicket gate. The lower lock gates have been replaced by the Service with modern replicas of the originals, but there are no upper gates. Dam No. 2 feeds water into the canal immediately below Lock No. 23 and allows the canal to open for traffic in the spring of 1831 from this point down to Georgetown. It was not until 1833 that Dam No. 3 at Harpers Ferry allowed the canal to become operable above Seneca. The upper towpath extension wall and wing-wall are missing face stones as a result of the 1972 storm. Much vegetation is growing out of the lock walls impairing the mortar between stones. The lock is in poor repair. The vehicular bridge, crossing mid lock, is modern. There is no evidence of a bypass flume at Lock No. 23.
*Lock stabilized 1978,

- 22.22 (23-2) Dam No. 2 (Also called Seneca Dam): Contracted for in 1828, finished in 1830. Originally built of stone filled wood cribbing to impound a 6' head of water in the Potomac. Built at a location to take advantage of several islands and rock outcroppings. Post-1900 rebuilding of dam was of stone, and the small portions that remain have been

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concrete capped. Enough of the dam remains on the canal side to create a slack water that is currently used for boating, but this partially impounded water is not sufficient to rewater the canal as the dam did historically from Lock No. 23 to No. 5.

- 22.4 The waste weir at this location was built in 1973, using typical 1900 waste weirs as a guide. Physical evidence in the excavation through the towpath uncovered the fact that originally the area contained a spillway approximately 100' long for excess water drainage.
- 22.80 (24-1) Lock No. 24 (Riley's Lock): 8.5' lift. Holdsworth and Isherwood, contractors, received the contract in 1828, and work was started in 1829. Isherwood dropped from the partnership and Holdsworth finished the lock in late 1831, although the contract price needed to be renegotiated several times due to the depression and rapidly inflated prices in the 1830 period. This lock, constructed of Seneca freestone, is unique in the canal as it butts an aqueduct and provides the rise necessary to carry the barges over the Seneca Creek via that aqueduct. The backing of the face stone is red sandstone quarry rubble with lime mortar. The lock walls measure 90'-4" between an upper lock pocket of 9'-8" and lower of 10'-5", both 16" deep. Upper and lower lock gates are missing. The coping stones are cramped with iron bars and in some instances re cramped indicating movement in the lock walls.
- 22.80 (24-2) Lock No. 24, Lockhouse: Built circa 1831. A typical 1½-story, red sandstone house with full basement, fully exposed on back side away from canal. Built on berm side and inland from lower gate pocket. The house has been carefully repaired but the repair is not historically accurate in much of its detailing. The house is currently used for storage by the Service and is surrounded by a 6' high modern chain link fence.
- 22.81 (24-3) Seneca Aqueduct: The lock and aqueduct become a total structure to allow barges passage over the Seneca Creek via the elevated canal. The aqueduct was finished by Holdsworth in late 1831 and is built of red sandstone facing backed up by unreinforced quarry rubble with lime mortar. The aqueduct overall measurement between extremities of wingwalls is 126'. Two 6'-11" stone piers in the creekbed and abutments on each side support 3 shallow arches, 7'-5" rise, 32'-10" apart. The abutments on each bank are supported by wingwalls 8'-6" wide and 24'-5" long at approximately 45' to the aqueduct and full height including

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the coping stone. A single stone wide stepped wall makes the transition down to the creek bank from the wingwalls. The upstream face of the aqueduct up from the spring of the arch to the coping stone has a noticeable tilt towards upstream. The running water of the canal has worn away the mortar joints, the spring blocks of the piers and abutments have settled, and 1" cracks at the spring near the upstream side of the barrel of the arch become 4" at the crown. These cracks appear old and the spreading has been so gradual that the upstream wall face has tilted as a whole rather than developing multiple joint cracks. This pulling away of the face has weakened the barrel vault and resulted in cracks and missing stones on those interior surfaces. A severe storm in the Seneca Creek basin in September 1971 caused water of flood proportions in the creek although the storm did not spread to the Potomac basin. The water level was above the aqueduct coping stones and the debris carried in the raging creek butted the obstruction until the west arch collapsed leaving only the upstream flume wall above the bed of the canal. This area has been stabilized with steel members, but no restoration has been made. A small section of the original fencing of the towpath side remains on the aqueduct wings, 1" round bars, 8" on center, set into the coping stones, with a 21" height. Every 5th baluster is 43" high. Both heights are surmounted by a 2" tall arrow shaped finial. These balusters support a flat iron railing at 20" and 37" heights. The railing was made in 12' sections and fitted over a 1½" square wrought iron post with a decorative cap and an ornamental brace that extends to the outer face of the aqueduct. The fencing terminated on the towpath wingwalls in a 15" square by 42½" high stone post with ornamental stone cap. Both are in place but the upper wing post lacks the cap.

22.90 (24-4) Seneca Creek Basin: Due to natural low ground near the mouth of Seneca Creek, it became easy to widen the canal to accommodate barge turning and also loading docks for the lock stone quarries. The basin was close to 2,000' long by 500' wide and in operation in the 1835 period. There are several ruins of mills and stone dressing buildings on the berm side of the basin. After the quarries of Seneca were no longer in use after 1900, the basin was no longer necessary. A berm side of the canal was constructed on earth fill to narrow the channel. The former basin became the swampy area that exists today.

23.33 (24-5) Bull Run Culvert (No. 35): Constructed of Seneca red

*(Included in separate Seneca Quarry Register nomination)

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- sandstone, the culvert is 8' wide with the barrel built on a 4' radius, and passing under the berm, canal, and towpath for drainage of Bull Run Creek. Built circa 1832. Total run of culvert is filled in to close to the spring of the arch with rubble and silt. The upper face of the barrel indicates severe leaks from the canal above and requires repair. Outflow end wall is in fair condition. The inflow end wall is in poor condition, needing replacement of stones and regrouting. The run of the culvert requires clearing and drainage to the Potomac needs clearing of overgrowth. *Culvert cleared and stabilized 1978.
- 23.92 (24-6) Beaver Dam Creek Culvert (No. 37): Built circa 1831 of Seneca red sandstone with 10' span covered with arch on 15' radius. Berm side wall face has wingwall on the upper canal side, full height of the berm wall and stepping down to natural grade. Keystone on inland side has slipped down about 3". Wall height above top of arch appears not to be high enough to contain canal of proper water level. Barrel of arch is exposed several spots in the canal bed and a section of one yard square has fallen. The river face wall is much overgrown. Culvert is in poor shape, is much silted in, and needs much repair.
- 26.8 (24-7) Horsepen Branch Culvert (No. 38): Built circa 1831 of Seneca red sandstone with a 10' span with arch on a 5' radius. Silted in on both sides to above arch spring. Potomac side in fair condition. Needs some replacement of stones and total repointing. Inland side is also in fair condition but much overgrown. Roots have eaten many of the joints. Needs clearing and total repointing.
- 28.46 (24-8) Culvert No. 39: Built circa 1831, a small culvert of Seneca red sandstone with a 4' span. Much silted in and in poor condition on each face. Much overgrown.
- 29.35 (24-9) Culvert No. 41: Similar to above but in worse condition. Silt almost covers the culvert.
- 29.86 (24-10) Chisel Branch Culvert (No. 42): Built circa 1831. Ten foot wide Seneca red sandstone culvert with 5' radius arch. Silted in almost to spring of arch, much overgrown with vines and bushes, and in poor condition.
- 30.64 (24-11) Goose Creek River Lock: Virginia extracted from the Canal Company an entrance to the canal across the Potomac from Goose Creek, on the Virginia side, for the loan of some badly needed capital. The channel to the river forms an

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arc with the upper towpath side as a point of radius. The channel then widens to become a turning basin and continues in a reverse curve to a straight run of a double lock, and out to the Potomac. The two adjacent locks provided the raising of the barges a total of 15' which was the difference in elevation between the Potomac and the canal at this point. This river lock served also as a wasteweir for the canal. Circa 1900 the river locks were abandoned and a new concrete wasteweir of four gates was added adjacent to the upstream side of the upper lock gate. The bridge on the towpath crossing the entrance of the river lock into the canal is modern, but it must be replacement of an early bridge, for one would always be needed at this crossing.

- 30.84 (25-1) Lock No. 25 (Edwards Ferry Lock): 8' lift. The original contract for the lock was let to Latterty and Boland, contractors, in 1828, abandoned in 1829, relet to James Stuart, contractor, in 1830, who finished the job in mid-1831. A ferry service had run from Maryland to Virginia across the Potomac, 3/8th of a mile in slack water, since early settling of the area. The ferry service was finally discontinued in 1936. The original lock was of typical construction and dimensions. Bolts and bolt holes in the existing coping indicate the addition, at an unspecified time, of 6" timbers above the coping in the lock to raise the water level by 6". In the 1880's, the period of maximum prosperity of the canal, Locks No. 25 through No. 32 were extended to accommodate the raising or lowering of two barges at a time. In Lock No. 25 the extension was at the down canal end, but in some cases the addition was to the upper end. The added lock walls were of heavy timber wood cribbage, filled with rocks, and sheathed on the lock side by tongue and groove planking, and were similar in length to the existing lock. The existing lock gates near the extension were removed and replaced by a drop gate, mechanically operated on the berm side above, near the extremity of the extension. Little remains of this extension except for piles of stones that once filled the cribs. The upper gate pocket was originally built with openings in the masonry to bypass culverts that discharged water in openings near the bottom of the lock interior. These were concrete covered probably after 1900. There is evidence of movement of the lock walls inward for approximately 15% of the stone has been cut back to relieve a cross-lock dimension that had become too narrow. Lock No. 25 is in poor shape; there are obvious bulges in the walls, several stones need resetting, there is much damaging

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weed growth on the walls, and much repointing is necessary.

- (25-2) Lock No. 25 - Bypass Flume: Stop plank gates inserted in the upper berm wingwall allowed water to enter a 5' dry laid rubble flume that paralleled the lock and let water into the canal over the lower berm extension wall. When the lock was extended, the cribbage that was added resembled a long pier in the canal between the berm lock wall and the outlet of the flume. A portion of flume, about mid-lock, had a 10' long concrete culvert added that was the roadway for the vehicular bridge that spanned the lock mid-section to approach the ferry landing.
- Boat Basin: Immediately above upper extension walls of Lock No. 25, but principally on the berm side, the canal was widened to 150', for 150', to form a mooring place for the barges. Although the area is much overgrown, the outlines of the basin are evident.
- (25-3) Lock No. 25 Lockhouse: Circa 1831, a typical 1½-story lockhouse with the exception that the walls above the full stone basement are of brick. Flush fireplaces at each end. Located ten feet toward the river from the towpath at the upper end of the lock. It is in fair condition and unoccupied. Stabilization and exterior restoration 1978.
- (25-4) Jarboe's Store: A lower end of lock and on the river side of the towpath. Circa 1850, 2-story brick, about 20' x 40', foundation of stone, full basement, with simple gable roof. Poor condition with only foundations, upper brick walls, and roof timbers remaining.
- 30.89 (25-5) Wastew weir: Early 1900 concrete weir of three equal openings and concrete slab top serving towpath. Wicket gates in the openings could release water from the canal when opened. Towpath railing missing.
- (25-6) Culvert No. 43: Within 20' of the above weir and connected by a continuous stone towpath retaining wall. Circa 1831, built of red sandstone with 6' wide barrel and 3'-9" diameter rise. Culvert has a wood plank floor laid on heavy timbers on 3'-4" centers perpendicular to the run. Condition is fair with repointing needed. Barrel of culvert is partially exposed in canal and requires repair.
- 31.94 (25-7) Broad Run Trunk Aqueduct: Was originally constructed of Seneca red sandstone as a double arched aqueduct and finished in the fall of 1832. Each of the two 16' wide arches rested on stone abutments on either side of Broad Run Creek

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and a central pier mid channel. This aqueduct was washed out by a flood in 1846, and was hastily repaired by a wooden trunk over the stream and supported on the repaired remains of the stone abutments so as to put the canal back in operation. This temporary repair lasted until 1856, when it was necessary to rebuild the structure. To span the 28'-8" distance between abutments, a trough was built of 12" x 12" oak timbers. The side walls were 15' apart and 8'-5" high including bottom decking. The butted timbers of both the walls and decking were held together by tie rods, at 36" on centers, through continuous holes drilled in the center of the timbers. The span was further supported by heavy wood timbers, parallel to the creek, on the underside of the trough, that were carried by exposed tie rods anchored into the abutments. Other than for routine repairs, this wood trough seems to have been in use until 1924. A photograph of 1961 shows the under trough wood support with tie rods in place and much of the side walls intact. The bottom decking lasted until the hurricane of 1972, when it was washed away. Currently a modern footbridge spans the creek where, at one time, a bridge must have crossed. The 1972 hurricane did considerable damage to the upstream end of the abutments. The south is partially down. Much repair is needed on this aqueduct and/or culvert.

- 32.93 (25-8) Culvert No. 46: Circa 1831. Culvert of red sandstone, 4' wide, 1½' rise of arch. River and land side walls in fair condition with half of coping stones missing on river side. Repointing needed. Entrance to culvert and culvert badly clogged by debris.
- 33.67 (25-9) Culvert No. 46½: Small culvert, circa 1831, for inland drainage. Built of red sandstone, 2' wide opening with flat lintel, rather than normal arched covering. Falls 20" from inflow to outflow on river side. Fair condition, needing repointing. Both ends much clogged by refuse.
- 33.97 (25-10) Culvert No. 47: Circa 1831, red sandstone culvert of 6' width and arch of 3' radius. Both in and outflow stone faces have wingwalls at approximately 45° from flat surface that are triangular in form. Barrel of culvert is partially exposed in canal bed. Barrel has collapsed in small sections, both at inflow and outflow thereby causing cave-in on berm and towpath.* *Culvert stabilized 1978.
- 34.28 (25-11) Culvert No. 47½: Built circa 1831. Small culvert, of 4'

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- width and 2' radius arch, built of red sandstone. Small barrel cave-ins near outflow. Half of the outflow wall near collapse. Inflow wall partially collapsed. Much debris at inflow and outflow walls. Condition is poor.
- 34.50 (25-12) Culvert No. 48: Similar to above, except outflow side has wingwall extending out approximately 20' on down-canal side. Partial collapsing of upstream side of outflow wall. Inflow wall lacks some coping stone but otherwise is intact. General condition of culvert is fair.
- 34.82 (25-13) Culvert No. 49: Built circa 1831 of red sandstone with 10' opening spanned by low arch of 2½' rise. Triangular wingwalls on both in and outflow sides. Much silted in. The barrel of the culvert is partially exposed in the canal bed due to drainage coming into the canal at 32.43 miles (site of culvert No. 45, which is totally gone) that flows upstream to this location. This drainage has washed out the bed of the canal, exposed the barrel, caused its breeching, and now serves as the drainage outlet to the Potomac both for the immediate area as well as the area surrounding mile 32.43. The inflow and outflow walls are in good condition, but the barrel of the culvert is in need of major repair.* *Repaired 1978.
- 35.03 (25-14) Culvert No. 50: Red sandstone culvert constructed circa 1831. Four foot wide opening with arch cover on 2' radius. On outflow side an unusual architectural treatment is gained by thickening the entire wall on either side of the opening in a buttressed form. Culvert is in better than average condition although inflow opening is severely blocked with discarded household trash.
- 35.47 (25-15) Culvert No. 51: Built circa 1831, this culvert is a complete change from previous construction. Two red sandstone bridges, separated by the width of the canal, were constructed to a height of 1' above the canal water operating level, one of 12' wide for the towpath and one 8' wide for the berm bank. Each bridge was pierced in its lower portion by an opening 9' wide which was covered by a barrel arch on a 4½' radius. Parallel stone wall 9' apart connected the opening of the 2 bridges, and were carried to the height of the spring of the arches. Seven inch by seven inch timbers were butted together, in the direction of the canal flow, and bolted to the low stone walls. To fill the gap left above the wood decking and the inner surface of the stone arches, a wall of 2" planking was made extending from the decking to slightly above the

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crown of the arch. This planking was bolted to the inner face of the towpath and berm bridges. Thus a culvert was achieved crossing under the towpath, canal, and berm that was cheaper and more quickly built than the long stone barrel vaulted culverts that had been built up to this point. Company records indicate that the combined cost of culverts No. 50 and No. 51 was approximately \$4,000, whereas the normal stone culvert with a 10' opening cost more than \$6,000. Nothing remains of the wood portion of the aqueduct, but the stone bridges and connecting stone wall are in good condition.

35.49 (25-16) Bridge at White's Ferry: Growth of population on each side of the Potomac had made commercial crossings of the river possible. At mileage 35.50, a pre-1800 site was established and was known as Conrad's Ferry, changing to White's Ferry after the Civil War. The C & O Canal was dug in this area around 1833. When the canal became a barrier to river front access, culvert No. 49, with its 10' width, could provide passage for wagons when it was carrying little or no drainage. The Company records list Culvert No. 52½ as a viaduct and it was probably another route to the Ferry. However, no traces remain of Culvert No. 52½. By 1865 an all weather approach was deemed necessary and a bridge was built. Large red sandstone abutments were built at the side of the towpath and berm and a wood bridge crossed the canal at sufficient height for animal and barge passage under. Earth ramps led up to the stone abutments. In 1876 a cast iron span replaced the wood bridge. The bridge width is 14', the abutments 20', and bridge clearance above the towpath is 11'. Abutments and iron bridge are in very dilapidated condition. Just upstream from here a section of the canal has been filled in and a road crosses to take traffic to White's Ferry, which still is in operation to take vehicles to the Virginia side of the Potomac.

35.67 (25-17) Culvert No. 52: Circa 1833, 4' opening with arch on 2' radius. Built of red sandstone, of which only the outflow side can be seen. The culvert was abandoned when a road was widened on the berm side of the canal and a 24" diameter pipe culvert, 20' up stream from No. 52, was added under towpath, canal, and berm road bed, probably circa 1900.

35.79 (25-18) Culvert No. 53: Circa 1833, of red sandstone with 4' width and arch of 2' radius. Outflow wall mostly intact, but inflow wall has mostly collapsed. Both sides much silted in with remaining opening blocked by trash and undergrowth.

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- 36.54 (25-19) Culvert No. 54: Circa 1833, culvert was restored in 1973. Built of red sandstone with 6' opening topped by arch of 3' radius.
- 36.93 (25-20) Culvert No. 56: No evidence of original remains. Nineteen fourteen replacement with 3' diameter vitrified clay pipe of 2' sections was installed and covered with concrete. Concrete outflow headwall is intact but inflow appears to be gone and completely covered with debris and undergrowth.
- 38.4 (25.21) Culvert No. 60: Circa 1833. Built of red sandstone with 4' opening covered by 2' radius arch. Both inflow and outflow walls buttressed with stepdown wingwalls. Both walls are intact but need repointing. Top of barrel bulged about 30' in from inflow with washout reflected in canal bed above. Attention is needed to prevent collapse of this section of the barrel vault.
- 38.72 (25-22) Culvert No. 63: Circa 1833. Built of red sandstone with 4' opening covered by arch of 2' radius. Barrel of arch seems intact. In and outflow walls in fair shape with some repointing needed. Drainage bed and culvert much silted in.
- 39.17 (25-23) Wasteweir: Built of concrete, circa 1900, and if a replacement of an earlier, no evidence of previous construction remains. A sizeable creek, drainage for inland valleys, discharges into the canal directly opposite to this wasteweir on the towpath side. Weir consists of 3 openings, approximately 31" wide, separated by 12" concrete piers, and spanned at towpath level by concrete slab. The two outer openings were controlled by cast iron wicket gates and the center piers are slotted to receive wood stop planks. Condition is fair, but with a great deal of debris at inlet, outlet, and channel.
- 39.37 (26-1) Lock No. 26 (Woods Lock): 8' lift. Finished in fall of 1831 by Stewart and Douglas, contractors, after 2 previous contractors' work had been unsatisfactory and terminated. The original structure was a typical Seneca red sandstone lock with the exception that the drop in level of the lock bottom was at the up-canal end of the upper lock gate pocket, thereby requiring deep gates at both upper and lower ends. About 15% of the interior face stones of the lock show cutting back from the original face, an indication that at any early date there was movement of the lock walls towards each other. The specified 15' width of the

lock allowed for little movement, as the standard barge was 14'-6" wide, giving only 6" possible constriction before passage of a barge became impossible. The current measurement of width between lock walls is a maximum of 14'-4" to a 13'-7" minimum just below the lower gate pocket. A replica of an original barge could not pass through the current lock. This lock was extended in the 1870 period to take 2 barges at a time by a rock filled wood cribbage at the lower end of the lock, removal of the lower lock gates, and adding a drop gate at the end of the cribbage lock extension. There is some replacement of lock wall stones both with gray sandstone and concrete but in general the walls are in fair condition. The lower extension is an extended pile of rocks, the wood cribbage having rotted away. Both lock gates are missing. A wood planking dam has been placed across the lock in the lower end of the upper lock pocket and this blockage has resulted in a silt buildup on the upstream side that covers the upper gate pocket and breast walls. Because the lock carries some water, the original wood traverse timbers that support the lock walls have survived, and some of the pine decking of the lock bottom is visible.

- (26-2) Bypass Flume: Approximately 38' from the berm side of the upper entrance of the lock is a circa 1900 concrete section of wingwall with a 5' wide stop gate slots for entrance to the flume. This upper end of the flume is covered for about 13' and has been used as a berm side roadway. The flume arcs to a 75' distance from the lock and re-enters the canal at the lower berm wingwall. As a result of long neglect, little of the flume remains.
- (26-3) Lockhouse, Lock No. 26: A circa 1833 house of typical dimensions with 2-story frame and siding over a red sandstone, rubble, full basement. House burned in mid-1960's and only the stone basement walls remain on the mid-berm side of the lock.
- 39.63 (26-4) Culvert No. 65: Built in 1831 of red sandstone with 12' opening covered by arch with 6' radius. A spring stone on the berm side has 1832 cut into its face and is one of few dated original structures. The culvert runs on a diagonal under berm, canal, and towpath. Inflow and outflow walls are in good condition but wingwalls in each elevation need repair.* *Stabilized 1978.
- 40.04 (26-5) Culvert No. 66: Built in 1831 of red sandstone with 6' opening and arch of 3' radius. Constant flow of water from nearby Pepco plant. Approach and culvert much silted in. Wingwalls need repair but main wall in fair condition.

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- 41.34 (26-6) Culvert No. 68: Built in 1831 of red sandstone with 6' opening and arch of 3' radius. This section of the canal runs water, which overflows on the towpath side causing the partial collapse of the headwall on the river side of the culvert. A portion of the face of the inflow has also collapsed. The general condition is poor.
- 41.46 (27-1) Lock No. 27, (Spinks Ferry or Campbell's Lock): 8' lift. Contract let to Lafferty and Boland, contractors, in 1828. Work started in 1829 and losses by the builders, ending in Lafferty being sent to debtor's prison, brought a termination to the contract and reletting to Canfield, contractor. The lock was finished in the fall of 1831. The lock was built of red sandstone from near Point of Rocks with coping of Seneca red sandstone. The early building of the lock was under 1828 specifications which included bypass culvert openings in the upper lock pockets and three discharges in the side walls of the lock, but it was finished under the 1830 specifications which moved the change of level, (a drop of 6' to 8'), from the lower end of the upper lock pocket to the upper end, thereby requiring long gates both upper and lower ends. To accommodate heavier use of the canal, Locks No. 25 through No. 32 were extended in the early 1870's to twice their original length to speed operations by passing two barges through a lock at one time. For an unapparent reason, Locks No. 27, No. 29, and No. 30 were extended on the upper end, a more difficult job as the upper breast wall had to be removed and the lock excavated an additional 6' for the length of the extension. The added approximate 100' of lock walls was of rock filled stone cribbage with a new drop gate at the upper end. The wood cribbage has not survived, but long piles of rock have. The towpath side of the lock is vertical and in fair shape, while the berm wall has a definite tilt and has apparently pushed in 9" at the upper end to 1'-2" at the lower. There is up to 10% of stone badly disintegrated in the berm wall. Both gates are missing.
- (27-2) Lockhouse, Lock No. 27: Typical stone, 1½-story house with full basement. Located mid-lock on the inland edge of the berm side, where the rapid slope back to natural grade expose the complete basement level. Chimneys on each end flush with endwall changing to brick above roof level. End windows only on the upper level. Repaired in 1972, structurally sound, but not restored.* Unoccupied.
*Exterior restored 1978.
- (27-3) Bypass Flume: Begins with upper end of the crib extension and runs parallel to the lock approximately 13'

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- inland from the berm lock wall. The body of the flume is a dry laid rock walled ditch about 5' wide. The outlet in the lower end concrete berm side wall, 5' wide with slots for a drop plank stop gate.
- 41.52 (27-4) Wasteweir: Circa 1900 replacement of earlier stone weir. Three openings, sides controlled by cast iron wicket gates, with drop planks in center. Covered with concrete slab at towpath level.
- 41.97 (27-5) Culvert #69: Circa 1832, built of red sandstone with 20" wide opening to pass the Little Monocacy River under the berm, canal, and towpath. Covered with 10' radius barrel. Inlet face wall, wing walls, and about 10' of the barrel gone. On the outflow side some face stones missing and wings partially tumbled. 1975-6 restoration of outflow side and stabilization of inflow side has been completed. Reinforced concrete barrel replacement.
- 42.07 (27-6) Stone Foundation: On the berm bank of the widened chanel of the canal, stone basement foundations only of a late 1700 house of Dr. Charles B. Boyd, who owned a mill in the immediate area, and in early 1800s occupied by George Walters as a storekeeper and post office. Nothing remains above the foundations.
- 42.20 (27-7) Monocacy Aqueduct: Hovey and Legg, contractors, started construction in 1829. Their contract was terminated, and Byrne and Company, contractors, completed the structure to carry the canal over the sizable Monocacy River in the spring of 1833. The river is spanned by seven 54' wide arches resting on six piers in the river and abutment at each end, giving a total aqueduct length of 540'. This major structure was built of white quartzite, which was transported for four miles from the source, the quarry at Sugar Loaf Mountain, on a very early, specially built, railroad line. The river side of the towpath has a railing of wrought iron that is intact and is original. Continuous holes on both sides of the elevated berm indicate both were railed, but no rail survives. The towpath face of the aqueduct is in good condition, needing only minor repair. The berm face has a noticable tilt out, resulting in a continous crack where the face wall pulls away from the barrel. The marble dedication stone survives in place, mid river; on the berm side, and lists completion date along with the President and Directors of the Canal Company. The survival of this major structure for close to 150 years of hazardous conditions attests to the engineering skill, quality of workmanship, and materials that were the standards used by the Company until the finances became so precarious in a few years time and shortcuts had to be made.

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- 42.44 (27-8) Culvert No. 70: Built circa 1831 of red sandstone with 6' opening. Ruinous condition. Outflow face from spring stone height to 3' above high point of arch repaired post 1900 with concrete. Stone wall above wingwalls tumbled resulting in major towpath erosion and breaching of the barrel vault. Inflow face wall and wingwalls gone and at least 3' of barrel arch collapsed and berm bank erosion.
- 44.04 (27-9) Culvert No. 71: Built circa 1831 of red sandstone with a 130' long, 16' wide arched passage for the Tuscarora Creek. Outflow end face wall, with arch, and wingwalls intact but some missing stones and erosion of mortar joints make it vulnerable to flood conditions. Portion of barrel exposed in the canal bed with collapsed sections. Inflow face wall above head of arch gone, as are wingwalls. One-third of ringstones gone on down-canal side which will trigger further collapse. Berm bank above arch badly eroded.
- 44.58 (27-10) Noland's Ferry Bridge: Built in 1840 by Louis Wernwag. The Noland family operated a ferry service as early as 1758 at the crossing established by earlier Indian trails of the Potomac between the areas that are now Virginia and Maryland. This was the crossing used by Virginia farmers to bring their produce to Baltimore markets. Although originally not scheduled by the Canal Company, complaints by the farmers forced the construction of this bridging of the canal for access to the Ferry landing. Red sandstone abutments, 20' in width and of a height of 11' above the towpath, were placed 70'-6" apart with a wood bridge crossover. Stone side walls ramp up on each side to the pier and bridge level. Shortly after the construction of the bridge, a rash of robberies caused the commercial disuse of this river crossing. The wood bridge is gone and the abutments now support mature trees with resulting damage of roots forcing stones out and widening of joints that formerly contained mortar.
- 45.10 (27-11) Tuscarora Feeder: This auxiliary feeder of Potomac water into the canal is 40 miles above the Seneca feeder at Dam No. 2 and 17 miles below the feeder at Harpers Ferry falls. Earthen dikes were built approximately 30' apart, creating a channel about 5' in depth. The inlet into the canal has been filled with earth and the channel is much overgrown with underbrush and mature trees.
- 47.75 (27-12) Culvert No. 72: Built circa 1832 of red sandstone with 16' wide opening and covering on 8' radius. Outflow

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face wall supported by 4' wide buttresses immediately adjacent to the opening and to the height of the face wall coping. Inflow in fair shape, although much overgrown with underbrush and vines. The culvert width appears great for the small drainage that exists. It is likely that this culvert was used as a road for access to the river side land, and it is likely, therefore, that the straight side walls of the culvert extend down some feet, but now are covered by silt.

- 48.01 (27-13) Culvert No. 73: Built of red sandstone circa 1831. Outflow wall is only exposed above the top of the arch and inflow wall is so tumbled that it is difficult to make out its form. General condition is poor.
- 48.14 (27-14) Culvert No. 74: Built circa 1831 of red sandstone with a 4' opening covered by an arch on 2' radius. The culvert is silted in to above the arch spring stone on both faces. On the outflow side, the ring stones have fallen other than in a small top section. The visable face wall is mostly intact but most joints are open and no evidence of wingwall shows. The inflow face has most of the arch ringstones in place, some face stones missing, and almost vertical dry laid stone riprap above the coping stones to a height of about 8' to hold the outer berm face. Condition is poor.
- 48.20 (27-15) Pivot Bridge at Point of Rocks: A.J. Douglas supplied the stone and did the masonry work for this bridge in 1834. Louis Wernwag built the wooden pivot bridge. The underside of the bridge was 11' above the canal water surface and the mid canal stone pier, the fulcrumb of the pivot was about 4' wide and 15' deep. The stone piers on the berm bank and on the outside of the towpath allowed a free 22½' of canal either side of the center pier. The wood bridge was rebuilt in 1844. In 1852, due to many complaints of the barge captains of the bridge being too low, pier, buttresses and bridge were raised to 17' clearance above the waterline. The bridge was made stationary in 1924. The existing stonework is in fair condition, but the remaining wood bridge, about 10' wide, is exceedingly flimsy.
- 48.90 (27-16) Wasteweir: A weir through towpath side of canal of concrete, with scratched date of 1917 while pouring was still wet. Three openings, separated by 2 pilasters and shoulders on each side, all of 12" concrete. Height of openings is 9'-4" and 9" slabs covering at towpath level. There are no remains of the wicket gates for water control.

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- 48.93 (28-1) Lock No. 28 (Point of Rocks Lock): The 6' lift of the lock is the smallest of the canal. Built by L.B. and D.K. Cahoon, contractors, and finished mid-summer 1833. One seventh of the stone was brought by rail from a granite quarry 46 miles away, requiring a further haul of one mile by team and wagon from the village of Point of Rocks. The other 6/7th was a hard white flint stone found in a Virginia quarry and requiring 4 miles of wagon transportation and river crossing. This lock was built with no bypass culverts and depended entirely on wicket gates within lock gates for raising and lowering the water of the lock. Lock No. 28, circa 1870, was extended at its lower end with rock filled wood cribbage to pass two barges at a time through its new 140'-4" overall length. Only piles of rock remain of the lock extension. The towpath lock wall is vertical and in fair repair. The berm wall tilts in, but is in fair repair. Movement in the walls is indicated by a clear dimension of 14'-7" just below the upper pockets and narrowing to 13'-9" just above the lower lock pockets. Small portions of the lock gates and hardware remain.
- (28-2) Bypass Flume: Begins just past the cut stone and mortar upper berm wingwall, and runs parallel to the lock in a shallow ditch. Circa 1900 the lower terminus was replaced by an 18' long concrete box culvert 5½' wide whose down-canal end is flush with the lower berm wingwall and surrounded by a wall laid of rubble. The covering of the culvert and its length indicate a non-surviving bridge at this lower end of the lock.
- (28-3) Lockhouse, Lock No. 28: Built in 1833, this house varies from the standard in only two items. Above the full stone walled basement, the 1½-story house is constructed of brick, and a narrow end faces the lock rather than the more usual long face. The end facing the lock is symmetrical with a window balancing the entry door and 2 windows in the gable over these two openings. There are no dormers in the roof. The central chimney has collapsed. The house is unoccupied and its careful repair to original conditions is scheduled for 1975.* *Exterior restored 1978,
- 48.96 (28-4) Wasteweir: Built, circa 1900, of concrete through towpath with three openings and slabs above at towpath level.
- 49.30 (28-5) Culvert No. 75: Built of red sandstone. Listed as 8' opening but both inlet and outlet of culvert silted in to above keystone and assessment is difficult. Condition bad.

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- (29-2) Bypass Flume: Parallel to the lock on the berm side, the flume is in remarkably good condition with ditch and sloping walls of dry laid stone, and although probably much rebuilt must be a close approximation of the original. The excess water from the upper level re-enters the canal over a dry wall stone extension of the lower berm wing-wall.
- (29-3) Lockhouse, Lock No. 29: Circa 1836. One and a half story house at mid lock on the berm of the typical dimensions, with full side stone basement and brick above. Central brick chimney with dual fireplaces on main floor. End wall with one window on main floor and two in brick gable, no dormers. Elevated porch, with shed roof, across canal side front held on free standing posts. House in good condition and used by the Service as a ranger station. Exterior restored 1978.
- 51.05 (29-4) Wasteweir: Concrete weir, circa 1900, through towpath with three openings of about 35" separated by end walls built to confine the canal wall and river side of towpath slopes and two interior vertical walls. Covered by 12" concrete slab at towpath elevation. No wickets or closures remain.
- 51.09 (29-5) Culvert No. 79 - Sugartree Branch: Built circa 1835 of a soft red sandstone with a 10' opening covered by a barrel on a 5' radius. The sandstone is deteriorating and requires considerable replacing. Both faces are silted in to close to the spring of the arch and overgrowth of vegetation threatens the walls. Wingwalls of the outflow face are partially tumbled due to root growth. Barrel of arch appears to be intact. General condition is fair.
- 51.53 (29-6) Catoctin Aqueduct: Completed in spring of 1834 by Douglas & Tracey, contractors. Catoctin Creek runs a considerable volume of water and the bed of the creek in this sizeable aqueduct for the passage of the barges over the creek was required and was a major undertaking testing engineering skill and construction ability. The total structure was 130' long. Crossing of the creek breadth was accomplished by two side spans, 20' wide with a rise of 10' above the spring block, and a center span of 40' with an elliptical rise of 10'. The two piers mid-creek were 6' wide with a depth of 33'. Abutments were built on either bank and these were supported by

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- 49.66 (28-6) Culvert No. 76: Culvert under the railroad was butted on to the inflow side of the existing canal culvert. Railroad inlet in good shape. Outlet on the towpath bank is silted in to almost total coverage. Listed to be 4' opening and built of red sandstone. Condition is bad.
- 49.70 (28-7) Overflow: The towpath was depressed for a length of about 55' to allow excess water in the canal to spill over the towpath embankment. The lowered path and side embankment is riprapped with dry laid stone and the drainage ditch to the river is still apparent. The depression has been filled in with earth to normal towpath level.
- 50.67 (28-8) Culvert No. 78: Built in 1833 of red sandstone with a 12' opening covered by an arch on a 6' radius. This was known as the Poplar Branch road culvert as the canal, in this section, is back 500 to 1,000 feet from the Potomac bank and passage was needed to and from this bottom land. Both inflow and outflow are so silted in that assessment is impossible. Its condition can be assumed to be poor. A washout in the canal bed indicates a big leak in the barrel vault.
- 50.89 (29-1) Lock No. 29 (Landers' Lock); 7' lift. Contract let to L.B. and D.K. Cahoon in 1832, relet to Littlejohn and Thompson, contractors, but apparently finished by the original contractors, for they were paid for completion of the lock in summer of 1833. Two-thirds of the construction granite was hauled in by railroad from the Patapsco quarry to Point of Rocks and by wagon for two and two third miles to the site. The remaining one third was brought from a Virginia quarry and was a hard, white flint stone. The lock was built to standard dimensions. In the early 1870's, Lock No. 29 was one of the several consecutive locks to be extended to raise or lower two barges at a time and one of the few to have the extension added to the upper end. The breast wall on the upper end of the upper lock gate pockets and upper extension walls were removed, the bottom excavated about 8' for 100' continuation of the lock and the extension of the lock walls made by rock filled wood cribbage. A new drop gate was placed in the upper end of a new upper lock gate pocket. There is a noticeable tilt in several sections of the berm side lock wall with clear width of lock varying from 14' to 14'-3". The lock extension is only piles of rock and both gates are gone. The stone faces of the lock are intact but some repointing is needed.

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wingwalls. The width of the canal within the aqueduct was 21' with a 7' wide towpath and a 5' wide berm side. The stone bottom of the canal was covered with 2" butted wood planking running in the direction of canal waterflow. The stone for the construction of the aqueduct below the arch spring level was from the Patapsco quarry in Maryland, 46 miles by rail and three miles by wagon to the site, and from a much closer Virginia quarry above the spring of the arch. A wrought iron railing was added to the downcreek side of the aqueduct only. The summer of 1832 brought forth the first cholera epidemic that brought sickness and death to many canal workers. Cholera, during the summers, plagued the Canal Company for a long period and resulted in huge casualty list. The aqueduct leaked and in the summer of 1835 portions of the wingwalls had been undermined and the aqueduct developed a serious breach. Upon the recommendation of the Chief Engineer, Fisk, a wooden trunk was constructed to line the canal portion of the stone structure. In 1838 one of the wingwalls gave away and necessary repairs were made to the wood liner of the trunk. A side of the trunk then gave away, and during the winter of 1838-39, the trunk of the aqueduct was coated with "American cement", a patented and expensive mortar that was partially impervious to water. In 1856 a railing was added to the canal side of the towpath. By 1873 the aqueduct was in such poor condition that the recommendation was made by inspecting engineers that it be totally rebuilt. Floods of 1877, 1886, and 1889 must have caused further damage. The Canal Company in 1889 was faced with huge repair work due to the flood and lacked the money. It went into receivership, was bought by the B & O Railroad and continued in operation with only most essential repairs until 1924 when the canal became defunct. The hurricane of 1972 caused the collapse of the central and up-canal span and damage to the abutments and wingwalls. The remaining structure has recently been stabilized. Estimates for reconstruction are around three million dollars, making it a project for the far distant future.

- 52.27 (29-7) Culvert No. 81: Built in 1833 of red sandstone with 4' opening covered with 2' radius arch. Outlet side silted in close to spring of arch. Headwall and wingwalls in fair shape. Inflow side is buried.
- 52.51 (29-8) Culvert No. 82: Built in 1833 of red sandstone. This

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culvert was built to allow passage of the Little Cat-octin Creek under the canal, and its 16' wide opening and covering arch on an 8' radius made it among the largest culverts on the canal length. It is similar to a small aqueduct in construction. The culvert was restored in 1975.

- 53.17 (29-9) Culvert No. 83: Built in 1833 of red sandstone with 4' wide opening covered by an arch of 2' radius. Outflow side headwall and wingwalls in good shape. Inflow side has partially collapsed arch, head and wingwalls are down, and barrel is breached a short distance from the entrance.
- 53.21 (29-10) Canal Spillway: The towpath is depressed for a 50' length and is stone covered with river side of towpath slope riprapped. Water channel to the river is evident. Silt covers much of the stonework.
- 53.59 (29-11) Culvert No. 84: Built in 1833 of red sandstone, with the exception of gray sandstone arch ringstones, and a 10' opening covered with arch on 5' radius. Headwall is exposed 3' below the spring stone of the arch. Outflow headwall is missing a few stones and wingwalls are down, but in fair condition otherwise.
- 54.05 (29-12) Culvert No. 85: Built in 1833 of red sandstone with 4' opening covered with arch on 2' radius. Outflow face silted up to above spring stone of arch, including wingwalls. Inflow head and wingwalls have fallen and opening is silted in. Condition of culvert is poor.
- 54.57 (29-13) Culvert No. 86: Built in 1833 of red sandstone with 6' opening covered with arch on 3' radius. Outflow face is in fair condition. Inflow is jointed by culvert under the adjacent railroad bed. Park boundary becomes tight on the berm side of the canal in this area as the Potomac is passing through a narrow rocky gorge that has little room for both canal and railroad right-of-way.
- 54.81 (29-14) Culvert No. 87: Built in 1833 or red sandstone with 8' opening covered with arch of 4' radius. Outflow face wall and wings in good condition, although channel is silted in to 1½' of spring stone of arch. Inflow partially silted in but in fair condition.
- 54.95 (29-15) Wasteweir: A circa 1900 weir of concrete running through

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the towpath. Overall width of 10' is broken into three 32" openings, 8'-4" high, and covered with a concrete slab at towpath elevation. Stop planks used as closures in all three openings.

- 55.00 (30-1) Lock No. 30 (Brunswick Lock): 8' lift. The contract was let to Obediah Gorden in March of 1832. He defaulted in December of the same year, and, in January 1833, the Company Directors ordered work to proceed employing workmen of the Canal Company under the direction of the Chief Engineer Charles B. Fisk. Probably completed in the fall of 1833, although the Company records list no completion date. Some granite for the construction came from the Patapsco quarry, some was neighborhood stone, but the majority was Seneca red sandstone that required boating up the river for 32½ miles. The various stone gives the lock walls a speckled appearance. In the mid 1870's this lock was of the group that was doubled in length to pass two barges through at a time. The extension was at the upper end requiring the removal of the upper brest wall, extension and wingwalls, excavating down for 8' for a distance of approximately 100', and constructing lock extension walls of rock filled wood cribbage with interior wood planking for the lock extension, and a new upper lock pocket and drop gate. The original upper lock pocket has lost most of the mortar between the stones and there has been movement in individual stones. The berm lock wall has a number of deteriorated stones in the upper part of the wall. The lock needs much repointing and both lock gates are gone. Piles of rock give the general outline of the lock extension. General condition is fair.
- (30-2) Bypass Flume: An open ditch starting at the head of the lock extension, running parallel to the berm wall, and terminating in the dry laid rubble wall of the lower berm wingwall. The open ditch is replaced by a section of concrete culvert toward its lower end to allow passage over to the bridge at the lower end of the lock. This was originally a pivot bridge with a stationary bridge at mid-lock, built circa 1924, as a replacement. This bridge is now unsafe.
- (30-3) Head Race Flume: Just below the section of concrete culvert in the bypass flume, a ditch on the berm side provided waterpower for a mill that is now only scattered remnants. A tailrace re-enters the canal just above the (29-15) wastew weir. Maryland Route 17 crosses the

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canal and then the Potomac, just above the upper end of the lock on a recently built concrete and steel bridge. One of the bridge piers obliterates an upper section of the bypass flume.

- 55.45 (30-4) Culvert No. 88: Built in 1833 of a mixture of stones with an 8' opening covered by an arch on a 4' radius. Outflow face has coping and arch ringstones of red sandstone. Wall and wingwalls intact and in fair shape. Inflow headwall and wings are collapsed, berm dike washed away, and barrel of arch is exposed for approximately 50' under berm and canal bottom. The outflow of the culvert under the railroad bed is only 14' from the inflow of the canal culvert.
- 56.01 (30-5) Culvert No. 89: Built in 1833 of various rough stones in a random pattern with arch ring of cut red sandstone on outflow side. Four foot diameter cast iron pipe under railroad bed connects directly to the adjacent inflow side of the canal culvert. The outflow face wall, 8' opening covered by an arch on a 4' radius, and wingwalls need some repointing but are in generally good condition. Barrel appears in good shape.
- 56.45 (30-6) Culvert No. 90: Built in 1833 with 6' opening covered by arch on 3' radius. Construction of rough cut local stone in a random pattern with ringstones of red sandstone. Outflow face and wingwalls intact but repointing in needed. Barrel appears to be intact. Inflow face wall down to top of arch ringstones and wingwall intact but repointing needed.
- 57.01 (30-7) Culvert No. 91 (Knoxville Branch): Built in 1833 with 12' opening covered with arch on 6' radius. The coping, which rides immediately above the keystone on the outflow face, and the arch ringstones are of granite. The remainder of the wall is regularly coursed local cut stone. Outflow face silted in to just above arch spring stone, wingwalls, if any, are covered, exposed wall intact, but requires repointing. Inflow face wall is mostly down above intact arch ringstones. Silted in to above arch spring stone and wingwalls down or earth covered. The canal berm side is washed away over the culvert and 8' of the arch barrel is exposed. Condition poor.
- 57.37 (30-8) Culvert No. 92: Built in 1833 with 6' opening covered with arch of 3' radius. Ringstones of arches of carefully cut stones. Remainder of face walls of local

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stone laid in a random pattern. Only about the top one third of the arch is exposed on each side due to silt. Exposed walls in fair shape, but need repointing.

57.88 (30-9) Weaverton: Casper W. Weaver purchased land along the Potomac in this area. He saw a great potential of power for machinery in a rapid drop of 15' in the Potomac here, purchased land fronting the river and envisioned an industrial community. Charles B. Fisk, Engineer for the Canal Company, was hired to handle engineering problems. A portion of the Potomac was dammed and three large two-story stone, Harpers Ferry shale, buildings were built. The Weaverton Manufacturing Company was chartered in 1834. One of the vacant mill buildings was rented by the Canal Company as a hospital to handle the laborers stricken in the Asiatic cholera epidemic of 1832. The cotton mills that were put into operation were finally closed down by the Civil War as the Union Army took over the buildings barracks. The 1877 flood severely damaged the buildings and soon after the property was acquired by the Canal Company. Extensive stone walls from 20 to 30 feet high are all that remains of what had been planned as a manufacturing utopia.

58.01 (31-1) Lock No. 31 (Weaverton Lock): 8' lift. The contract for construction was given to Obediah Gordon in March of 1832. Work was commenced but contract was abandoned in December of the same year. John M. Moore was hired to complete the lock, and finished the work in the early fall of 1833. The material was a mixture, flint stone and granite from Virginia, plus some local stone. Dimensions were typical. For a reason that is no longer apparent to us, this lock was built at the exact site of an existing tailrace from an operating mill, It was, therefore, necessary to culvert this return water under the up-canal end of the lock in a 6' wide passage, unique in the series of locks. This was the most expensive of all the locks to build, no doubt, due to extra work required to maintain this tailgate right-of-way. The head race, above this lock, was supplemented by an arched opening built into the canal so that the mill could purchase water from the Canal Company. Movement in the lock walls indicate a wood timber foundation of this lock and the movement is indicated by 95% of the remaining face stones having been cut back. Some time after 1870 the towpath wall of the lock was removed and replaced with a concrete wall, including the lock pockets. In the mid 1870's the lock was extended at its lower end by the

typical rock filled wooden cribbage to accommodate passage of two barges at a time through the lock. The lock extension interior was faced with two thicknesses of two-inch T & G wood planking. All that remains of the extension is the piles of rocks that were once confined by the wood cribbage. The berm side stone needs some re-pointing but is in fair condition. Both upper and lower lock gates are gone although some original hardware remains.

- (31-2) Bypass Flume: At the end of the laid stone upper berm wingwall is a circa 1890 concrete culvert, 4'-6" wide, entrance to the bypass flume. The concrete no doubt replaced an earlier stone entrance. Stop plank slots are in concrete culvert to control the flow of water. The flume, parallel to the lock bottom is about 6' wide; bottom and sloping sides are of dry laid stone. The laid stone lower berm wingwall of the lock is extended about 5' in dry laid rubble to the outflow of the flume, 6' wide at bottom, 10' wide at top and overall depth of 7'. The dry laid rubble wall continues from the flume for about 20' to the berm bank of the canal. This section of the canal is quite wide and contained docks for a loading area to service the Pleasant Valley produce.
- (31-3) Lockhouse, Lock No. 31: Built, circa 1835, on berm bank at the lower end of the lock. The stone foundation of this house provides only crawl space under the main floor, no basement. Above the stone the house is of typical dimensions with brick walls and flush brick chimney; on the brick gable ends. The addition of a 10' wide, 15' deep, shed roof, one story wing on the down-canal side and flush with the back side of the house is a non-typical addition, no doubt built at the time of the main structure in lieu of a basement. The house is in good condition and is occupied. Outside cellar doors indicate a partial cellar has been dug under the wing.
- 58.06 (31-4) Wasteweir: A concrete structure, circa 1880, through the towpath wall of the canal divided into three openings of 32" clear dimension and with slots for drop gates. The covering 12" slab, at towpath height, is 10' wide with wingwalls to containing the sloping walls of both the canal and the towpath. The overall height of the weir is 9'-6". The outflow side walls are continued in dry laid rubble walls to a vertical drop in the outlet channel of 6' approximately 30' from the weir and towards the Potomac.

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- 58.18 (31-5) Culvert No. 93 (Israel Creek Culvert): Built circa 1833. A major culvert, to carry the Israel Creek under the canal, with a 20' width covered by a low arch with a rise of 5'-6". The culvert is quite intact, but major repointing is needed. The barrel leaks at multiple stone joints. The inflow face wall and wings lack some stones, including the springstone, on each side of the arch and most of the coping stones. The arch ring stones are finished and cut to shape, while the rest of the face stone is rough, with a random pattern of laying. The outflow face lacks few stones. The coping stones and arch ringstones are finished cut. The stone of the wall is coursed, but rough cut.
- 59.91 (31-6) Start of "Long Wall" or "Seawall": This is the area where the Shenandoah joins the Potomac River and the north bank of the Potomac is restricted by a rapidly rising bank. This forced the Canal Company to build immediately adjacent to the river and the river side of the towpath was protected by a stone wall from this point up, for almost a mile. The wall was built in 1833 simultaneously with the Canal. Periodic floods peaked at higher and higher elevations and after each flood the wall was elevated to 2' above the new flood peak. At some points the wall reached to 12' above the towpath elevation. Little is left of the wall that was above the towpath, but much of the lower wall is intact.
- 60.23 (32-1) Lock No. 32 (Sandy Hook Lock): 8' lift. The original letting of the contract in the spring of 1832 proved unsatisfactory, and it passed through several other hands (including construction by the Canal Company itself) before finally being awarded to Littlejohn and Company, who completed the lock in the summer of 1833. One-fifth of the stone came from a granite quarry in Virginia. The remainder was from different limestone quarries 2 to 12 miles up the Potomac. This lock is built on solid rock and was of standard dimensions. One unusual practice in the construction of this lock is that the breast wall is placed 2' above the upper gate pocket rather than flush with the upper wall of the pocket. This lock was extended to double its original length in the mid 1870's with rock filled wood cribbage on the lock's lower end. The berm wall of the lock with its dark gray granite coping is in good condition with exception of the extension and wingwalls above the upper lock gate pocket. This section takes the full force of each flood and is mainly tumbled and in poor condition. The face of the two rivers combining in the storms of

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1924, 1936, and 1937, 1942, and 1972 have left the towpath and the lock towpath wall in ruinous shape. Not only is the wall mostly down but the 7' thick backup wall (a part of the base of the towpath) has washed away in several sections. Some piles of rock indicate the lower extension. As a whole, the lock is a ruin.

- (32-2) Bypass Flume: The flume is about 3' deep with a 6' bottom width, increasing to 9' at the top, and built of dry laid rubble. The upper entrance to the flume has been washed away with the upper berm wingwall. The outflow of the flume is a concrete culvert 21½' long, of 4'-6" width, whose down face is flush with the lower berm wingwall.
- (32-3) Lockhouse, Lock No. 32: A contract was let in 1836 for the construction of this house in which it was noted that the standard dimensions of the lock house need not be complied with due to the difficulties of the site. At mid-lock on the berm side of the lock remain high stone walls, probably a portion of the basement story of the house. The remainder of the house succumbed at some unnoted time to one of the many floods.
- (32-4) Stonewall Construction of the Towpath: This portion of the canal was on the north bank of the Potomac River opposite the confluence of the Shenandoah and required the heaviest construction of the towpath of any in the entire length of the canal. A battered wall of large to huge stones started up from the bedrock of the Potomac edge and in places rose to 24' above normal water level at the river side of the towpath. The canal side of the path, too, was stone riprapped, though the stones were smaller than on the outer face. This attempt to confine damage to the canal during floods was not sufficient, and repairs and additions had to be made in this area during the life of the canal. The destructive force of the 1972 hurricane is amply evident and has not been repaired.
- 60.62 (32-5) The Shenandoah River Lock: In this area the Shenandoah River joins the Potomac and the town of Harpers Ferry had sprung up in the mid 18th century on the triangle of land at their joining. Both rivers carried barged traffic of goods from their respective country sides. With the advent of the canal a river lock was built in 1834 to open the canal to the Potomac and barges crossing over from the Shenandoah. The lock was built of limestone and

to similar dimension for a normal lock at the river side end of a short run of chanel branching out from the canal. A mule crossover bridge would have been required to pass over the entrance to the chanel. Also in 1835 a contract was negotiated with the builder of the railroad-vehicular bridge, that was there underway for the B & O Railroad, to construct a ramp from the towpath up to the vehicular section of the bridge, so that the mules could cross over the Potomac to stabilize the barges in crossing from the river lock and the Potomac on into the Shenandoah. All that remains is a portion of the river wing-wall and the river side of the lower gate pocket, plus a few traces at the exit from the canal. This river lock remained in service only for a short time as a railroad was soon built along the Shenandoah banks that quickly put barge traffic on that river out of business. The towpath alterations across the opening to the river lock obliterated most of the former construction, and floods have done most of the rest.

- (33-1) Lock No. 33 (Harpers Ferry Lock): 8' lift. The contract for construction of the lock was given to James O'Brien in the spring of 1832. Apparently not much work was done and the contract was relet to Littlejohn, Thompson and Company, who completed the lock in the fall of 1833. The site is a narrow shelf of rocky land that is restricted by a nearly vertical rock bluff. This northern bank of the Potomac across from Harpers Ferry, accommodates the canal, the railroad, a roadway, and the various service building required for the several means of transportation, in a very limited space. During the 1800 life of the canal it became a transportation hub with warehouses and a tavern. Of the building, only the ruins of the tavern remain. Most of the stone for the lock is flintstone from a not too distant Virginia quarry. The lock itself is of standard dimensions but the approach, requiring high random laid stone walls on each side of the canal, is unusual. The walls of the main portion of the lock are mainly intact, but there is bulging in the towpath wall, and some stones are out on both sides. The lock pockets, both up and down canal, extensions, and wing-walls are lacking several of their upper courses and in much disrepair. Some gate hardware remains, although of a later day replacement type rather than original.
- (33-2) Bypass Flume: Due to limited area of site, this flume became unusual for its careful and formal construction of

laid and cut stone. The entrance to the flume is about 9' wide and in the upper berm wingwall about 12' from the lock berm wall. It is the full depth of the canal. The run of the flume is a 9' wide rubble laid ditch, parallel to the lock. It terminates in the lower berm wingwall in a culvert of 9' width, spanned by a barrel arch on a 4.5 radius. Stop plank slots in the upper entrance indicate that the amount of water flow was controlled there.

- (33-3) Lockhouse (Lock No. 33): Although no physical evidence of the house remains, potential foundations remain near the lower end of the lock both immediately on the berm bank and at the towpath edge on the river side. A photograph in U.S. Archives, undated (but credited by author T.F. Hahn with both an 1859 and 1876 date) but establishable as post 1875 (for the type of barge entering the canal was introduced in that year), shows buildings on the towpath side resembling warehouses, while on the berm and over the culvert for the bypass flume appears a 1½-story, whitewashed lockhouse. Details of the picture are not clear enough to establish building materials. This photograph also shown the Salty Dog Saloon and other buildings, indicating this as a major business focal point on the canal. A photograph of the 1910 to 1920 period shows a brick two-story lockhouse replacement in the same location as the former 1½-story house. The Canal Superintendent's report states that this house had withstood the 1889 flood. It was completely demolished in the 1936 flood.

- (33-4) Salty Dog Saloon: A 2-story stone building approximately 20' x 45' with simple gable of roof. Partial low ceiling basement. Centered windows on each floor, including smaller one in gable, each end. Front face has centered door and symmetrical windows each side of door with three matching windows above.

Building predates the Civil War but was privately owned and built so does not appear on any Canal Company records. It survived many floods but succumbed to arson in 1960. Further fire in 1963 burned out cross support of the walls and as a result they partially fell. The exterior stone walls were rebuilt with necessary minimal wood structural backing by the National Park Service. The roof was not replaced, but the exterior stone faces are whitewashed, so a shell, only, still stands.

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- 61.57 (34-1) Lock No. 34 (Goodharts' Lock): 8' lift. The second contractor, Freize and MacDonald, undertook the building of the lock after the first had defaulted. It was completed in the fall of 1833. The stone was gray limestone with some red sandstone at the upper end. The dimensions are typical. The lock is in quite good condition although in mid section of the towpath wall there is a uniform small tilt. Some of the heavier stones in this section have remained in bond and in their original position, therefore, now they are recessed up to 6" in the current bulged wall. A few stones need replacing and some re-pointing is needed. No lock gates remain, even most of the hardware has been stripped off.
- (34-2) Bypass Flume: After the 5' of laid stone upper berm wing-wall, the wall is extended for 15' in dry stone wall to the entrance of the flume. Bottom and side walls of the flume are of local stone rubble, dry laid, and running parallel to the lock, about 20' from the berm wall edge. Toward the lower end of the lock a 6' wide concrete ditch replaces the stone, with stop plank slots in its upper end. Water re-enters the canal from the lower berm extension wall.
- (34-3) Lockhouse (Lock No. 34): Stone foundations remain of the 1½-story brick house that was totally washed away in the 1936 flood. The last lock tender, Willard Goodheart, furnished the popular name for the lock.
- (34-4) Canal Bed above Lock No. 34: The canal above Lock No. 34 was blasted through several solid rock spurs of the berm side mountains. This is thought to be utilization of the work done by the Potomac Company in the early 1800's by the Canal Company. The rocks and rapids of the river in this area necessitated this original bypass.
- 62.20 (34-5) New Armory Dam Abutment: To furnish water to power the water wheels of the Harpers Ferry Armory building, a dam to impound Potomac water was started in 1859. The first construction was on the Maryland side with a substantial abutment of gray limestone, rough faced, but laid in regular coursing. The abutment was about 7' thick, 18' high, starting close to the edge of the river and running back until its top was flush with the rising ground. The top of the dam was about 12' below the top of the abutment. Construction of the dam was halted by the Civil War. This area played host to much war action, and afterwards, work was never resumed on the dam. This start of construction appears solid and in good shape.

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- 62.27 (34-6) Dam No. 3, (The Government Dam): The Potomac, here, was first dammed to supply the water power for the Musket Factory of the U.S. Armory at Harpers Ferry in 1799. It was originally rock filled wood cribbage with vertical planking covering both up and down river sides and built in a zigzag plan, taking advantage of rock outcroppings in the river for their added support. It was replaced in 1809 and again in 1820 by a stone dam. In the early 1900's a concrete face was added to the upstream side and a concrete topping added later. The Canal Company took advantage of the existing dam to draw water ^{to} the next ten lower levels of the canal by means of an added guard lock. Much of the dam remains in various degrees of completeness; however, the dam was never owned or controlled by the Canal Company and is not property of the Park Service.
- 62.3 (34-7) Guard Lock No. 3: Just below Lock No. 35 a 15'-wide channel takes off at about a 50° angle up to the slack waters of the Potomac above Dam No. 3. This channel was bridged to allow the mules that hauled the barges to continue along the canal. The guard channel and lock were built, circa 1833, of rough cut, gray limestone and laid in random coursing. Some of the channel had to be blasted from bed rock and, where this was necessary, the cut outcropping of stone is incorporated into the wall. The channel remains in fine alignment, probably due to a bed rock foundation. Normal water of the Potomac runs about 7½ feet above the level of the canal in this location and although barges could enter the canal at this point (the more normal entrance was less than a mile below at the Shenandoah lock), the main function of this guard lock was to divert Potomac water into the canal to retain a sufficient water level to float a barge from here down for the next ten levels. This guard lock, built at the edge of the Potomac, consisted of 2 sets of gate pockets spaced 90' apart with a lift of 3' provided for. The bottom elevation of the canal is maintained to the river and gates were required for both ends of the lock. The lock walls are usually high and descend in steps beyond the second gates to the normal channel height. There are minor remains of the gates, and the National Park Service has constructed a wood barrier to replace the gates giving access to the river itself.

The condition of the lock and channel walls is good, with minor stone replacements and repointing needed. From the

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upstream side of the guard lock a rubble stone earth dyke follows the Potomac bank for about 500' then curves back to the canal. This dyke was built as protection against flood conditions in the Potomac. Remnants of the dyke are extant.

- 62.33 (35-1) Lock No. 35 (No. 35 and No. 36 are known as "Two Locks"): 8' lift. The original contract was let in the spring of 1832, but no work was started, the contract was abandoned, and relet to Frieze and MacDonald, who completed the lock in late 1834. The material used was a dense, gray limestone, well cut and laid. The dimensions are standard. The lock has survived well although many of the coping stones appear to be replacements and a few of the face stones are broken. The lower towpath wingwall of 6' length after its rounded transition from the extension wall, continues for another 10' (in rough laid, roughly coursed stone) in line with the wingwall, where the wall is increased 4' in height and turns to become the upper channel wall of the guard lock No. 3. This elevated wall served as an abutment for the bridge that spanned the guard lock entrance into the canal. Much of the original gate hardware remains. The wooden upper mitersill (the built up member that the lower portion of the gates rested against in their closed position) remains intact, although the wood is somewhat rotted. The lock has no bypass flume.
- (35-2) Dry Dock: On the upper end of the lock and about 25' distance from the lock berm wall was the 14½' wide entrance to a dry dock, parallel to the lock. This dry dock was 98½' long by 14½' wide and surrounded on the two sides and end by 5' high rubble stone walls laid with mortar. Vertical slots at the entrance end provided for stop gate timbers. The walled end contained a wicket gate opening centered on its base to release the water that had been necessary to float the barge in. Six cross yokes, placed in equal distances along the 98½' length supported the bottom of a barge (12" x 12" indentations in the walls indicate that originally 12 x 12 timbers across the dock had been the supports), and with the letting out of the water the barge bottom was exposed so that it might be repaired. The dry dock walls are in good condition, but several feet of silt cover the bottom. The drop gate and the wicket gate at the down canal end are gone. There is much undergrowth at the sides of and on the bottom of the dock.
- (35-3) Lockhouse, Lock No. 35: Built on the towpath side of the canal on the triangular section of land formed by the

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lock and the guard lock. Built circa 1835 with full basement stone foundation, approximately 18' x 30' and main floor brick walls extending to 3 sides parapet with flat roof on slope to exposed side. The floods of 1924 and 1936 have left standing brick walls with gutted interior without a roof. The ruins have been stabilized. This construction is not duplicated on the canal.

62.44 (36-1) Lock No. 36 (Two Locks): 8' lift. This lock is approximately 350' up from Lock No. 35, and the canal between the two was widened to 75'. The contract for construction was awarded to Frieze and MacDonald in the spring of 1832 and finished late in 1834. In this area the cholera epidemic was severe in both the summer of 1832 and 1833 and work was slowed as so many of the construction workers were afflicted. Gray limestone was used as the face stone and the dimensions of the lock are typical. The stone is intact and in good condition. There is a definite inward tilt in both walls, the towpath in some sections up to a foot. The lower extension of the berm wall, below the lower lock pocket, indicates early cutting back of the upper courses, probably a sure sign of a wood foundation rather than bed rock. Much of the original gate hardware is intact but the gates are gone. This lock has no bypass flume.

(36-2) Lockhouse, Lock No. 36: The course field stone foundation with 1½-story brick house, about 20½' x 32½', was constructed, circa 1835, on the berm side of the canal. The 1924 flood badly damaged the house, and the 1936 flood left only the foundations standing. They survive to date.

(36-3) Section House, Lock No. 36: Inasmuch as this area was a section headquarters, a second house was built on the berm side, about 180' from the lock and on ground with an elevation raised about 40' above the canal level. The house, circa 1840, has a stone foundation, 20'-2" x 30'-4", with no basement. The two-story wood frame is sheathed in wood clapboard. Brick chimneys rise at the peak of the ridge of the hipped roof at each end. This was occupied by the section hands who did maintenance work on the canal. The house is unoccupied and much neglected. Although mostly intact, it is in very poor repair and condition.

*(36.3A)

62.59 (36-4) Wasteweir: post 1900 concrete walls about 11' apart cut the towpath bank with slab at towpath level and sloped walls for canal and river slide banks. Opening is divided into three sections by 10" x 12" concrete piers 9'-2" high at each canal side wall face and two intermediates. Protruding bolts indicate missing wood frame

*See following page 60A for insertion.

(Insertion)

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- 62.5 (36-3A) Fort Duncan and associated earthworks: Fort Duncan, constructed by Union military forces between October 1862 and June 1863 as a component of their Harpers Ferry defenses, had strong earth walls about 15 feet high in a rectangle of approximately 150 by 500 feet. A wide and deep dry ditch surrounded the work, beyond which lay an abatis of felled trees. The fort contained three magazines, and in July 1865 its armament totaled 16 guns. It was built on the second plateau above the river (above canal locks 35 and 36) and commanded Boliver Heights, Harpers Ferry, and the land approaches from the north to its rear. Battery A, about 250 yards south of Fort Duncan, was constructed in October 1862. Its two earthen faces were each about 100 feet long and 10 feet high. In early June 1863 it was armed with 6 guns intended to sweep Boliver Heights. Upon completion of Fort Duncan at the end of that month the guns were moved to that fort. Battery Sullivan, about 800 yards southeast of Fort Duncan, was erected between June 1863 and June 1864. A three-sided earthwork open in the rear, its walls were about 15 feet high, 20 feet thick at the base, and 32, 130, and 110 feet in length. Its guns could command the B&O Railroad bridge across the Potomac, the Potomac pontoon bridge, the plain on which the town of Bolivar was located, and the south bank of the Potomac from the mouth of the Shenandoah west to the point where the B&O Railroad left the shore. Battery J, about 600 yards northeast of Fort Duncan, was a light earthwork erected in June 1863. That year it contained two boat howitzers that enfiladed the C&O Canal to the north. It was also intended to guard the left flank of the Federal defenses in the vicinity of Fort Duncan. The majority of these earthworks are well preserved today.
- (36-3B) Myers House and Outbuildings: The mid-19th century Myers House is a two-story L-shaped brick structure on a stone foundation. The two-story porch on the wing is typical of the region. The entrance is framed by sidelights and a rectangular transom. Flat arches and a corbeled brick cornice constitute the only ornamentation. To the rear is a 10 by 12-foot gable-roofed brick outbuilding of the same period and a small frame barn. The structures are in fair condition and unoccupied.

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for drop gates. Slab concrete deck for entire weir. There is no evidence of earlier stone weir.

- 64.68 (36-5) Culvert #96: built in the early 1830's of rough faced and laid stone with smooth stone coping and ringstones. The 8' culvert opening is covered by an arch with a 4' radius. Both faces have wide angle wingwalls both up and down canal. On the berm face the wall is extended up an additional 10' by a dry laid stone wall. The culvert condition is good.
- 64.99 (36-6) Culvert #97: built in the 1830 period of rough cut and random laid stone, with smooth cut ringstones. Eight-foot-wide opening culvert covered by arch on a 4' radius. The down canal wingwall supporting the berm face comes out at 70° while the up canal wing has only a slight projection. On the towpath face the flat face continues 3' each side of the opening and is joined by dry laid stone wingwalls on a gentle arc. The culvert is in good condition.
- 65.21 (36-7) Lime Kilns: the area was found to have sufficient stone for producing a good quality lime and stone kilns were built back on the berm bank where the rapid rise of the land occurs. The long face wall of random laid stone remains with the two 4' wide, arched kiln openings. Much of the lime used in the construction of the canal was produced here.
- *65.3 (36-7A) (36-7B)
66.95 (37-1) Lock No. 37, (Mountain Lock): 9' lift. The firm of Gilson, Noonan, Medar, and Fresh were awarded the contract for Lock No. 37 and commenced work in the summer of 1832 and completed the work in the fall of 1833. The location is about 200' from the Potomac bank, a slack water area because of Dam No. 3. The towpath is elevated by an earth slope and the berm side is on about a 100' wide shelf at the start of the rise to the Blue Ridge Mountains. The face and coping stones are of a gray-blue limestone, which though structurally sound, show much leaching through water action. An early rebuilding is evidenced around the upper gate pockets where some replacement stones run a full two courses in depth, which appears not to have been done in early construction. All gate posts, plus wicket gates are still there. In the mid-1870's, Lock No. 37 was extended on its lower end by rock filled wood cribbage to about twice its original length. The wood is gone but the piles of rock remain. The towpath wall has tilted a minimum of 2" close to the

*See following page 61A for insertion.

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- 65.3 (36-7A) Knight House: A two-story 16½-by-20½-foot log house estimated to date from the late 19th century. Large wood chips wedged diagonally serve as infill between the logs. Gable roof has board and batten ends. A porch runs along the first story at the front over the partially exposed stone basement. The structure is in ruinous condition but the log shell appears basically sound. A small log shed is at rear.
- 65.7 (36-7B) Staub House: Estimated to date from the mid-19th century, the house is a 20 by 30-foot fieldstone structure with a metal covered gable roof. It is built into the side of a hill with the basement level exposed on two sides. Beneath the porch extending along the same two sides at the first floor level is an incompatible concrete enclosure of later date. The house contains eight rooms. Condition is fair.

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upper gate pockets that increases to 8" at the lower end of the lock. The berm wall has minor tilt. The top cross wall measurement has decreased to 14'-0" just above the lower gate pockets. The lock is in good condition with some repointing needed.

- (37-2) Bypass Flume: In line with the upper berm wingwall and 24' from the upper entrance to lock is the bypass flume entrance. The flume, parallel to the lock, is a dry laid, rubble stone ditch about 7' wide with battered side walls of similar construction. In the late 1800's a 15' long concrete culvert, with its upper end even with the midpoint of the upper gate pocket, was added to provide vehicular passage to the berm lock wall. Stop plank slots are at the start of the culvert. The flume is in good condition.
- (37-3) Lockhouse, Lock No. 37: the 1½-story house, built circa 1835, has typical 18½' x 30' dimensions, stone foundations that extend 8" above grade. The full basement is half above ground, and there is a central chimney. The front door is elevated above grade approximately 4½' and approached by 5 wooden treads on wood stringers. A small 4' x 8' shed-roofed porch, shown in a 1961 HABS photograph, is now removed. The brickwork has been whitewashed to the sills of the first floor windows, giving the effect of a wainscoting. A one-story, 12' x 15' wood addition to the rear, flush with the down end of the house, was added at an unknown date, although it appears to be old. Its exposed end is almost totally covered by a huge stone fireplace chimney similar to the cooking fireplace seen in very early Virginia houses. The original stone terminus of the chimney has been capped by an additional 4' of brick chimney. It is possible that this addition was used as a kitchen although it is half a flight down from the house main floor. The basement is entered from the exterior front through hinged, sloping double doors covering the descending steps. The house has been stabilized and is not occupied.
- 67.07 (37-4) Culvert No. 100: Circa 1834, of rough cut sandstone with 8' wide opening covered with arch on a 4' radius. Headwalls on each side extend up above top of arch for about 4' and topped by coping stones. Stepped, flaired wingwalls extend out immediately from opening on each side. At least 5' of vertical stone is exposed before spring of arch. Culvert is in remarkably good condition.
- 67.15 (37-5) Wastew weir: Late 1800 concrete replacement of early stone weir (original stone walls back up the concrete

replacement on the outflow side). Three 32" wide openings, separated by 12" piers, are 9'-2" in clear height. Twelve inch concrete slab, 12' wide, at towpath level. Water regulated by stop planks in all three openings.

- 69.4 (37-6) Antietam Creek Aqueduct: Contract let to Noonan, Medlar, and Fresh in spring of 1832, but little work was accomplished due to the severe cholera epidemic in the summers of 1832-33. The work was finally completed in the spring of 1835. The stone is a gray-blue limestone from a nearby quarry. Antietam Creek has a sizeable run of water as it provides drainage for valleys extending to Pennsylvania. The total length of the aqueduct is 140' broken by three elliptical arched openings of about 28' on either side and 40' for the center. The arches rest on 2 piers about 6' wide and in mid stream. The clear dimension between abutment openings is 108'. The rise of all three arches is about 10'. The towpath is about 6'-9" wide, the flume about 15', and the berm side about 5'. A wrought iron railing was on the down-creek side of the towpath, but only a few small partial sections of it remain with empty holes, where the metal was let into the stones, showing the extent of the missing. Wingwalls flair from the flume at about a 30° angle and extend about 48' beyond forming a widened canal bed. The aqueduct is in good condition, having been recently restored. Missing or damaged stones have been replaced, particularly in the arch barrels, with concrete.
- 70.38 (37-7) Culvert No. 103: Built circa 1834 of rough cut sandstone in random courses with 4' opening covered by arch on 2' radius. Outflow side in good condition with more than 4' vertical wall below spring stone exposed. Inflow side silted into spring stone, some stones missing, and in poor condition. The barrel has leaks under the berm wall causing a wash away of the berm over the leaks.
- 70.68 (37-8) Loading Dock and Turning Basin (Miller's Basin): This was the location of an early saw mill, whose operations declined after the Civil War. The canal widened out and the stone lined berm walls became a docking area. The canal is now much filled in but 2' to 3' of the stone dock wall is exposed.
- 70.78 (37-9) Culvert No. 104: Built circa 1834 of rough-cut limestone in uneven courses, with 6' opening covered by arch on 3' radius. Inflow side has opening abutting a post-1900 concrete wall. Some stones are missing and wood and trash cover up to the arch spring. The outflow side is in fair

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condition with parts of the wingwalls tumbled. Five and one half feet of vertical wall is exposed below the arch spring.

- 71.55 (37-10) Culvert No. 105: Built circa 1834 of limestone with 4' opening covered with arch on 2' radius. Both inflow and outflow are silted so that little is viewable of culvert. What does show is in poor condition.
- 72.55 (37-11) Shepherdstown River Lock: To provide for the commerce from Shepherdstown, on the West Virginia side of the Potomac and established in the first half of the eighteenth century, a river lock was built as access to the canal. Below here was an early dam, so crossing from the Virginia side was easy in the slack waters. John Cameron was the contractor for the lock, starting work in the spring of 1833 and finishing in late 1834. The canal is close to 100' wide in this area, thereby allowing the necessary maneuvering of the barges for access to and from the river. The stone was cut gray-blue limestone. The river lock enters the canal at about a 20° angle to the up-canal towpath wall. Stone abutments on either side of the towpath opening for the lock provides the base for the wooden bridge to allow mule passage. The lock was 15' wide and the river side gate pockets were placed shortly after the flare of the extended walls that bordered the river. A major flood in 1889 washed out the dam and the raised level of the slack water above was no more. The river lock then was unwatered. The dam was not rebuilt and the lock was unusable. To close off the flow of water out of the canal into the lock and in the river, an earth closure was built at the towpath and the mule bridge became obsolete. The earth dam leaked and was replaced by a stone wall in the early 90's. This lock is in good condition, although much re-pointing and minor replacement of stones is needed. The lock side of the stonewall closure at the entrance to the canal is silted into towpath level.
- *72.77 (37-12) (37-13) (37-14)
- 72.80 (38-1) Lock No. 38 (Shepherdstown Lock): 5' lift. Contract was awarded to Gilson and Company in the spring of 1832, and the lock was finished by the fall of 1833. Well cut gray-blue limestone was used as the building material and the dimensions were standard. Prior to 1850 ferry service was commenced at this location connecting the Maryland shore to Shepherdstown. Because of heavy resulting traffic, immediately below the lock, large stone abutments were built to carry a wood bridge over the flume, canal, and towpath before 1850. In 1850 a

*See following page 64A for insertions.

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72.77 (37-12) Knode (William) House: Estimated to date from third quarter of 19th century. Two story, 3 bay brick structure with gabled standing seam metal roof. Porch with hipped roof at front door; roofed full-width porch at first floor level on rear elevation overhangs an exposed full story of stone foundation. Windows have 6 over 6 sashes with jack arches. Two end chimneys. House is owned and occupied by Knode family descendant and is in excellent condition; NPS holds easement.

(37-13) Knode (George) House: Estimated to date from second quarter of 19th century. One story, 3 bay stone whitewashed structure with a small frame and brick extension. Windows and doors are small and irregular, with evidence of alteration. Southwest of the house toward the river are a set of small frame out-buildings and a stable. The complex is in fair condition. Near the river's edge are ruins of a brick structure, traditionally a stagecoach stop.

(37-14) Barr House: Circa 1830 2½ story 3 bay stone house with a double porch along the front elevation. Gable roof of house extended unbroken over porch. Porch posts at both levels are turned and flanked by decorative jigsaw brackets at tops; railing at upper level is atop jigsaw boards in lieu of balusters. Windows are 6 over 6 at ground story, 9 over 6 at upper story. An external stone chimney rises at the north end, sloping inward until it is flush with the wall at the gable. An incompatible cinderblock chimney has been added at the other end. Condition of house is fair.

covered wooden bridge was built across the Potomac utilizing parts of the canal bridge supports. This bridge was burned by the confederates in 1861. It was rebuilt in 1871 and destroyed by the flood of 1890. The abutments were raised 6' with granite blocks and a new iron bridge was built before 1900. The iron bridge was totally destroyed in the 1936 flood. In the early 1950's the James Rumsey bridge was built as a highway crossing to Shepherdstown. One of the high pier supports rest in the upper berm wingwall. Although this is an intrusion, any damage done to the wingwall during the construction of the bridge was repaired and the wingwall butts into the new pier about 15' from the berm edge of the upper lock opening. The lock was extended on its downside in the 1870's to twice its original length with rock filled wood cribbage. The lock is in good condition although considerable repointing is needed. A portion of one of the lower lock gates is in place (probably not original). The lock extension is indicated by the long pile of rock, now minus the wood cribbage. The abutments of the former wood bridge are mostly intact with much repointing and some replacing of stones needed. This lock has easy access from the highway, with some parking and is used as a picnicking, fishing, and river swimming area and is maintained with some care.

- (38-2) Bypass Flume: The concrete pier of the James Rumsey bridge covers the berm side upper entrance by the bypass flume. The remaining flume is a rubble stone ditch about 5' wide at the bottom 15' away from and parallel to the lock. At about 46½' from the lower berm wingwall the ditch is covered and becomes a culvert and terminates in a carefully constructed arched opening in the lower berm wingwall. The remaining flume and culvert is in good condition.
- (38-3) Section House: The 2½-story, wood frame section house over a stone full basement that existed in the 1960's has fallen and little remains other than the stone foundation. This is located close to the upper end of the lock, berm side. No mention is found of a lockhouse and no remains are apparent. A 1949 photograph of the berm side of the lock shows a second building toward the lower end of the lock with its long side perpendicular to the lock. It was privately owned, 2½-stories, wood frame, with two-story covered porch on canal down side and of same size. Nothing remains but part of the sizeable brick chimney with tumbled bricks scattered around.

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- 72.86 (38-4) Canal Overflow: Above Lock No. 38 the towpath of the canal widens to over 25' in width. In this area the path is depressed for about a 90' length for an informal overflow with flume to the river. The depression and riverside of the towpath were paved with dry laid stones. Much of the stonework and flume have been silted over. The National Park Service has recently filled the depression to normal towpath level in an attempt to make pedestrian passage easier.
- 73.46 (38-5) Culvert No. 107: Built circa 1834 of rough cut sandstone with a 4' opening covered by arch on a 2' radius. Outflow face wall has lost most of its mortar and silt covers half of the arch and angles up on either side. Inflow is similar. Condition is poor.
- 72.82 (38-6) Ferry Hill Plantation House: Earliest part built 1812. Two-story, 5-bay, red brick main block with hipped roof; 2-story, 7-bay brick and frame el at rear with modern 1-story frame extension, both with gable roofs. Flat brick arches over windows; broad elliptical arch spans the main entrance over a fanlight with ray muntins and matching side lights. Attached Doric columns flank the door. Windows have modern framing and 6 over 6 sashes; many are flanked with louvered shutters. Main block has 2 gabled dormers with arched openings, modern portico covering the 3 center bays of the facade supported by 4 Doric columns. Double porch along east wall of el. Inside chimneys at both ends of main block and north end of el; a fourth rises from the interior of the el. The exterior and interior have undergone many alterations; the most recent have been to adapt the building to a restaurant-club. Plans in 1978 are to adapt the building for use as park headquarters.
- 74.00 (39-1) Lock No. 39. (One Mile Lock and Earlier as Nitcher's Lock): 9' lift. Original contract was let in 1832, abandoned, and relet in 1833 to Jacob and Alexander Provost, and was completed in late 1834. Most of the canal, between Locks No. 38 and No. 39, had to be blasted from solid rock. The canal is little more than 30' wide, towpath and berm banks are nearly vertical and the towpath is of minimum width. The lock is built of sandstone, carefully cut and laid, and the overall dimensions are standard. Both upper and lower mitre sills (the horizontal triangular truss-shaped wood members against which the gates rest

when in a closed position) are in place, although the lower is badly rotted. Both upper and lower lock gate pocket walls are badly bulged. The solid rock foundation between Locks No. 38 and No. 39 ends before Lock No. 39 for just below the lower gate pockets; the same 12 x 12 oak timbers (perpendicular to the walls) can be seen below the lowest stone course that provided the foundation for the lock. Both towpath and berm lock walls show much evidence of being cut back, a good indication that wall movement was early. The movement has continued and the lock is restricted from 8" to almost 2' in a clear width measurement. Most stones are in place, but the evident rotting of the wood foundation doom the lock to an insecure future. Collapse could be in the near future. The lock is in bad shape although mostly intact at this point. Both lock gates are gone although some of the hardware is intact.

- (39-2) Bypass Flume: The entrance to the flume is in the upper berm wingwall through a circa 1890 square concrete culvert 9' long with an interior width of 4½'. This culvert amounted to a bridge to the lock from the lockhouse and it probably replaced some wood planks that spanned the original dry-laid rock flume. The lip of the concrete culvert is grooved to receive stop planks for control of the water to be bypassed. The remainder of the flume is a ditch with the bottom about 6' wide. Bottom and sides are dry-laid rocks of which the first 12' beyond the concrete culvert has been covered over with concrete. The flume terminates through the lower berm wingwall.
- (39-3) Lockhouse, Lock No. 39: Built circa 1835 on the berm side toward the upper end of the lock. The 1½-story house was of typical dimensions and of frame construction on a stone foundation with no basement due to the heavily rocky ground. Sections of the foundations remain but all above is gone.
- 74.04 (39-4) Culvert No. 108: Built, circa 1834, of rough cut, irregularly laid sandstone with a 6' opening covered by arch on a 3' radius. Bottom of culvert has considerable slope down from inlet to outlet side. Both faces of culvert are in remarkably good condition. Natural outcropping of rock was utilized as part of both finished faces. Some silting in bed of culvert, but much less than in most.
- 74.07 (39-5) Wasteweir: A post-1900 concrete, 3-gate wasteweir through

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the towpath side applied over older stone masonry walls. The three openings are about 34" wide with a clear height of 9'-7". A 12' wide slab covers the openings at towpath level. Portions of the 2 masonry walls with the newer concrete additions placed within them are observable on the river side of the weir. Evidence of gates is missing.

- 74.12 (39-6) Timepost: A section of log, about 12' in diameter, was sunk into the ground, with about 3' protruding above grade, on the towpath side of the canal approximately 450' both below and above a lock in the 1870 period to establish the order of barge passage through the lock. The first barge to tie to the post was next through the lock. This post, above Lock No. 39, is the only remaining evidence of this specific canal rule or custom.
- 74.28 (39-7) Culvert No. 109: Built, circa 1834, with 6' opening, covered by an arch of 3' radius, of rough cut and random laid sandstone. The bed of the approach to the culvert and the inlet itself is blasted from solid rock and has a rapid drop once inside of the culvert. Both inlet and outlet faces have had minor recent repair and are in fine condition. Approximately 20' above the inlet headwall is a low stone wall barrier in the drainage channel so that silt buildup would be exposed for easier cleaning than if it were to collect in the culvert.
- *75.73 (39-7A)
76.65 (39-8) Culvert No. 111: Built, circa 1834, of rough cut, roughly coursed sandstone with 6' opening covered by arch on 3' radius. Much of the base of the interior of the culvert is solid rock, but the outflow face is supported on a wood cribbage. The downside, to the spring of the arch, was replaced by concrete probably post 1900. The upside shows rotting away of its wood foundation, as the wall is partially fallen below the arch spring. Both in and outflow faces are much overgrown. The culvert has been restored during the summer of 1976.
- 76.73 (39-9) Bridge Foundation: Concrete foundations, circa 1900 on the river side of the towpath for a swinging bridge that crossed over the towpath and canal to give access to Sharpsburg Landing.
- 76.76 (39-10) Overflow: 132' of the towpath was lowered to water level of the canal as an overflow. Towpath and river side of the towpath were rock covered to hold the soil. Has

*See following page 68A for insertion.

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75.73 (39-7A) Killiansburg Cave: Cave on bermside cliff 50' above towpath, about 20' high by 30' across by 35' deep. This and other caves in the vicinity were used by citizens of Sharpsburg for shelter during the battle of Antietam, September 1862. No visible evidence of this use remains.

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recently been brought up to towpath level with earth fill.

- 78.00 (39-11) Overflow: 240' of the towpath was lowered to canal water level, path and river side were rock covered. Has been recently brought up to towpath level with earth fill.
- 78.15 (39-12) Culvert No. 112: This site has become so silted in that original structure assessment is difficult. On the inflow side fill extends to about the coping stone level and a 2' diameter terracotta pipe drop inlet has been added. On the outflow face, the pipe passes through a rough stone wall that may be part of the original face wall.
- 79.41 (40-1) Lock No. 40: 6' lift. The contract was let to Gibson and Company in the fall of 1832. This was at the height of a cholera epidemic, which resurged in the summer of 1833. In early 1834 the contractor was warned that the contract would be terminated if more progress was not made. Health conditions did improve and work was pushed to completion by the end of 1834. The lock was built of gray-blue limestone and conforms to standard lock dimensions. A portion of the upper berm lock gate and balance beam remains on the floor of the lock. This gate has two wicket gates at its base. The gate was creosoted, which has aided its lasting power. Early movement of the lock walls is indicated by extensive cutting back of the face stones of the lock side walls, particularly on the berm side. A few stones are missing and several are broken or badly decomposed. The lock walls are in fair shape, with evidence pointing to a wood timber foundation that is beginning to give.
- (40-2) Bypass Flume: The upper berm wingwall runs for 16' in laid stone and is abutted by a concrete continuation 13' long. The concrete becomes the headwall of the bypass flume, which has an opening 55" wide by 6'-8" in height and is a covered culvert for a 10'-12" length with slots for stop planks in its wingwall face. After the culvert length, the walls and bottom of the flume continue in concrete for 10'. Beyond this point the flume continues, parallel to the lock, with dry laid field stone bottom and sides. The flume terminates over a dry laid extension of the lower berm wingwall.
- (40-3) Lockhouse, Lock No. 40: This house, set back on the berm side close to 80 yards from lock, was small, 18'x24'. The remaining foundation of field stone, has no basement, and portions of a stone chimney at the south end remain. The house was wood frame, 1½-story, and is totally gone. The remains of a root cellar is in back of the house and is probably of early construction to make up for the lack

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of a basement. 106

- 79.65 (40-4) Wasteweir: The concrete of this weir has a prominent "1923" date on its surface, a very late replacing of an earlier stone structure. The concrete weir has two retaining walls for the towpath, and the between space is divided into 3 openings about 33" wide with 12" vertical slabs making the divisions. The openings are 9'-2" clear height, and are covered by a 12" slab, 12' wide, at towpath level. The original rubble stone floor of the outlet tumble shows through the later applied concrete which has cracked and decomposed.
- 79.98 (40-5) Culvert No. 114. (Rose's Culvert): Built, circa 1834, of rough cut and coursed sandstone with 4' opening covered by arch on a 2' radius. Although the barrel of the culvert appears to be swayback, there are no breaks in the bottom of the canal above and the barrel is holding. The stone outcroppings, on which the culvert was built, are visible. Both inlet and outlet faces are in good condition, needing only some repointing.
- 80.55 (40-6) Culvert No. 115. (Mondell's Culvert): Built circa 1834 of rough faced and coursed sandstone with 6' opening covered by arch with 3' radius. Built on solid rock outcropping. Top of coping on outflow side about 5' above top of arch with 6' high wall built up above of dry laid rubble for elevated towpath. Both inflow and outflow faces are in good condition.
- 80.95 (40-7) Taylor's Landing Wharfs: The berm side of the canal was walled for 375' with cut, roughly coursed limestone with the center 125' set back 16'. This provided for 3 barges at a time for unloading and loading. Much of the wall is intact.
- 81.62 (40-8) Culvert No. 116. (Marsh Run): Built circa 1834 of rough cut and random coursed sandstone with 10' opening covered with arch on a 5' radius. Top of coping about 5' above top of arch with about 10' vertical wall below arch spring stone on outflow side. Top of coping about 12' above top of opening on inflow side with about 5' of vertical wall exposed arch spring stone on outflow side. Culvert is in good condition. Has been recently repointed.
- 81.87 Natural Spring: A running spring apparently occurs under the bottom of the canal as three breaks can be seen in the canal bottom. The river side of the towpath is

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shored up for its full height for a distance of 20'; with log cribbing and water seepage occurring along the bottom portions of the cribbage.

- 82.99 (40-9) Culvert No. 118 (Hensen's Culvert): Built circa 1835 of rough cut and rough laid sandstone with coping and ringstones smooth cut for contrast. Has 6' opening covered with arch on a 3' radius. Top of coping on out-flow side about 6' above top of opening and continued up for another 6' in dry laid rubble to confine elevated towpath. Silted in above arch spring stones on both faces. Inflow side has sloping earth up for 12' above coping for berm wall. The portion of faces that is exposed is in good condition.
- 84.35 (40-10) Wastew weir: A concrete replacement weir covering of earlier stone weir through the towpath side of the canal. The date 1920 is inscribed on the concrete, making it a very late repair. The clear width of the weir is 11'-9", broken up into three 40" openings, with disintegrated concrete divisions replaced by 10" x 10" wood posts. Clear height of openings is 8'-4" and the concrete slab cover at towpath level is 14" thick and 13'-4" wide. Concrete used seems to be a poor mix and weir is in fair condition.
- 84.40 (40-11) Dam No. 4: Joseph Hollman received the contract in the spring of 1832 to construct a dam across the Potomac of heavy timber cribbage filled with rocks. The cholera epidemic in the summers of 1832 and 1833 slowed construction and damage by winter ice in 1833 and 34 required extensive repair. Construction was complete by late 1835. This dam was necessary to impound water that could be drawn into the canal to maintain a sufficient operating level of water in the canal down to the next dam. By 1856 the existing dam leaked so badly that the canal could not be adequately watered. Humbird and Robinson were awarded the contract to construct a new masonry dam in the fall of 1856. An ice flood in early 1857 and spring floods of that year undid much of the work that had been done. Work was continued and a flood in the fall of 1858 caused major damage to the dam and the contractor defaulted. The contract was relet in the fall of 1859 to Lewis Stanhope. Spring floods in 1860 caused damage to the work and the contractor defaulted. In the spring of 1860 the contract was relet to William Simons and James F. Brown, who completed the masonry dam in late

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1860. The new dam was considered to be a splendid structure. Since that time it has been repaired, strengthened, and raised many times as the Potomac is subject to severe floods, each one seemingly higher than the last. The last repair work was done in 1964-1965 and the dam is intact and in good condition. On the river side of the dam 24' of water is impounded and this remains at a nearly constant level throughout the year. This dammed section of the Potomac is known as "Big Slackwater" and is much used for recreational purposes.

(40-12) Guard Dyke: To protect the canal from Potomac flooding, a dyke, about 18' higher than the towpath level, was started inland on the Maryland shore, and is carried to the river bank where the dam connects with the shore, turns, and runs along the river edge for 1.1 miles, turns inland again and runs until higher ground is reached. The canal passes through this dyke at its lower end, and again at its upper end. The dyke appears to be of compacted clay soil on a 1 to 1½ slope, both sides, with a 12' wide flat top. The dyke is totally covered with vegetation. A break in the dyke, caused by the 1972 storm, (and since repaired), disclosed no wood cribbage or rock buildup on the interior, just a dense clay like soil with its exposed surface held by a maze of roots. The dyke is on the immediate river's edge, and the towpath and canal are on the land side of the dyke as it returns to towpath level. It becomes an 18' high cliff on the river side of the towpath.

(40-13) Winch House, Dam No. 4: At the point where the canal passes through the down end of the guard dyke, the dyke itself is confined by a vertical, laid stone retaining wall 18' high at the berm bank of the canal, (17' wide), and at the river side of a narrowed towpath, (7' wide), to protect the lower canal from excess water from above, in times of flood. A winch house was built at the top of and spanning between the two stone retaining walls. This structure houses the machinery to lower a large wooden drop gate into a groove on each side of the canal as a stop for high water. The structure was of wood, with enclosed up and down sides and covered with a pitched roof, all very similar to a 12' wide and 24' long covered bridge. The stone retaining walls were repaired, circa 1970, and the winch house is a total reconstruction done in that period. The drop gate and machinery have not been replaced.

85.6 (40-14) Guard Lock No. 4: The contract was let to Joseph Hollman

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in the spring of 1833 for the construction of the lock. Work was completed in the spring of 1834. Smooth cut, gray-blue limestone was used as the face material. The sturdy remains indicate that great care was used in the construction. The guard lock is special, as the normal purpose of a guard lock in the slack water above a dam was to let necessary water into a canal so as to water the length of the canal down to the next dam and lock. Its incidental service was that it would allow barges to enter the canal from the river. Guard Lock No. 4 was used by all barges, as the river from this point became the canal up for the next 3.3 miles. The upper end of the lock passes through the guard dyke, and, as at the winch house, the dyke is confined by vertical stone retaining walls, 15' apart, with a further 15" recess on each side for a length of 10' for gate pockets. The high wall through the guard dyke (which is also the upper gate pocket) is stepped down in 12" increments of layers of stone (with 12" treads) for 10 levels, thereby decreasing the lock walls by 10' to the normal height. The lock is 91'-5" between gate pockets. The lock gate, at the edge of the river, was unusually tall (over 20') and rather than a normal top and bottom iron gate post strap let into the stone quoin for support of the wood post, a third strap was added midway between the top and bottom to help take the added weight of the particularly heavy gates. Above the upper lock gate pocket the tow-path wall extends for about 2', makes a 90° turn with a radius of 2' and runs for 21' along the river bank, and tapers into the guard dyke. The berm side extension is 15½' long. A service built bridge spans above the upper portion of the upper lock gate pocket and is probably one of many replacements of the needed original bridge that the tow mules had to have to cross over the lock because the berm side of the river (in this location used as the canal) became the towpath. The lock is generally in fair shape. Some stones are missing and considerable repointing is needed. The National Park Service has built a wooden barricade at the upper end of the upper gate pockets to confine the Potomac, and only leaks and seepage cause the small amount of water that exists in the canal in this area.

- (40-15) Lockhouse, Guard Lock No. 4: close to the point where the upper guard dyke terminates in the rising Maryland shoreland is the remains of the c. 1835 lockhouse. The roughly coursed limestone basement walls and exposed foundation measure 23'x23'-10". The wood frame, 1½-story house is totally gone.

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85.74 (40-16) Canal Water Intake: 225' above the guard lock and at the river edge, (which is also the river-canal towpath) stone abutments 15' apart break the towpath (a wooden bridge between and above the abutments provided for mule traffic) to provide for the watering of the canal from this point down to dam #3. Normally the guard lock would provide the canal with water, but in this case the guard lock became the lift lock to bring the barges back into the canal. An additional source for the required canal water was needed and was provided for by this intake. The flume is carried through the guard dykes in a laid limestone, 10' wide, arched culvert. The upper end of the culvert was slotted to receive cast iron lift gates for controlling the amount of water taken from the river. The culvert emerges into a shallow, rock lined ditch about 15' wide that re-enters the canal below the guard lock.

*88.10 (40-17)

88.90 (41-1) Lock #41: 10' lift. The contract was let in the fall of 1832 to Michael Byrns and Co. Delay was caused by the Canal Company's decision to move the site of the lock from that originally planned. It wasn't until late 1834 that the lock could be completed on the selected site. It is by the lock that the barges leave the canal for a 3 mile run in the Potomac before re-entering the canal at Guard Lock #4 on their way down to Georgetown. A gray-blue limestone from the immediate area was used for construction. It is not a good stone and was much eroded by water, exposing narrow knife-like stratas of a denser stone. Around 1900 the lock required extensive repair. Much of the river side (towpath) of the lock was removed and replaced with concrete excepting the wingwalls. The berm wall (although used as the towpath) was much reworked and rebuilt with some sections of concrete. The brest wall face is in line with the upper end of the upper gate pocket. The lower (river side) gates are in place, although in a badly deteriorated condition. One of the upper gates is extant, including its balancing beam. Much of the gate's hardware remains although little of it is original. The lock is subject to periodic floods and the build-up of silt is severe. The lock is in poor condition and requires much major work. The towpath (the Maryland river bank side) below this lock for 140' is supported by a dry laid rubble (large size) stone wall on a 1' rise to 2' length to hold it from the river currents. As Lock #41 took the down-going barges from the canal to the river the mules had crossed by bridge at Lock #42 to the berm and remained on the berm until the bridge at Guard Lock No. 4.

*See following page 74A for insertion.

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88.10 (40-17) McMahons (Charles) Mill: Dating from 1778, the mill is a large frame gambrel-roofed structure on a high fieldstone foundation which forms the first story on the west side, where the mill wheel is located. The mill produced flour, feed, and plaster until it was closed by floods in 1922. The wooden overshot wheel was replaced by a steel wheel in the 1920s, when the waterpower was used to generate electricity; that wheel is now present. The existing internal works will be removed by the former owner when he vacates the property. Condition of the structure is fair.

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- 88.90 (41-2) Lockhouse, Lock #41: Above the upper end of the lock and on the berm side is the stone foundation of the former lockhouse. The overall dimensions are 16'x28', small thay typical. The house was of timber construction although none remains. There are several other unidentified foundations in the nearby area. Built in 1836.
- 89.04 (42-1) Lock #42: 8' lift. The contract for Lock #41 and #42 were simultaneously let to M. Byrne and Co. in the fall of 1832. Both projects were finished by late 1834. A local gray-blue limestone of poor quality was used on this lock. Dimensions were standard and the brest wall was flush with the upper end of the upper lock gate pockets. The lock shows much evidence of repair. Circa 1900 the brest wall from mid lock down was removed, stones piled beyond the towpath (where they remain), and replaced by concrete. Much of the remaining stone is deteriorated and some are missing. The lock is generally in poor condition. The rotted wood remiments of all the gate lay near their proper location on the bottom of the lock. The mule cross-over bridge was at the extension walls below the lower lock gate pockets. An abutment of stone 8' long and 2' higher than the coping stones was the base of the wood bridge. The current bridge is a modern replacement.
- (42-2) Lockhouse: built in 1836 but nothing remains but partial stone foundations and a brick fireplace.
- *89.21 (42-2A)
- 89.21 (42-3) Culvert #118¹: built c. 1839 of sandstone with a textured finish, and in continuous courses. The opening is 4' wide, and is covered by an arch with a 2' radius. The coping stones protrude about 3" beyond the wall face and the top of the coping is about 5' above the head of the arch both on the inflow and outflow side. A battered earthen bank rises above the culvert face up to the towpath and berm elevations. ~~The berm face is in good condition, the river-side in poor, but the 103' barrel appears intact.~~
- 91.66 (42-4) Culvert #119: built c. 1839 of textured sandstone with 4' opening covered with arch of 2' radius. Face wall rises 5' above top of arch on outflow side and a vertical height of 4' is reached before spring of arch in opening. Inflow side is silted into arch spring. Both faces are in good condition. The barrel of the arch of 103' length appears intact.

*See following page 75A for insertion.

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*89.21 (42-2A) Burnside House: Mid-18th century stone house in 3 adjacent but unconnected parts. Center portion is without basement; each end portion has its own basement (and furnace). Each portion has its own second story and stair. The only internal communication between the three parts is via a one-story sunporch of later construction. Construction of the house is akin to other mid-Atlantic building of the mid-18th century. A large frame barn of probable 19th century construction is on the property toward the canal. The house is in good condition and occupied.

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- 92.73 (42-5) Wasteweir: a early 1900 concrete weir built through the towpath side of the canal. Has 3 openings with center of 30" and two outside of 35", with clear height of 9'-2 3/4". Concrete slab 12' wide at towpath level. Control of the openings must have been applied on the canal face of the openings but no evidence of the closures remain.
- 92.96 (43-1) Lock #43: 9' lift. The contract for construction was awarded to M. Byrne and Co. in the fall of 1832. It was finished in early 1835. Built of gray-blue limestone to standard dimensions with brest wall flush with the upper end of the upper lock gate pocket. The extension walls below the lower lock gate pockets continue for 12', down at a 30° angle to reach the 7' canal height. The coping stones are missing for these wingwalls. The berm wall of the lock tilted inward, a considerable portion of the upper wall was removed and rebuilt back to the original clearance of 15' with the lower unrebuilt wall protruding 2 1/2" to 4". Most of the upper 2 courses of stone on the upper end of the lock have been replaced and concrete has been used as a fill-in for missing stones. The date 1921 appears in concrete work in the upper berm wingwall. The remains of all four gates are in place, with some wicket gates in place, but all balancing beams missing. The lock needs repointing and some stone replacement, but is generally in fair shape. Above the lock the canal is narrow for some distance, and the almost vertical berm wall is held by dry laid stones.
- (43-2) Bypass Flume: the 15' of upper berm stone wingwall butts into one of two 12" thick, 4' long, (parallel with the lock), concrete walls 4'-8" apart which were the upper entrance to the flume with no longer existant drop planks across the upper face. The earthen ditch parallels the lock and is 20' away. The flume spills over the bottom berm wingwall.
- (43-3) Lockhouse, Lock #43: built c. 1836 with stone foundation, full basement, and of standard dimensions. The construction is of brick with a central brick chimney. The present roof is metal with standing seams, but it is likely that a shingle roof is under the metal. A small roofed porch has been added on the center rear, and a 12' by 12' enclosed porch added on the center front. The porches are probably post 1900 additions. The house is back 30' from the berm side of the lock and about 100' down from the lower end. The house is in fair condition and is unoccupied.

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- 93.0 (43-4) Culvert #120: built c. 1839 of limestone, with 6' opening covered by an arch on a 3' radius. Both inflow and outflow faces have tapering wingwalls, (the down side wing has collapsed on the inflow side), and show about 4' vertical dimension under the arch spring. For the first 10'; on the inflow side, the up-canal side of the interior of the culvert is badly bulged although there are no apparent breaks in the barrel of the arch. Much repointing is needed but the culvert is in fair shape.
- 93.56 (43-5) Culvert #121: built c. 1835 of random cut and coursed limestone, with 6' opening covered by arch on a 3' radius. The outflow face apparently started to give way and is buttressed on either side of the opening with sloping perpendicular wall of local rubble laid in mortar. The deposit of silt is close to the spring of the arch. The buttressing has partially given, some stones are missing from face wall, and the outflow side is in generally poor condition. The inflow face is in much better shape, although silt has filled to within 18" of the spring of the arch. A very apparent bulge in the top of the barrel can be seen about 8' in from the inflow face. There are three washouts in the canal bed above the arch barrel and although it seems to be still intact, much of the mortar must be gone. The culvert is in an area that has several post-1930 fishing cabins on leased lots.
- 94.4 (43-6) Bridge abutments: the Maryland bank of the Potomac is opposite the village of Falling Waters on the West Virginia side and was the site of a ferry service. Sizeable abutments of rough cut and laid limestone are placed on the berm bank and on the river side of the tow-path, about 60' apart, carried the timber bridge above the canal traffic. The width of the supports is about 14'. Nothing remains of the timber bridge but the stone abutments are in good condition.
- 95.05 (43-7) Culvert #121½: built c. 1835 of rough cut, irregular sized blocks of limestone with a 6' opening covered by an arch on a 3' radius. On the outflow side, the face wall extends about 6' above the top of the opening and sloping wingwalls splay out from either side of the arch ringstones. The opening is silted in, almost to the spring of the arch. Total repointing is needed but most of the wall is intact. On the inflow side the silt covers 1/3 of the arch opening and if there are wingwalls, they are covered. This face is in poor condition.
- 95.66 (43-8) Culvert #122: built c. 1835 of rough cut, irregular size

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limestone laid in regular courses. The opening is 6' wide and is covered by an arch on a 3' radius. Face wall on inflow side continues about 5' above top of arch and upper canal wingwall has tumbled. About 3' vertical below the arch spring is exposed. General condition is fair. On outflow face the wall above the arch is partially tumbled, although the wingwalls are mostly intact. Some stones are missing and general condition is fair.

- 96.23 (43-9) Docking area: the canal was widened by indenting the berm side for about 90' and the up-canal side of the indentation was a vertical dry stone wall that provided for a docking area.
- (43-10) Section house: In the same area, about 30' back on the berm side is a concrete foundation, about 20' by 35', that supported a story-and-a-half timber house for the maintenance crews for this section of the canal. The timber above the concrete was totally removed in the flood of 1936. In back of the section house are the ruins of a small stone spring house. The roofing is gone, the upper wall stones tumbled, and the spring is filled in.
- 96.24 (43-11) Culvert #123: built c. 1835 of rough cut, irregular size limestone with a 6' opening, covered by an arch on a 3' radius. Outflow face is silted-in to about 2' below the spring of the arch. There is no evidence of wingwall, and face is in fair shape. The inflow side is in ruinous condition with little more than the ringstones of the arch still holding. Silt fills two thirds of the arch. Bad leaks in the canal berm wall indicate that the barrel is either badly cracked or partially fallen below. In the canal bed itself a 15' length of the barrel of the culvert has totally collapsed.
- 96.72 (43-12) Culvert #124: built c. 1835 of rough cut, irregular size limestone with a 4' opening covered by an arch on a 2' radius. Culvert appears to be on bed rock foundation and has, as a result, stood up remarkably well. The outflow face wall is about 22' long with the opening slightly off center. About 6' of vertical wall is exposed under the spring of the arch, and the coping stones are about 4' above the top of the arch opening. All stones are in place and only minor repointing is needed. The inflow face is similar, but with only 4' of vertical wall under the arch spring and with more silt accumulation along the face wall.

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- 96.89 (43-13) Culvert #125: built, circa 1835, of rough cut gray limestone with a 4' opening covered by an arch on a 2' radius. Both inflow and outflow sides are silted in to above the top of the arch spring and the faces appear to be long, flat walls without wingwalls. The structure exposed appears to be in good condition.
- 96.97 (43-14) Culvert #126: built c. 1935 of rough cut limestone with 4' opening covered with arch on a 2' radius. Little remains of the culvert other than the section under the berm and the inflow wall, all the rest washed out in one of the floods, even taking with it a sizeable section of the towpath wall. The inflow face wall is mostly tumbled above the arch keystone. *Culvert restored 1978.
- 97.44 (43-15) Stone dock and railroad bridge abutments: because the Cumberland Valley Railroad was nearby, the berm bank of the canal was faced in stone and a wooden dock was added. Barges carrying coal from the Cumberland area were unloaded here. The coal was further shipped by railroad to a market. A large stone abutment remains on the berm side and a pier on the towpath side that carried a railroad bridge over the Potomac to West Virginia. These stone structures are about 20' high and remain in good condition.
- 97.54 (43-16) Boat basin: this is the location of the post 1900 railroad bridge replacement of the item (43-15). A large concrete pier is on the towpath side of the canal, and opposite to the pier is an entrance through the berm wall to a boat basin with maximum length of 200' x 175' wide. The basin is much silted-in.
- 97.95 (43-17) Culvert #127: built circa 1835 of rough cut, irregular size limestone with 4' opening covered with an arch of 2' radius. The culvert is largely collapsed, with only the section going through the berm wall and the inflow face intact, and this portion is in very unstable shape.
- 98.44 Spring: at this point a natural spring was found to be in the path of the canal. The lower portion of the river side of the towpath is a dry laid stone section which probably continues back to the source of the spring. There appears to be a constant drainage of water from the wall running to the river.
- 98.92 (43-18) Wasteweir: a early 20th century concrete replacement of an original stone weir through the towpath side of the

canal for drainage. No evidence of the original remains. The substantial concrete structure has three openings of over 30" wide and 8'-6" wide, to the underside of the covering 14" concrete slab, 11'-6" wide, at the towpath level. Bolts on the canal face indicate wood frames to hold wicket gate or stop planks, or a combination of both. The 20° sloping bottom slab on the outflow side continues out about 12' and water from its edge has undercut the earth forming a drop of about 6'.

- 99.12 (43-19) Culvert #128: built c. 1835 with a 4' wide opening. The exterior faces of the culvert are totally covered with the exception of the coping stones and a partial row of stones beneath on the outflow side. The barrel of the stone culvert must be intact as the canal bottom has no breaks at this section.
- 99.3 (44-1) Lock #44, (Williamsport Lock): 10' lift. The contract was let and work was commenced in the fall of 1832 by M. Byrne and Co. The lock was completed by December of 1834. Limestone in two colors (3/4 almost white, 1/4 medium gray) was used for construction. Standard dimensions were adhered to. The breast wall is at the upper end of the upper lock gate pocket, with measurement of 8' from the top of the coping stones to the top of the breast wall. Both pair of lock gates, with hardware, are in place, apparently with all wood creosoted which has allowed their survival in better shape than most. Minor bulging has occurred in spots on the lock walls, but principally in the lock gate pockets. Much repointing is needed, but the general condition of the lock is good. Twenty four feet below the upper pockets on the towpath side and back 6' from the towpath wall is a surviving snubbing post of chestnut. It is about 2' in height and about 12" in diameter. Grooves worn by the towropes are pronounced on the lock side of the post. This lock was extended on its down side by fieldstone filled wood cribbage for a length of 133'. No indication remains, however, of what sort of lock gates were used for the extension. The lower extension of remaining rocks appears not to have been thickened up to support the extra strain of supporting swinging gates. The lock is about 1/4 mile back from the Potomac. The canal is quite wide above this lock and much of the berm bank is of field stone. The village of Williamsport was a major traffic center for the canal. The berm path side of the canal has been filled in and the bypass flume obliterated.

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The canal is quite wide above the lock for some distance with much of the berm bank rock faced. As this is approaching Williamsport, a thriving trading community during canal day, barges could be accommodated in this area.

- 99.31 (44-2) Lockhouse, Lock #44: About 40' back from the towpath wall is located the lockhouse, Its stone foundation is about 12" high on the towpath face, but a full $\frac{1}{2}$ -story at the rear due to a rapid slope of the towpath bank. The 16' x 30' wood frame house is a full two stories with a simple gabled roof with brick chimneys at each end. A small porch with a shed floor is at the entrance door, and a one-story addition, 12' in length, has been added on the down canal side, on a stone walled basement. A brick chimney protrudes through the gable roof of the exposed end of the addition. The present rolled roofing is a modern replacement of the former wood shingles. The house is unoccupied, but is in good condition. Exterior restoration 1978.

About 150 yards above the house a 40' wide earthen fill blocks the canal, and is used as an extension of Canal Street (Williamsport) for access to the Potomac Edison Plant built between the canal and the river. Two concrete culvert pipes through this fill allow for passage of water in the culvert.

- 99.65 (44-3) Bridge at West Salisbury Street: to accomodate traffic to flatland between the canal and the river (now Williamsport River Front Park), large stone piers were built on the berm side and at the edge of the towpath to give a 17' clear elevation above the canal water level for the iron bridge. The bridge was built in 1879 by Wendell Bollman, a Baltimore man, who had devised a new form of iron bridging in which the high open sides of the bridge were the trusses to carry the floor of the bridge at the lower level of the truss. Of the more than 100 that were built to Bollman's design, this is one of the few left.

- 99.69 Railroad Lift Bridge: just up canal from the iron Bollman bridge is this second iron bridge construction. It was built in 1924 to carry a railroad spur across the canal for the delivery of coal to the Edison Power Plant. Concrete buttresses carry a low, heavy, metal bridge of deep, reinforced "I" beams to carry the tracks for the coal cars across the canal. A super structure of columns and open trusses provide the housing for the mechanical to lift this heavy bridge the necessary 17' required for

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 barge passage. This ingenious elevator for a railroad section became immediately unnecessary as a severe flood that year so damaged the canal that the Canal Company could not afford repairs and the Company went into receivership.

99.72 (44-4) Cushwa's Boat Basin: The berm side stone retaining wall started on the up side of Lock #44 is continuous to this area, the Canal front area of the village of Williamsport. The Cushwa brick-making firm, that was in existence before the start of the canal, has several buildings associated with their production that front this area. During the life of the Canal, barges were one of the modes of shipping for the firm and this was a busy docking area for many goods and produce. Excavated and restored 1978.

*(44-4A)

*(44-4B)

99.80 (44-5) Conococheague Creek Aqueduct: The contract was let and work started by Michael Byrns and Co. in early 1833 and completed mid-summer of 1834. The iron railing on the down creek side of the towpath was added in the spring of 1835. Shortly after the aqueduct was completed it became the focal point of a battle involving the rivalry between gangs of Irish workers from nearby canal projects, resulting in many workers' deaths and finally requiring federal troops coming to Williamsport to restore law and order. To carry the canal over this creek, that carries considerable water, required a bridge with a distance 210' between abutments, which was broken up into three 60' spans with two supports in the creek itself. The towpath is 7'-3" wide, the berm 6'-2" and the channel was 19' wide and 7' deep. The facing material was a rough cut gray to a light gray-blue limestone with smooth arch ringstones and buttresses. Horizontal joints are continuous although stone size increases from top to bottom. This was the most architecturally treated of the canal structures, with a thin belt course up one narrow course above the top ringstone, buttressed, with a base and with a much molded cap, from the water line up to the coping, and the general feeling that this was to be a handsome structure rather than just utilitarian. The 60' wide arch rises about 12' in a graceful arc and the creek level is usually about the level of the arch spring stone. Wingwalls, on either side and both ends, turn out at a 60° angle and continue for about 26'. Any further walling necessary to retain the grade are of dry wall construction and tapering down as the situation demands. On the down creek side above the left buttress and including a small section of the wingwall, above the belt course, is an area that appears hastily and sloppily repaired. The projecting

*See next page 82A for insertion.

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- 99.72 (44-4A) Cushwa Warehouse; The earliest brick portion of the present structure dates from c. 1800; the principal portion was built c. 1835-40 (dating is from structural examination). The present two-story brick warehouse measures 36x102 feet in plan, is covered by a metal gabled roof, and contains 8 rooms. Windows and doors are randomly placed. Until it was filled, the Cushwa Boat Basin extended close to the end of the building, making the warehouse readily accessible to barges. The warehouse is now in deteriorated condition.
- 99.75 (44-4B) Williamsport Power House; The Williamsport Power House was built in 1896 and generated power for the Hagerstown Railway Company until c. 1900. The building is of brick on a concrete foundation and measures approximately 44x80 feet. A gable-roofed wing extends from a higher hip-roofed section. All windows and doors have round-headed arches. The roofs are presently covered with tar paper. The building is in deteriorated condition.

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architectural buttress was not duplicated and no attempt was made to match stone size or coursing. Because the area did see Civil War activities, it is guessed that this was an attempt to blow up the bridge, and hasty repairs were made after the unsuccessful attempt. On the morning of April 20, 1920, Captain Frank Myers, of Boat #73, and his step son, Joseph Davis, driving three mules, were passing through the aqueduct; the boat struck the berm wall; the wall wavered; the captain yelled to his step son to cut the mule lines, which he did; the captain jumped to safety on the towpath; and with almost the total collapse of the berm wall of the aqueduct, the water and barge plunged to the creek below. This was the first major damage caused to a barge by construction collapse of any canal structure. Barges had ramed barges, and storms and floods had caused great damage to barges, but the canal itself had not been a culprit in the 70 years since its completion. To repair the aqueduct, the floor was removed, 10" x 10" timbers 30'-6" long were placed 4' on center perpendicular to the channel and concrete fill was poured between the timber members. Vertical timbers were notched into and supported by brackets on the overhang of the horizontal timbers. A vertical wall of 4" x 4" timber was laid horizontally and bolted to the uprights. This new wood flume reduced the interior width of the aqueduct from 19' to 17'. All of the vertical wood wall is gone, most of the horizontal timbers have rotted away, about 6' of the up-creek-side barrel arches have given way on the center and down canal arches. A 15' section of the iron railing remains in the center arch section plus a few vertical members with their ornamental scrolled bracket. The aqueduct has been temporarily stabilized by the Park Service, but further work is needed.

99.93

The canal bed has been filled in for a continuation of Fenton Avenue of Williamsport to the river side bottom lands.

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- 100.23 (44-6) Culvert #129: Built in 1835 of rough faced and irregular coursed limestone with 6' opening covered by an arch on a 3' radius. On the outflow side the coping stones rest on the raised keystone of the arch. A few stones are missing from the upper face of the up-canal side and total regrouting is needed. In looking into the culvert from the outflow side several stones have pushed out up to 8". On inflow side the face wall and about 10' of the barrel arch have collapsed, and the berm side of the canal has washed out. This culvert is in very poor condition and will soon be a total ruin.
- 100.63 (44-7) Culvert #131: (there is no Culvert #130): built c. 1835 of rough cut, regular coursed limestone with a 4' opening covered by an arch on a 2' radius. Outflow face wall extends about 6' above top of opening and is finished off with coping stones protruding 2". There are no wingwalls as face wall continues to a natural slope of the banks on either side. The inflow face is almost totally covered and most of the berm wall above has been washed away. Although the outflow face wall is intact the total culvert is in poor condition and about 15' of the barrel vault near the berm side of the canal has collapsed.
- 102.00 (44-8) Culvert #133 (no evidence of #132): built c. 1835 of rough faced limestone with 6' opening covered with arch on a 3' radius. Both tops of the exterior faces of culvert are sloped up in contrast to the normal flat or horizontal coping used at the top of the wall. In both cases this taper up is met at its high point by a wingwall that tapers down at about a 30° angle. The low side of the face wall establishes the height of the wingwalls springing from it. Both openings have a clear vertical height of about 4' under the arch spring stone. Both faces have a few stones missing, and are badly in need of repointing. The condition is fair.
- 102.65 (44-9) Culvert #134: built in 1835 of rough faced limestone with a 6' opening covered by an arch with a 3' radius. The culvert appears to be built on natural rock. On both faces the arch is supported on about 6' of vertical wall. The wingwalls on the outflow side are 8' apart and come out at 90° to the face wall, and slope down at a 45° angle. Both wings have badly deteriorated stones. The inflow side is similar but the wingwalls are an extension of the opening, come out 9' and then turn at 90° to run parallel with the face wall. The top of the wingwalls

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and face wall are at the same high elevation. Especially large stones were used on the inflow side and many are not squared off which causes a random coursing. Both faces need repointing but the general condition is good.

- 103.14 (44-10) Culvert #135: built in 1835 of rough faced limestone with a 4' opening covered by an arch on a 2' radius. The outflow side is unusually high with a vertical opening under the arch spring stone of about 11'. The wall continues up about 5' above the top of the arch. The wingwalls are 6' apart and at 90° to the face wall with their maximum height to the base of the coping stone and taper down from that point at 45°. This slope is continued on the outsides of the wingwalls with large stone riprapping for some distance. The inflow face has about 4' of vertical wall exposed below the spring of the arch and the headwall continues above the top of the arched opening for about 5'. There are no wingwalls exposed. Above the face wall the high berm dike of the canal is supported by large stone dry laid slope of about 1 to 2. Both faces are intact, require repointing, and are in better than average condition.
- 103.45 (44-11) Dock and boat basin: this area was a center for canal repair crews after the waterway was put in operation. The dock was on the berm side and the iron mooring bars remain.
- (44-12) House: The existing two-story wood frame house was built by one of the canal workmen for his family and on canal property.
- (44-13) Section house: also on the berm side are the foundation remains of what was probably a 2-story wood frame house for the housing of permanent work crews for this section of the canal.
- 104.98 (44-14) Nestle Bridge piers: in 1906 a bridge was built from Maryland across the Potomac to West Virginia as the limestone, principally from Nestles Quarry, available here was in great demand. Much of the West Virginia bank of the Potomac in this area is high limestone bluffs. Of the six sizeable concrete piers, about 20' high, one occurs on the berm bank and one on the river side edge of the towpath. The remaining three in the river and one on the West Virginia side also are still intact. Nothing of the bridging structure remains.

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105.30 (44-15) Culvert #136: built c. 1835 of rough faced, random coursed limestone with a 22'-4" opening spanned by a low arch with a 5' rise to carry the Little Conococheague Creek under the canal construction. This culvert has a sloping top on its face wall, and most of the coping stones on the outflow side have slid off. The inflow side is similar, other than the coping stones are intact. The culvert appears to be built on bed rock and, although needing considerable repointing, is in good condition.

106.20 (44-15A) Miller's House, Charles Mill: the property adjacent to the _____ berm side of the canal is the site of a mill that antedates the canal. A portion of the stone foundation of the mill remains, but the mid-1800 "Miller's House" is intact. A high stone foundation of about 22' x 40' carries a 2-story brick house, centered chimneys at either end, with a gabled roof covered by wood shingles. Two windows are on either side of the centered door which is protected by a small wooden covered porch trimmed with Victorian wood lace work and a cut-out wood enclosing balustrade. Five wood treads on stringers provide for the steps. The house is in fair condition. NPS holds easement.

106.61 (44-16) Wasteweir: a c. 1900 concrete replacement of an earlier stone weir through the towpath for canal drainage. There are three 33" wide openings, 8'-8" high, separated by square concrete posts to which wood frames were attached to house drop gates. The 12" slab covering is 12' wide and is flush with the towpath level. The end walls are sloped at about a 45° angle to confine the slope of the towpath on either side.

106.80 (44-17) Dam #5: The dam was built to impound Potomac water so as to provide water for the canal down to Dam #4, 22.3 miles below. The original contract was let in the fall of 1832 to M. Byrne and Co. Construction was finished in late 1834. This dam was of rock filled wood cribbage with a solid planking upper face. A dam of such construction requires frequent repairs. In early 1857 a contract was let for a new dam of solid masonry just up-river from the leaking original dam. Floods in the spring delayed construction and work on the incompletd dam stopped with the start of the Civil War in 1861. In December of that year the Confederate army attempted to breach the dam at the Virginia abutment and later at mid-river, but Union troops were able to halt both attempts and to repair the minor damage that had been done. Construction resumed

after the end of the Civil War and the dam was completed by 1868. The dam is owned and maintained by the Potomac Edison Power Plant on the West Virginia bank. It is kept in good condition as it provides power for the plant.

- (44-18) Guard Dike: an earth fill for a short distance below the Maryland abutment for Dam #5 and for about 1000' above was heavily riprapped with stone to form a bank to hold the impounded Potomac waters.
- (44-19) Guard Lock #5: adjacent and above the dam abutment, the guard lock was built to utilize the river as the canal rather than blast a canal bed through very rocky Potomac River bank. Above Dam #4 the river provided for 3½ miles of canal; here it was for only ½ mile before re-entering the man-made canal at Lock #45. The contract for the dam and lock were let at the same time to M. Byrne and Co. The project was finished in 1834. The dam was built to impound up to 18' of water, thus the river side gates and pockets of the lock are high. Nine foot abutments were raised above the coping stones to span the upper gates to provide a crossing for the mules across the guard lock. These abutments are 12' long, and no doubt the wood bridge spanning over the close was that width. This is the area in which the lock-keeper operated the gate booms so the elevated mule bridge was necessary to give the gate-keeper head room and work space. The wood bridge has not survived and the current elevated wood bridge at the lower end of the lock is Service-built. About 20' in from the upper lock pocket a series of five equal steps lower the wall height by 5', and this elevation holds for the remainder of the lock. The distance between the lock pockets is 90'-6". The wall extension below the lower gate pocket is about 10' long, then turns on a curve for short run of wingwall as the canal immediately below the lock is quite narrow. The canal side of the towpath is high here (about 7' above the coping stones) for the approach to the mule bridge and is covered with carefully laid cut stones. Remains of the towpath side lower gate are in place but flood conditions have forced it against its bottom stop, breaking off the wicket area of the lower gate, and it has swung against the lower extension wall. Remnants of the other three gates are in the lock bottom. The lock is in generally fair condition, with much repointing needed. The dam was utilized for power by the West Virginia hydro-electric plant on the opposite shore and before the Canal became Park Service property they closed off the inlet in the

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upper extension wall above the upper lock pocket with a full lock height concrete wall in order to take full advantage of Dam #5, which they now maintain. For about 100' below the lock the towpath was badly washed out by the 1972 flood, which has now been spanned with a narrow Service-built bridge for the sake of canal hikers.

(44-20) Bypass Flume: the flume is immediately adjacent to the lock, separated only by the berm lock wall which has a coping of about 36" wide backed up by close to 2' of large rubble, laid in lime mortar in a wall that thickens in steps to the bottom. The river end of the flume has been reworked and is closed off with a full height stone wall, of similar age as the concrete closure of the lock. It is likely that it was formerly a covered culvert for the gate keeper would have needed ground space over the flume in which to "walk" the gate boom for closing and opening the gate. The flume's berm side is the natural blasted rock of the rock cliff. Water spills back into the canal at the end of the lock wingwall.

(44-21) Lockhouse, Guard Lock #5: the house is on the elevated, rocky berm bank about 20' beyond the flume and at the upper end of the lock. Built c. 1835 to standard dimensions with a fully exposed rough stone basement and 1½ stories of brick above. The wood shingle roof is now covered with galvanized metal. There is one brick chimney on the down-lock end. A covered and enclosed basement and first floor porch on the lock side has been removed, but a small covered wood porch with a full run of steps must have been necessary for access to the main door, which now opens only onto a full story drop. The house is unoccupied, stabilized, and in a weather tight condition, but it has not been restored.

*106.92 (44-22)

107.27 (45-1)

Lock #45 (with #46, called Two Locks): lift of 7 feet. The contract for this lock was unusual as construction was divided into two parts; below the water line and above. M. Byrne and Co. received the contract for the lower work in the spring of 1833, completing the work in late 1834. In the summer of 1835 the second contract to complete the lock was let to W. Morrow, but no work was done by early 1836, and M. Byrne completed with work by the spring of 1837. Lock #45 provides the passage to the slack water of the river above Dam #5 from the canal for a barge moving towards Georgetown. The towpath, on the berm side of the river, remained on the berm side at

*See page 89A for insertion.

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Lock #45 and beyond to Lock #46, where it crossed to the more normal towpath side. The lock is built of gray-blue limestone smooth faced, and dimensions are standard. Sometime after nineteen hundred, 12" of concrete was added above and 3" back from the face of the coping stones. This newer coping stops at the lower end of the lower (or river side) lock pockets. The top of the breast wall is 8'-4" below the top of the stone coping at the upper end of the upper gate pockets, thereby making the gates "tall gates" with their pivot in the lower end of the gate pocket. The dimension between lock walls remains close to 15' just below the upper gate pockets and narrows to 14'-1" below the lower gate pockets. One wood gate remains in the lower pocket and both in the upper. The lock is heavily silted in from the river to about 6' below the top of the coping stones. What is exposed appears in good condition. The limestone cliffs rise 40' to 60' above the towpath (normal berm side) level close to the edge of the path.

- *107.30 (45-2)
- *107.41 (45-3)
- 107.42 (46-1)

Lock #46: Seven foot lift. The contract was let to J.C. Lissig in the summer of 1835, but the start of construction was slow and it was summer of 1838 before the lock was completed. The building material is smooth cut gray limestone set in mortar. Several changes to standard lock construction are introduced in this lock and will hold for the further locks above. The edge of the coping stone is rounded on a 3" radius in the transition of lock wall to flat topping. The bottom half of each lock pocket is stepped back from 10" to 16" probably to lessen the damage to the metal wicket gates that were part of the lower portion of each lock gate. The breast wall is placed at the upper end of the upper lock gate pocket. The upper extension walls continue for 2' beyond the upper lock gate pocket and splay out at about a 60° angle for 12½' of careful laid and mortared stone with the berm wingwall then making another curve to return to a 6' flat plane parallel with the lock walls. The laid wall becomes the river side of a 12' wide, shallow bypass flume. Ninety feet, six inches remains the normal distance between lock gate pockets. The lower extension wall continues for 11', curves and then splays out for a flat 12' length. The berm side curves again to a plane perpendicular to the lock and continues about 10' to a bypass flume re-entrance into the canal. The surrounding area of the bypass flume re-entrance below the lock is usually of rubble stone dry laid, this introduces a mortared stone wall instead. At Lock #46 the transfer of the tow

*See page 89A for insertions.

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- 106.92 (44-22) Shank House: probable late-19th-century 2½-story frame house. Gable roof; shed-roofed porch to one side. House now covered with imitation brick shingle siding. Condition fair.
- 107.30 (45-2) Small House: L-shaped 2½-story frame house. Gable roofs covered with standing seam metal. One-story front porch featuring decorated post capitals of turned wood. Two-story porch alongside el at rear. House covered with shiplap siding; probably dates from late 19th century. Condition fair.
- 107.41 (45-3) Carpenter House: Close to Lock 46, this is an L-shaped 2½-story house with 1½-story wing estimated to date from the late 19th century. Roofs are gabled and covered with standing seam metal. Shed-roofed porches on end of main portion and sides of rear el. Adjacent is a 12 by 14-foot shed of vertical boarding with a swinging shutter window and gable roof. Condition of the structures is fair. On the opposite side of the lane leading to the canal is a small frame stable known locally as a former mule barn for the canal.

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mule was made from the berm side back to the towpath side by a bridge cross-over at the lower end of the lock above the lower lock pocket. Back 16' from the berm side of the canal is an abutment 10'-8" in the dimension parallel to the lock, elevated 7'-10" above the coping stones, and 16' for a dimension perpendicular to the lock. Through the middle 8' portion of the last dimension a culvert covered by an arch on a 4' radius allows for the passage of bypass flume water to be discharged in the lower canal. On top of the abutment and held back 2' from the edge forward to the canal is a 12" high, 19" thick by 8'-5" concrete block with the date March 27, 1913, scratched in. The concrete block was probably to block the rocks kicked by the mules between the wood joist supports of the bridge as they moved onto the bridge platform. The mule path rise, parallel to the canal, to the top of the abutment is confined by a sloping stone wall. A similar stone abutment is held back 15'-5" from the towpath side of the lock and a sloping stone wall of 81' length confines the towpath slope from the bridge level back to the normal level of the path. All of the stonework is regularly cut, rough faced, and carefully laid for the bridge supports and approach. The wood bridge has not survived. The width of the lock above the upper lock pockets is 14'-8" and decreases to 13'-9" below the lower lock pockets. Although there has been obvious movement in the walls it has been gradual and they appear in good shape. The lower lock gates are rotted off to an existing water line, but the upper gates are in place somewhat damaged. Much of the hardware is in place. The canal is quite wide both above and below the lock, and the berm wall is dry laid large stones for 54' and the towpath side for 100'.

- (46-2) Bypass flume: the return of the upper wingwall becomes the river side wall of the wide flume ditch. The flume passes through the arch of the mule bridge pier. The lower berm wingwall is depressed 18" for 12' for passage of water back to the canal.
- (46-3) Lockhouse, Locks #45, and #46: one house, c. 1839, served the two locks and was on the berm back from the mule bridge abutment. It was a standard story and a half size with fully exposed stone basement, and brick above with centered brick chimney on the up-stream end. A ten foot wide covered porch on wood supports covers the entire lock front, a probable later addition, although some sort

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of wood steps and a small porch would always have been necessary for the elevated front door. The house is weather tight but unrestored.

- 107.62 (46-4) Overflow: The towpath was depressed 2' for a distance of 62'7". At each end of the dip a rough-faced splayed wall was placed 7'6" out from the towpath toward the river and continued parallel to the towpath for 7'6". The walls are about 3' thick and the river side of the towpath between the angle walls is riprapped down to the river bank. The Park Service has filled in the depression.
- 107.66 (46-5) Leatherman House: A 2-1/2-story exposed log house on a stone foundation, possibly predating the construction of the canal. The gable roof has boarded ends. The house is essentially unaltered and possesses high integrity, but is in deteriorated condition.
- 107.93 (46-6) Culvert #137: A 24" diameter terra cotta pipe extends under the canal with a rough stone face wall on both inflow and outflow faces. The date of reworking this culvert from the original stone barrel is unknown.
- 108.13 (46-7) Benjamin F. Charles Mill: Ruins of early 19th century stone mill structures, with 20' steel water wheel, are directly adjacent to the berm side of the canal on Camp Springs Run. Two-story stone walls and a stone basement foundation for a wood structure are among the remains. (The site is privately owned but within the authorized park boundary.)
- 108.17 (46-8) Culvert #138: An 8' opening runs under the canal and banks, covered by an arch on a 4' radius. Cut stone wing walls, 2' each side of the opening on the inflow and outflow face walls, come out at 90° angles. The culvert, carrying the water of Camp Springs Run, is in fair condition.
- 108.49 (46-9) Boat basin: The natural ground contours on the berm side of the canal allowed a sizable widening of the waterway to provide a maneuvering area for barges and docking area for the loading and unloading of goods. The basin is much silted in, but the bank can be noted by careful inspection.
- 108.64 (47-1) Lock #47 (first of the "Four Locks"): Here the Potomac makes a hairpin turn about 4-1/2 miles in length before returning to within half a mile of itself. The land enclosed by the bend is called Prather's Neck. The Canal Company decided to shorten

their run by cutting across the neck rather than following the river bank. This forced four locks close together to compensate for the rise of the river in the $4\frac{1}{2}$ miles run. The contract was let to D.K. Cahoon in 1835 and construction started in the fall of that year. Work was finished in late 1837, having been delayed by riots among the Irish laborers in early 1836. The material is a gray limestone, soft enough to be subject to water erosion. The lock is built in the pattern used from #45 through #50. After an extension of 2' above the upper gate pockets and a rounded corner, the upper wingwalls splay out at about a 60° angle for about 12', the berm wing then returns on itself to run for 6' parallel to the lock which forms up the start of the lock side of the bypass flume. The extension walls run for 11'-6" below the lower gate pocket, splay out at about 60° for 14', and the berm wall makes a slight curve to run for 26' perpendicular to the run of the lock, where it again turns at 90° to return on itself parallel to the run of the lock for about 7' and its end butts into the lower wall of a dry dock. The 26' run is notched at its top for the emergence of the water from the bypass flume. The lock walls are in fair shape. There has been movement of the walls, the brestwall has held the 15' width of the walls at the upper end of the upper lock pocket but they gradually decrease to 14' below the lower lock pockets. Much of the original gate hardware is in place and both lower gates are in position, although in bad shape. It is 206' from the upper end of this lock to the lower end of Lock #48 and the canal is about 100' wide for the total distance.

There is a road inland to the berm side of the lock and canal about which are several remnants of building foundations, evidence of a small settlement that grew up around Charles Mill. The economy changed, the settlement dwindled, and subsequent floods have washed away most of the buildings. They were not important enough to be included in any history, so the names of the owners and their use is lost.

- (47-2) Bypass Flume: the flume, as noted above, commences in the upper berm side wingwall, and is a shallow ditch about 12' wide, with slightly battered walls on each side. It is constructed of cut brown shale that is dry laid. It runs parallel to the lock and its near edge is about 10' from the berm side lock wall. The lower berm wingwall is notched by two missing courses of stone for 12'-8" egress of the water. Condition is poor.

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- (47-3) Dry dock: parallel to and about 32' from the berm wall of the lock is the river side wall of the dock. Its entrance is about in line with the upper berm wingwall. It has battered dry laid stone sidewalls, with stop plank slots at the entrance. Width of the dock at the top is 26' and 21' at the bottom. The dock is 103' long with the end wall of a layered, roughly coursed limestone, which stops the return wall of the lower berm wingwall as noted above. A square opening is evident in the center bottom of the end wall, but no closing gate remains. The wood cradles for holding the barge have disappeared and the dock is much silted in and overgrown. Condition is poor.
- 108.70 (48-1) Lock #48: 8'-3" lift. M. Byrne and Co. received the contract for the lock and commenced work in the summer of 1836. It was finished in the spring of 1838. From the top of the upper wingwalls of Lock #47 to the lower end of the wingwalls of Lock #48 is 206', a little over the length of two barges. The lock is typical in dimensions and construction to those above and below it. There is an indication that the lock was rebuilt in the early period for the lock cross dimension above the upper gate pocket is 15'-4", where as 15' was the standard adhered to in all other locks. Early movement in the walls would perhaps have suggested the addition of a 4" leeway in case of future movement inward. Sometime after 1900 a 6" topping of concrete was added to the towpath wall from the low end of the lower gate pocket to all of the wall above. The gate hardware on this towpath side was removed and replaced on top of the new concrete coping. It is evident that many of the 12" x 12" oak timbers that are the foundations for the walls have rotted away, resulting in movement and tilting of the wall in excess of any other lock of the canal. The minimum existing width occurs just above the lower gate pockets and is 9'-4". The upper towpath gate is in place although in poor condition. Most of the gate hardware is in place. There is little stone that is missing but the lock structurally is in very bad condition. The Park Service had shored up the wall from the interior of the lock but movement was still occurring. In the summer of 1975 the lock was filled with earth to within 1' of the top of the coping for stabilization.
- (48-2) Bypass flume: the flume construction is similar to that for #47 with the upper wingwall returning on itself for 6' parallel to the run of the lock to become the towpath

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side wall for the passage of water. The 12' wide flume is lined and edged in large stones that are dry laid. The bottom berm wingwall is notched for a 12' length as the outlet. The run is parallel to the lock with about 10' as the near dimension. A roadway runs along the berm side of the flume in this area.

108.74 (48-3) Culvert #139 (Prather's Neck Road Culvert): constructed in 1839 of rough faced limestone with a 12' opening, with 6' vertical to the spring of the arch, and covered with an arc with a 4' rise. Headwall on both faces rise about 6' above top of arched opening. On each face, the flat wall of the face extends 3' to 4' beyond the opening, turns at about a 60° angle and extends about 14' as a wingwall, the top of which steps down in equal steps from the face coping to a height of about 8'. The run of the culvert is nearly 113'. Although the culvert does provide for some inland drainage, the major purpose is as a roadway to the large acreage of Prather's Neck that was cut off by the building of the canal. It is one of two roads for approach to the Neck. A few stones are missing or loose in each face, but the barrel of the culvert arch has been recently repointed and the culvert is generally in good condition.

108.78 (48-4) Lockhouse, for 4 Locks area: this two story, gabled roof, brick house on a high stone walled basement was built c. 1840. It is located below Lock #49 on the berm side of the canal just beyond the roadway that skirts the canal in this area. The overall dimensions are 20' x 30' and flush brick centered chimneys are on each end. A shed roofed porch about 10' long is centered on the long face, facing the canal with simple railed steps leading up to the elevated porch and entrance. Both roofs are covered in asphalt shingles. On the canal face of the house the brick pattern is alternate rows of headers and stretchers. The house has a center hallway, with a door on each end, with one room on either side on both floors. Only one window, on the main floor on the down canal end, pierces the end walls. The house is used as a Ranger Station and is reasonably intact and in quite good condition.

*(48-4A) tation.
*(48-4B) (48-4C) (48-4D) (48-4E)

108.80 (49-1) Lock #49 (part of "Four Locks"): the contract for construction was awarded to M. Byrne and Co. and work was started in the summer of 1836. The lock was completed by the spring of 1838. A gray-blue limestone was used that was of a softness that resulted in some water erosion.

* See next sheet 94A for insertion.

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- (48-4A) Lewis House: A late 19th-century house immediately adjacent to the Canal land, towpath side, that has recently been added to the Park as part of the Four Locks scene. Of approximate 24' x 30' size, on stone exposed basement, 2-story wood siding, covered with simulated brick asphaltic paper, simple gable roof. A uncovered wood porch across the front facing the canal continues along the side and becomes covered for the entire side, and elevated due to rapidly sloping grade. The house is in fair condition and unoccupied.
- (48-4B) Weber House: Circa 1840, "L" shaped, 2-story stone house on partially exposed stone basement, on property immediately adjacent to the Canal property on the berm side, acquired by the Park in 1976 as setting for the Four Locks scene. The house was extensively remodeled in the late 1800's and a 1-story, covered wood porch was added across one end with Victorian wood fret work in brackets and rails. The house is in good condition and occupied by Park personnel. Adjacent is a 16½x32-foot stone garage/shed with a frame addition; the stonework matches that of the house.
- (48-4C) Four Locks School (Murray House): 1½-story 3-bay red-painted brick structure; gable roof pierced by central chimney. Three projecting vertical bands of brick on each side suggest pilasters. Enclosed frame porch added across front end. Structure follows the form of brick schoolhouses in Washington County dating from the 3d quarter of the 19th century. Now occupied and in good condition.
- (48-4D) Baker House: 19th century 2½-story frame house with rear el. Porches at front and alongside el. Chimneys at one end of main block and rear of el. Painted metal roof. Shuttered windows. House now covered with asbestos siding. House is occupied and in good condition.
- (48-4E) Costlow Barn, Shed, and Wash House: Modified bank barn, 80 by 50 feet, on stone basement with overhanging upper level. Louvered windows; 3 air vents along ridge of metal covered gable roof. A more recent block silo, unroofed, stands at one end. Barn is in very good condition and in use for hay storage. Frame shed with vertical board siding, metal gable roof, and vehicle opening stands nearby in good condition. Frame wash house, 30 by 12 feet, has metal gable roof and one end chimney; condition is fair.

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Dimensions and construction is similar to the other "Four Locks". It is about 350' from Lock #48 to the bottom wingwall of Lock #49. The canal is close to 100' wide for this distance and both slightly battered walls of the canal are mainly dry laid stone. A portion of the lock used natural rock outcroppings for the foundation and where the natural material was not found 12"x12" oak timbers were laid perpendicular to the run of the lock as a continuous foundation mat. Due to rotting of the timbers, every other timber was removed and a small stone pier was built up under the stone wall to take the place of the timber. This was probably done early in the life of the canal as the walls do not indicate an appreciable amount of settling that would have occurred with long standing rotted wood foundations. Most of the metal fitting for the gates are gone, as are the gates. The maximum width of the existing lock is 14'-9" above the upper gate pockets, that diminishes to 14'-3" above and below the lower gate pockets. The walls are reasonably plumb and the lock is better than average condition.

(49-2) Bypass Flume: the entrance to the flume, similar to those above and below, is the 6' return of the upper berm wingwall that provides the river side wall of the 12' wide and shallow ditch. It emerges in a notched section of the lower berm wingwall.

(49-3) Section house: Close to the upper end of the lock and within 9'-3" of the berm lock wall was a 80' (parallel to the lock) by 40' wood frame section house with stone foundation that spanned the bypass flume. Circa 1900 concrete replaced the former foundation and on the long wall near the lock the concrete was run up for 2' in a high curb for the first floor wall. Only partial sections of the concrete foundation remain of the house.

108.87 (50-1) Lock #50 (part of "Four Locks"): 8.25' lift. Contract was awarded to M. Byrne and Co. in the summer of 1836, and construction was completed by the spring of 1838. Built of gray-blue limestone to the same specifications of the other "Four Locks". This is one of the few locks through which no drainage runs, therefore in its dry bottom can be seen remnants of the typical wood foundation used on most of the locks. Partial sections are in place of the 12" x 12" white oak timbers, two feet on center laid perpendicular to the run of the lock, and the two 2" thicknesses of solid wood decking parallel to the run of the lock, which were spiked with large, square

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iron nails to the timbers. The walls of the lock have a noticeable tilt inward. The maximum existing width of the locks is over the breast wall in the upper gate pockets and is 14'-7", mid lock is 13' and down to 12'-11" just above the upper end of the lower gate pockets. This moving and tilting of the walls is the natural reaction to the decaying of the wood foundations. The badly rotted frame of the lower towpath side gate remains in place; all other hardware for the gates has been stripped off. The limestone is in quite good shape and few if any stones are missing. Repointing is needed and the tilting of the walls need arresting for large crevices are opening up due to the wall tilt particularly where the walls change directions.

- (50-2) Bypass flume: in the early 1900's what probably had been a dry stone walled flume was replaced by a concrete ditch about 4' wide and with vertical sides about 2' high. Its upper end has slots on each side for a wood drop gate. The flume terminates in the lower berm wingwall with a 4' wide, 6' high void in the stone wall. A coping stone spans the void, and although it is now broken, it is held in place by wood bracing. The berm road runs parallel and inland from the flume.
- (50-3) Lock-keepers shelter: an 8'x12' vertical board and batten, one story, gable roofed building, located at the upper gate pocket, berm side. Its probable use was as a shelter for the lock-keeper and it appears to have been built in the late 1800's. No references are made in the Canal Company records of such buildings, but they may have sprung up at various locations attesting the ingenuity of a lock-keeper and his desire for shelter. Early photographs indicate similar small shelters at other locks although most of them have not survived.
- (50-4) Lockhouse, Lock #50: there are several remnants of foundations both on the towpath and berm side of the lock. Remains of cistern and a nearby grape arbor mid lock next to the berm road is thought to be the location of the lockhouse even though no typical foundation now remains.
- 108.92 (50-5) Mule Barn: about 200' up canal from the lockhouse site is a mule barn that provided winter quarters for the animals that the barge owners could rent for hauling their barge during the seasons that the canal was open. The

closing down and draining of the canal each late fall coincided with the start of heavy freezing weather, usually December, and activities were resumed with the advent of spring, usually mid March. It is probably that there were other barns but they are not standing and were thought to be not important enough to be recorded. The stone foundation measures $24\frac{1}{2}'$ wide by $35\frac{1}{2}'$ long. The two story wood structure is of post and beam, mortised and tenoned, construction with the second floor cantilevered out 5'-9" on the north long face. The roof is a simple gabled with a shed continuation out over the cantilevered area. The exterior walls are sheathed in vertical rough sawn boards of close to 1" thickness with widths varying from 5" to $11\frac{1}{2}"$, butted together. The north face has three single doors, under the overhang, at ground level. The east face has a centered top-hinged door for loading hay into the loft area that has a louvered opening on either side and one above the door in the gable end. From top of the stone foundation to top of the low roof edge is 15'-9" and 25' to the ridge. The barn was restored in 1975.

109.32 (50-6) Wasteweir #18: both banks of the canal from Lock #50 to above this weir are of large, dry laid stone. For the weir, c. 1839, the towpath mound is broken for a 12' opening. Both of the towpath retaining walls are nearly vertical and large stones, up to 2'x4' face, are used. The original wickets or controls for letting water out of the canal were removed some time around 1900, and the wood bridge that probably spanned the opening was replaced by a $1\frac{1}{2}'$ concrete slab about 11' wide at the towpath level. A roughly square pocket of 12' x 12' was formed up concrete walls on the river side of the towpath and in the up-canal wall are three openings about 32" wide, with 12" of concrete between that house two metal wickets and one stop plank controls gates. The necessity for this rather complicated design is not evident, and was repeated at no other place.

109.90 (50-7) Culvert #140: this culvert provided for the second roadway to Prather's Neck. The date of construction is about 1840. Built of regularly coursed limestone with 10' openings, 5' vertical wall to spring of arch, and arch with a 5' radius. The headwall continues about 7' up to the top of coping stone from the top of the arch. Both faces have wingwalls on each side coming out at about a 45° angle that step down from the coping level. The in-flow faces and wings are in fair condition but the out-flow wings are badly collapsed and a few face stones are

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missing. The roadway leading to and from this culvert is much blocked by debris. The overall condition is poor.

- 110.20 (50-8) Culvert #141: built c. 1840 of random coursed limestone with a 4' opening covered by an arch on a 2' radius. The inflow and outflow faces have high and long wingwalls that come out at about a 30° angle. The inflow face is silted in close to the spring of the arch and the head-wall continues up above the top of the opening almost 12'. Most stones are in place but repointing is badly needed. The outflow face continues up above the top of the opening for almost 14' and 4' of vertical wall is exposed below the arch spring. Some stones are missing, repointing is needed, and general condition is fair.
- 110.29 (50-9) Stop gate: the towpath and berm walls of the canal were brought in, to a width of 18', for a length of about 22' by vertical walls of random laid limestone in mortar, very similar to a wide but short lock. Twelve feet in the mid portion of each wall was widened an additional 12" to make a pocket and 12' x 12'. Vertical timbers were bolted to the stone at the extremities of the pocket. At the down canal end of the 22' wall, each side, was a 3" wide 3" deep slot to receive heavy wood planks. Below the slot, the wall turns in a tight curve of well laid vertical wall to resume the normal canal width. The same method is used at the top side of this restriction to return to normal width, but the slot occurs only on the downside. These stop gates were used for canal maintenance.
- 110.42 (50-10) Culvert #142 (McCoy's Ferry Culvert): built c. 1840 of random laid limestone with a 12' opening, 7' vertical wall to spring stone, and a low rise arch of 4' covering. The face wall on both sides rises about 7' above the top of the arc to the top of the coping stones. The inflow has full height rectangular buttresses with slightly cant-ed walls protruding 5' by 10' long about 2' from the opening. The outflow side has wingwalls coming out at a 60° angle that taper down from the coping in about a 30° slope. These wings have been replaced with concrete which is inscribed with a 1906 date. This culvert is still used as the approach road to the McCoy's camping area. The ferry that the road formerly served has been defunct for many years. A few stones are missing and much repointing is needed, but the culvert is in fair shape.
- 110.45 (50-11) Culvert #143 (Green Spring Run Culvert): built c. 1840

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of random laid limestone with a 6' opening, vertical walls of 7' under the spring stone and covered by an arch on a 3' radius. Both face walls continue about 6' up above top of arch and the towpath and berm are further confined by about 8' of dry laid battered stone wall. The inflow side has a wide buttress on the down canal side, and on the upside a 10' long perpendicular wall, full height, is the wingwall. The outflow side has wingwalls nearly perpendicular to the face that are about 14' long and taper down from the coping stones. The culvert appears to be intact but much repointing is needed.

- 110.83 (50-12) Culvert #144: built c. 1840 of regular coursed limestone with a 6' opening, about 3' of vertical wall below the spring stone, and covered by an arch with a 3' radius. The face wall continues up about 14' above the top of the opening to the top of coping. Both faces have wingwalls either side coming out at about a 45° angle. Parts of the wingwalls have tumbled. Some stones are missing and much repointing is needed. Culvert is in fair shape.
- 111.38 (50-13) Culvert #145 (#146 not built): built c. 1840 of random laid limestone with a 6' opening covered by an arch on a 3' radius. Face wall continues up about 7' above top of opening. Both faces silted in to near spring of arch. Wingwalls come out at about a 60° angle and step down from coping stone height. Stones and wall intact, repointing needed, as well as clearing of the drainage channel. Culvert appears in fair shape.
- 112.05 (50-14) Culvert #147: built c. 1840 of random laid limestone with 4' opening, 3' vertical clear height to spring stone, and covered by an arch on a 2' radius. Face wall extends up about 6' above top of arch. Wingwalls on each face come out at about 45° angle and are stepped down from the wall coping. Inflow and outflow faces are in fair condition, but need much repointing.
- (50-15) Back-up Culvert #147: in areas where the excavation of the canal produced excess fill that could not be utilized in building of the towpath or berm banks this excess was placed in an earth build-up dike back from, but parallel to the berm wall. When the drainage of the area required a culvert under the canal it was necessary to have a second culvert under this second earth dike. This culvert is a box culvert, about 2' wide, 4' high, and covered by wide flat stones, and all stone are rough cut and dry laid.

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112.23 (50-16) Culvert #148: built c. 1840 of rough cut limestone with a 6' span covered by an arch on a 3' radius. Headwall on outflow face extends up 8' above top of opening. Wingwall comes out perpendicularly to the face wall and are stepped down from the coping. The outflow face is silted in to close to the spring of the arch. The inflow face is buried. The exposed face needs repointing but is in fair shape.

(50-17) Back-up Culvert #148: only the inflow side is exposed in this secondary dike that is continuous from Culvert #147. It is of large rough cut, dry laid stones in a box of 3' wide by 6' high. The silting in between the berm bank and this secondary dike covers the apparent connection between these two culverts. But it must be partially clear, for the culverts carry some quantity of water.

112.4 (50-18) Stop Gate at Fort Frederick: this second stop gate approximately 2 miles up from item (50-9) is similar. The width of the stop gate channel is 17'-4". Wingwalls of 7' on each side of the narrowed channel extended by dry laid stone walls bring the canal back to normal canal width. Granite, rough cut and rough faced, is laid in mortar to form vertical walls of 7' for the channel and wingwalls. Above a pocket, indented 10" and 12' long, the towpath wall extends for 2' and the berm wall 5'-3" before turning 90° to form wingwalls. Below the pocket the towpath wall continues for 12'-8", turns 90° and runs for 7' in a wingwall that is continued to the normal towpath bank by a dry laid stone wall. On the berm side the wall extends 21'55" below the pocket, turns 90° and runs for 7' before becoming a dry laid stone wall. The stop gate was reworked c. 1900 and both 10" pockets were filled with concrete from bottom to top and a new 4" wide, 5" deep slot was formed in its upper end for the stop plank gate. Nothing of the gate or any mechanism for its operation remains. On the berm side of the lock, across from the 12'-8" lower towpath wall, is the stone base with flush circular metal ring that was the fulcrum of a swinging wood bridge that made both sides accessible as would be needed in the operation of the stop plank gate. Nothing remains of the bridge. A Service-built bridge crosses at the upper end of the lock. The lock is in fair shape. A 1900-1920 photograph shows the pivot bridge as it existed at the period.

113.15 (50-19) Wasteweir and Spillway at Big Pool: the towpath side of the canal was interrupted by two large stone vertical walls about 8' apart and full height of the towpath fill.

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On the canal face the towpath gap was filled by a wood stop-plank gate. From the up-canal wall of the weir the river side of the towpath is continued for 121' in almost vertical wall of rough cut, random laid large stone blocks in mortar. For this length the towpath is lowered to the canal water level height. Stone outriggers, at 20' on center at the top of the wall, are a base for a few inches of the 14" square timbers bolted to the top of the stone wall so that water falling over the top of the timber drops free thereby avoiding the water damage that might be incurred by a constant flow over the stone face. The towpath contains stone piers for the entire spill length at 20' centers which supported a narrow wood plank foot path for the man who guided the mules; they in turn were walking through about a foot of water. Eighteen feet in front (or toward the river) of the towpath wall is another low dry laid stone wall with the distance between rock filled as a protection of water undercutting the towpath wall. This is the most elaborate and carefully constructed of the spillways.

- 114.15 (50-20) Stop Gate above Big Pool: the current concrete structure, early 1900's leaves little evidence of the original stone. The walls, 17'-7" apart, were resurfaced in concrete, the 12' long, 10" deep pocket on each side has been filled with concrete with 4" wide, 4½" deep slot on down-canal end of the pocket for the wood stop-gate. The constricting walls are about 20' in length, and the channel is widened to normal canal width with wingwalls at each end.
- 114.21 (50-21) Culvert #149: built c. 1840 of rough faced limestone with a 6' opening, vertical wall of 4' to arch spring, and covered by arch on 3' radius. The floor of the culvert is riprapped with stone and inside side walls are noticeable bulged. Both faces carry on up about 7' above top of arch and have wingwalls coming out at about a 45° angle that are stepped down from the coping. Inflow down canal wingwall has been repaired with concrete. Both faces lack some stones, need repointing, but are in fair shape.
- 114.43 (50-22) Culvert #150 (Dry-run Culvert): built c. 1840 as vehicular passage to land on river side of the canal. Limestone is rough cut and laid. Opening is 12' wide, covered by an arc with a 3'-6" rise, with 7'-6" vertical side walls below the arch spring. Both faces have stepped down wingwalls coming out at about 60° angles and in poor

condition. The interior of the culvert has recently been repointed, but the exterior surfaces need much attention.

- 114.83 (50-23) Culvert #151: built c. 1840 of gray limestone with a 6' opening, with 6' vertical wall to arch spring, and covered by arch on a 3' radius. Both faces have wingwalls on each side coming out at about a 75° angle and stepping down from the coping stones. Wingwalls are partially tumbled, faces are missing several stones, barrel has at least 3 major leaks, and general condition is poor.
- 115.02 (50-24) Culvert #152: built c. 1840 with a 4' opening covered with arch of 2' radius. Both faces are silted in to above the spring stone. Wingwalls on both sides of both faces, all of which lack some stones and barrel appears to have two leaks. Condition is poor.
- 115.50 (50-25) Culvert #153: Appears to be a 4' opening covered by arch with 2' radius, but silting in on both faces almost obscures the opening. The barrel appears to have no leaks. The condition is poor.
- 116.0 (50-26) Licking Creek Aqueduct: contract was awarded to Richard Holdsworth in July 1835 and work was commenced, but financial problems of the contractor were reflected in slowness in construction. Holdsworth's death in early 1837 resulted in the re-awarding of the contract to Enos Childs and the aqueduct was finally finished in the fall of 1838. The face stones are textured, random laid, gray limestone from the nearby quarry up Licking Creek and one on Prather's Neck. The backing is random rubble. The towpath parapet is 7½' wide, the berm 5½', and the channel 17' wide. The aqueduct is carried over the creek with a single 120' long arch that rises 15' at center span above the spring stones. This is the longest single span on the canal and was quite a feat for the period. Both sides at both ends angle out, to make the transition of narrow aqueduct to the wider canal, in buttresses, which brace and take the thrust of the arch. It is 180' from tip of wing to tip of wingwall. In 1874 an engineer report to the Canal Company President stated that the "Aqueduct is leaking very badly". The berm parapet was removed the next year and a wood timber replacement installed. In 1886 this trunk gave way, but it was immediately rebuilt. The wooden trunk has rotted away. Much of the mortar has decomposed in the bed and edge of the of the channel, allowing shippage of stones and some to fall. Almost one complete section of the berm railing

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remains on the down canal wingwall, but the rest is gone. The aqueduct is in poor condition.

- 116.76 (50-27) Culvert #160: built c. 1840 of limestone with a 6' opening by an arch on a 3' radius. The outflow side is silted almost to the top of the arch and wingwalls, if any, are covered. The inflow side is silted in to above the spring of the arch and the face wall is long, but without wingwalls. The bed of the canal indicates three major leaks in the arch barrel, but it appears to be still intact. The condition is poor.
- 118.09 This culvert, a 7' diameter of corrugated iron, was put in after the demise of the Canal Company by the Western Railroad both under their tracks and the canal.
- 118.46 (50-28) Culvert #166 and Wasteweir: the berm side of the canal was opened up by stone buttresses that held a wood frame for drop gates that could let excess water out to the berm side and into a drop inlet to a 6' wide stone enclosed culvert that ran under the canal and emerged on the riverside of the towpath with the normal face construction of stone for a culvert. The weir was reconstructed in concrete, carrying the inscribed date of February 4, 1921. It consists of three consecutive openings about 30" wide, 7' high, divided by 15" piers, and covered by a 15" thick slab. About 10' from the outer face of the weir the railroad has placed a 12' high retaining wall for their road bed, as the tracks are close to the canal at this point. On the outflow face, wingwalls curve out from the face to become walls parallel to the face that runs about 200' up canal and 550' down canal. These dry laid stone walls are to the full height of the coping stones at the top of the culvert face. Growth of vegetation is dislodging many stones in the long walls. Condition is fair.
- 119.51 (50-29) Culvert #170, and Wasteweir: this second example of a weir through the berm rather than the towpath wall was constructed c. 1840 of stone walls holding a wood frame for the gates. Near 1900 the wood frame was replaced by one of concrete. Masonry walls, 12' apart rise in at the edge of the bed of the canal to a height of 8'-2" in a run of 24'. The concrete replacement of wood frame is on the far edge of the berm dike and consists of concrete poured against the stone walls on either side and three openings about 34" wide, 7'-4" high, separated by piers. The openings held metal wicket gates and a wood drop

plank was the closure for the middle. A 10" concrete slab covers the top. The stone walls on the far side of the canal continues for about 5', stepping down, making a flume, paved with stones set on edge, to the edge of the face wall of the culvert 10' below. This drop inlet is walled with stone. The culvert that runs under the canal is 4' wide covered by an arch on a 2' radius. On the outflow side the face wall continues on either side of the opening to the natural slope of the ground. This face is in fair condition except for needed repointing, 2 missing stones, and a sizeable tree growing into the wall. The opposite side of the weir and culvert is being damaged by the discharge of the railroad culvert through the immediate rise of the railroad track bed. This water is washing away the berm dike and the weir stone walls, and the condition is poor. Reconstruction of the wastewear and culvert has been finished in 1976.

- 119.71 (50-30) Stop Gate: built c. 1840 of red shale and limestone, laid in mortar. Two walls, 19' long, narrow the canal to a 17'-8" width, with wingwalls about 12' long on each side and each end, to make the transition back to normal canal width. These walls are indented 13", 3' from the upper end, for a length of 8'. Just above this gate pocket the walls are vertically grooved 4½" wide and 4½" deep, on each side, to hold a drop plank gate. The gate pockets were filled with concrete (dated March 26, either 1907 or 1917), flush with the walls in which a 4" wide, 4" deep, groove on each side could hold a drop plank gate. This structure is in generally good condition although repointing is needed.
- 121.19 (50-31) Culvert #172: built c. 1840 of rough cut and rough laid limestone with a 6' opening, about 3' vertical wall to the springstone, and covered with an arch on a 3' radius. From the top of the arch to the top of the coping stones is about 5'. Both faces have stepped wingwalls splaying out on either side immediately beyond the ringstones. The inflow side down canal wing has partially fallen, some stones are missing and repointing is needed. The outflow face lacks some stones and needs repointing. A short distance in back of the outflow face wall a section of the barrel has begun caving in and it will trigger further cave-ins. The condition is poor.
- 121.57 (50-32) Culvert #173 (Ditch Run Culvert): built c. 1840 of rough cut, rough laid limestone with an 8' opening covered by an arch on a 4' radius. Face walls continue up to 3' above top of opening and are long walls to the natural

slopes of the land. The inflow side is almost totally covered with debris and some stones are missing on the outflow face wall, but the culvert itself appears intact. Condition is fair.

- 122.11 (50-33) Wasteweir and Culvert Combination (Culvert #174): this is the third unusual combination of weir and culvert in this short stretch of the canal. It was built near 1840 and consists of two rough cut limestone walls set in mortar 9' apart and of 20' length, that cut through the berm wall of the canal, with a height of 7'-6". On the land side face of the berm dike was a wood frame with three divisions that held gates that could be opened to release the canal water. This frame was replaced with concrete date February 17, 1918. The two center piers are 10" wide and 12" deep, as is the beam running over these piers, leaving opening of only 2' width to contain a special small size wicket gates. Some repointing is needed in the masonry, but the stone and concrete are in fair shape, though all gates are missing. The bottom level of the weir continues for about 6' to a ledge to make a straight drop about 12' for a drop-inlet culvert with a 6' opening covered by an arch on a 3' radius. The outflow face wall appears to have collapsed but the area is so filled in that excavation would be required to gauge the true condition. This culvert appears to carry a quantity of water which flows through the debris on this face.
- 122.49 (50-34) Culvert #175: the culvert was built in about 1840. Both faces are completely covered, even though considerable water still flows through. Excavation will be required to determine size and condition.
- 122.59 (51-1) Lock #51: 8' lift. The contract was originally awarded to Robert Brown in 1835 or 1836; work was started but the contract was abandoned in the fall of 1837 and relet to William Storey in December 1837. The lock was brought to completion by the second contractor in the fall of 1838. It was built of gray limestone, soft enough to show water erosion. The construction is similar to the lock above #45. The lock walls between gate pockets was raised 8" by adding thicker coping stones. The upper gate pockets extension and wingwalls must have been heightened by 8" by 8" timbers as indicated by existing bolt holes in the upper coping stones. The wood is completely gone. Four-inch-wide by 3-inch-deep stop gate slots appear in the upper gate pockets. The slots do not occur in the top two stones, obviously later day replacements. It appears that the upper two courses of stones for the lock were replaced but reason and date are unknown. The upper berm wingwall

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returns on itself to become part of the flume as is similar in this series of locks. The lower berm wingwall has a straight run of about 21' and its top intended to allow spill from the bypass flume. Both walls of the lock tilt inwardly and a further bow in the towpath wall gives a 13'-11" measurement as minimum, about at midlock. Pieces of the lock gates lie on the lock floor, and little hardware remains. A 30" high 12" diameter oak snubbing post is intact, located 8'-5" from the edge of the towpath lock wall and 16' up from the lower gate pocket. Although the post is decomposing, the grooves worn into the wood by the cinching lines from the barges clearly show. The post on the upper end of the lock is missing. There is little likelihood that this remaining post is original for such posts probably had to be replaced when they became too worn as they were necessary at each lock to restrain the impact of a barge against lock gates. The lock is in fair condition.

- (51-2) Bypass Flume: the entrance to the flume is through the upper berm wingwall, and the flume itself is a 12' wide, flat ditch, parallel to the lock, and is lined with dry laid rubble. It emerges through the lower berm wingwall by a depression of 31" from the top by 15'-6" long. Below the depression and piled up against the wingwall is a sizeable collection of medium sized stones so that the falling water action would not undercut the wingwall.
- (51-3) Lockhouse, Lock #51: built after 1840 and located at the edge of the towpath about midlock. This is a typical 1½ story stone lockhouse but set in an untypical position; an 18' gable end faces the canal. This end face has a door toward the up-canal end, with its sill less than 2' above the towpath level. The door is balanced by a window and two windows are in the gable. A second door is close to the canal end of the down-canal face and would require a raised porch that now doesn't exist, as the towpath slope is steep in its descent to natural grade. The full basement is totally exposed on the backside. The house is built with limestone corner quoins, window and door lintels and sills, and with random sized and laid dark red shale in fill. The house had a center stone chimney with back-to-back fire places on the main floor and there is evidence of interior plastering directly on the interior stone face of the main floor. All that remains is the shell of the stone wall on the canal facing end and most of the up and down canal faces. The back wall is almost gone. All wood, including roof and floors, is missing. The stonework that remains standing appears

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firm, but the building is very vulnerable. One of the stones under the front window well has inscribed "D. Rowland August 1843". Company records show him to be the first locktender of Locks #51 and #52, and he had probably moved into the new house early that spring.

- 122.89 (52-1) Lock #52 (Sometimes called "The Hancock Level" or the "Seven Mile Level"): 8' lift. This lock is about 500 yards up from #51, and much of the canal between is walled with dry laid stone. The contract was let to Robert Brown in early 1836. By fall of 1837 so little had been done that the Company abandoned the contract. After protracted haggling Brown was reinstated and the project was finally brought to completion in the summer of 1839. The lock was built to the 1836 specifications and is typical of that group. The major variation in construction of this lock is in the continuation of the 2½' upper extension wall on the towpath side, and here rather than turning on an angle, it continues the line of towpath lock wall for 121' (with a slight angle out and return) to the entrance of the Tonoloway Aqueduct. The canal broadens only on the berm side between these two structures. The upper berm extension wall turns in an arc to return parallel to the lock walls for a short distance as the lock side of the bypass flume. The lower berm wingwall contains an indentation in its upper surface of 4'-2" for an 8' length to provide the discharge of water from the flume. Below the lock 89' of the canal on the towpath side is a laid limestone wall, the last 30' rising up in a slope to coping stone level of the lock, which butts into the lower towpath wingwall. The maximum clear dimension between lock walls is 14'-7" above the upper gate pockets and reduces to 13'-10" just below the lower gate pockets. The lock walls have a slight tilt, but the lower towpath extension wall is about a foot out of line. A few stones have fallen, re-pointing is needed, but the lock is in fair shape.
- (52-2) Bypass flume: a rough stone, dry laid wide ditch parallel to the lock with stop plank slots at the upper end with discharge, in the lower berm wingwall, on to a buildup of stones against the wall.
- (52-3) Lockhouse, Lock #52: located midlock 32' towards the river from the towpath lock wall. Only the stone foundation remains, which measures 18'-11" with the run of the lock by 16'-7" in depth. The house contained a fireplace on the up-canal end. This was probably a 1½-story wood constructed house and built c. 1840.

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122.9 (52-4) Great Tonoeway Creek Aqueduct and Wasteweir: the distance from the upper wingwall of Lock #52 to the entrance to the aqueduct is about 120'. This short distance of canal between the two is lined on the towpath side only by a cut stone wall laid in mortar. Its coping stones are at the same height as the coping of Lock #52. Andrew Small was given the original contract for the connecting wall, but it was voided in 1838, and William Storey brought the wall to completion in the fall of that year. Robert Brown won the contract for the aqueduct, as he did for Lock #52, and finished the project in the summer of 1839. Why he didn't build the wall connecting his two projects is not explained. The aqueduct is unique in several fashions. The down-river side of the creek at the site of construction is a solid outcropping of stone that rises in a high bank. This rock outcropping was utilized by the Canal engineer as a natural abutment for support and from which to spring an arch across the creek over to a constructed abutment on the up-river side. The arched span is 64' long, but the arch itself is asymmetrical with a high spring against the natural rock 16' above the low spring next to the constructed stone abutment. The overall length of the aqueduct is about 118' and it is 34'-4" wide overall. For reasons unknown and at an uncertain date (but after 1900), the parapets on either side of the aqueduct fell or were removed to the level of one stone above the arch key stone. Twelve-inch-by-twelve-inch hard wood timbers were placed across the width of the aqueduct on 4" centers and concrete poured in between and flush to the top of the timbers. On this was constructed a 7' deep wooden timber flume with an elevated and fenced towpath. The wooden flume is gone and only rotting segments of the cross 12" x 12" remain. A few sections of the wrought iron rail are in place on the approach towpath wall of the aqueduct abutment. The elevated wood pedestrian bridge on the towpath side is Service-built. The aqueduct has been stabilized in the spring of 1976.

A wasteweir is incorporated in the berm down-canal end of the aqueduct. The stone wall is pierced for a length of 13'4" just before the wingwall splays out as a buttress. The wood frame work that formerly held the wicket gates was replaced in the early 1900's by a concrete frame 12" deep with 10" width for either end and for two dividers which gives 3 clear openings 3'-4" wide by 7'-2" high. The frame is capped by a 10" deep beam. Bolts on the aqueduct interior side indicate a further wood frame for the gates, but both gates and wood frame are missing. Water released from this weir splashed down onto the natural rock outcropping, to the creek.

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- 123.84 (52-5) Tanney Warehouse: a combination of warehouse, c. 1875, and living quarters addition, c. 1900, built on the berm edge of the canal. The berm wall of the canal is a close-to-vertical dry laid stone wall in this area and the warehouse is close to the wall. The warehouse is a 2-story wood structure with vertical board and batten sheathing resting on a stone foundation. The house has similar foundation, is two stories and sheathed by horizontal clapboard. Both are in derelict condition.
- 123.90 (52-6) Hancock Boat Basin: on the approach to the town of Hancock the canal broadened by about 150' for a 300' length to form a boat basin on the berm side as a docking area. A railroad trestle on concrete piers, built after 1900, juts out into the basin so that railroad cars could be loaded directly from the barges. Coal was the major commodity. The rails are gone but most of the rest of the railroad spur is intact. Much of the berm bank above this area is dry laid stone and was used for a wharf area for the town.
- 123.95 (52-7) Culvert #179 (Hancock Culvert): built c. 1840 of rough faced, rough laid limestone with a 12' opening, with 8' vertical to the spring stones, and covered with an arch on a 6' radius. The culvert is 63½' in depth. The inflow and outflow faces are buttressed with stepped walls perpendicular to the face. The top portion of both faces show many fallen stones and repointing is needed throughout. The culvert is in poor condition.
- 124.16 (52-8) Old Hancock Bridge: the large stone pier located between the river and the towpath is the survivor of the wood bridge that crossed over to the West Virginia side of the river. The bridge structure was totally washed out in the flood of 1936 leaving only its massive stone supports on the shore. A modern steel and concrete replacement is located up above the town of Hancock.

In the same area a continuation of one of the town streets crosses above the canal with concrete supports at the towpath and berm edges. The steel beam and truss bridge has a clearance above the towpath of only 9'-6", which dates the bridge construction to post 1924, as the clearance is too little for normal barge operation.

- 124.38 (52-9) Culvert #182 (Little Tonoloway Creek Culvert): this structure built about 1840 is the largest of the culverts and is similar to an aqueduct. This creek is up one and a half miles from the one of identical name; differentiation is made by "Big" being the lower Tonoloway Creek and

this called "Little". The creek carries considerable water throughout the year and the culvert is 36' wide to provide for it. The arched covering has a rise of 15'. Both faces are supported by stepped wingwalls on each side that splay out for about an 18' length. The interior barrel has been patched with applied concrete, but that has been on long enough so that it is disintegrating and there is leakage. Both faces are intact, but repointing is needed throughout. The culvert is in fair condition.

- 124.59 U.S. #522 Highway Bridge: the post-1936 bridge replacement of the flood ruined bridge about a half mile down canal. A sizeable concrete pier at the towpath edge provides one of the supports for the steel truss bridge that rises high above the canal.
- 125.11 (52-10) Culvert #183: built c. 1840 of rough faced limestone with a 4' opening, about 4' of vertical wall to the spring stone on the outflow face, and covered with an arch on a 2' radius. Outflow and inflow faces have splayed, stepped wingwalls. Inflow face has high, dry wall, stone wall to support the berm above. This weight appears to have caused the face wall to shear from the barrel of the culvert and it has shifted up canal slightly. The barrel otherwise seems intact, and the culvert is in fair condition.
- 125.27 (52-11) Culvert #184: built c. 1840 of rough faced random laid limestone with a 8' opening covered by an arch with a 4' radius. Both faces have splayed, stepped wingwalls. The outflow side is intact with repointing needed but in fair condition. The inflow face is so covered with silt and trash that its condition is not apparent.
- 126.42 (52-12) Culvert #185: built c. 1840 of smooth cut arch stones and vertical edging under spring stones, and rough cut stone surroundings. The culvert has a 10' wide opening, about 6' vertical to spring stone and covered by an arc with about a 4' rise. The small stream that this culvert provides for hardly seems to warrant the size. Its width would indicate its use as a road, but the road no longer exists. Both faces have stepped wingwalls coming out perpendicular to the face wall. The culvert is in fair condition although there is indication that the inflow face wall is in a shearing movement with the interior barrel.
- 126.84 (52-13) Culvert #186 and Wasteweir: built c. 1840 of rough faced random laid limestone with a 4' opening, with 4' of vertical wall below spring stones, and covered with an arch

on a 2' radius. Outflow face has splayed, stepped wing-walls on each side. Inflow is a long and high face wall. The weir is slightly up canal and above the culvert. The berm bank of the canal is cut for a 6' depth by stone walls 7' wide and 7'-6" apart. This opening would have held on its land side face (the face of the culvert opening) a wood frame containing probably two drop plank gates. The frame and gates are gone and the weir opening has been filled with compacted earth, evidence that at some unspecified time the action of a wastew weir was no longer necessary in this area. The culvert is in fair shape.

127.40 (52-14) Round Top Cement Mill: Investigations at the start of construction of the canal revealed a large outcrop of limestone suitable for the manufacture of cement in this area in 1837, on the river side down slopes of the hill called "Round Top". The find was immediately capitalized on and a processing plant built by a Mr. Shafer on what would be the berm side of the canal with brick kilns built a short distance back into the cliffs. The river provided the water power until the canal was built and could be used as the source for the 16' wide wheel that was 16' in diameter. The plant was called Shafer's Cement Mill until 1863 when a new partnership took over and renamed it Round Top Cement Company. As of 1882 reports, the Cement Company employed up to 100 men in the nearby co-operage shop, and a few more men worked in a nearby blacksmith shop. There are eight coal fired kilns built of brick that are 21' long and covered with a brick half barrel of a 5' radius. The capacity of the plant was 2,200 barrels of cement per week. The canal barges handled some of the product, the railroad some, and a cable car was set up to carry sacks across the river to a warehouse set up on the West Virginia side. The plant suffered a severe fire in 1903 but was repaired and rebuilt with a tall brick chimney for the conversion to steam for power rather than the water wheel. The business dwindled and came to a halt in the 1920's. The unused buildings collapsed and the fallen walls have amounted to a source of "free" bricks for the locals. A few partial walls and the brick foundations remain. The tall brick chimney and the brick kilns are intact.

128.57 (52-15) Culvert #188: built c. 1839 of rough faced limestone with a 4'-wide opening covered by an arch on a 2' radius. Both faces are silted in to above the arch springstones and trash and silt covers any wingwalls that may exist. The limited amount of the culvert that is exposed appears in good condition.

- 129.87 (52-16) Wasteweir: built c. 1840 with two stone masonry walls 12' apart cutting through the towpath embankment of the canal. These walls were a flush 9½' height above the canal bottom for the 10' width of the towpath and stepped down to the natural slope of the interior and exterior towpath support walls. The 12' width between the bottom of the walls is covered by the remains of 2" tongue and groove random width planking indicating a heavy timber foundation for the whole of the weir. A contemporary wood bridge 10' wide crosses the void at towpath level but is probably similar to the original. The wood frame that held the water release gates on the river side of the weir were replaced by a concrete frame with two center piers 10" wide and 12" deep dividing the opening into 3 sections; the outer two contained iron wicket gates and the center a wood drop gate. All gates are missing. More of the original work is exposed at this weir than any other on the canal.
- 129.96 (53-1) Lock #53: 8' lift. The contract was let to Patrick McGinley in the summer of 1835 and work was started. With the approval of the Canal Company, McGinley assigned his contract to Thomas Fealey in the spring of 1836, and the latter contractor completed the work in the first part of 1837. Gray sandstone was used and typical second type of lock construction was followed. The upper berm wingwall makes the typical complete turn to form up the wall of the flume nearest the lock. The flume outlet is a 9'-7" long indenting of 5'-3" of the lower berm wingwall. Both lock walls tilt and a uniform wall movement causes a minimum clear dimension of 14'-1" above the lower lock pockets. Some stones are loose and a few missing in the walls. The upper towpath and lower berm wingwalls are in need of repair. The condition of the lock is fair, with much repointing needed.
- (53-2) Bypass flume: a 10' to 11' wide ditch lined with dry laid rough stones that parallels the lock. Stop gate slots are in the upper berm wingwall entrance and the discharge is a wide slot in the lower berm wingwall.
- (53-3) Lockhouse, Lock #53: located midlock, back about 30' from the towpath wall of the lock. The tumbled stone foundation indicates approximate dimensions of 25'-5" parallel to the lock by 16'-8" deep. Concrete foundations toward the towpath side of the house indicate a later addition of a porch along the entire face. Ruins of a brick chimney are at the down canal end. This is likely to have been a 1½-story wood frame house built about 1840, and nothing of the wood remains.

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- 130.03 (53-4) Culvert #192: built c. 1840, regular coursed, rough faced limestone. The opening is 10' wide, with about 8' vertical wall to the spring of the arc, which rises about 40" at the center. On each face the smooth cut ringstones are indented about 2" from the wall surface. On the inflow face the top of the headwall is sloped and the up-canal stepped wingwall is perpendicular to the face, while the down-canal wing splays out, and is much tumbled. The outflow wingwalls splay out from the face, with the up-canal wing tumbled. The culvert is much littered, needs repointing, and wingwall rebuilding, but is in fair condition.
- 130.70 (53-5) Leopard's Cement Mill: This mill is contemporary with the Round Top Cement Mill approximately 3 miles down-canal. The plant was located on the towpath side and was of some importance. So few of even the brick foundations remain that it is difficult to picture what the layout of the mill was. Probably the defunct plant became a "brick mine" for the locals.
- 130.72 (53-6) Culvert #193: the road that approaches this area is known as "Deneen Road" and this culvert was used for the road to the Leopard Cement Mill on the towpath side of the canal. Built c. 1840 of rough faced limestone with 10' opening covered by an arc with a 3' rise. About 6' of vertical side wall is exposed under the spring with partially tumbled wings carried to full height that protrude perpendicularly to the face wall. The outflow face repeats that buttress, but only on the down-canal side. The up-canal wingwall splays out and tapers into sloped earth bank. The culvert is in poor condition with wings tumbled, stones fallen out, and much grout fallen away.
- 131.24 (53-7) Culvert #194: built c. 1840 of rough textured limestone with a 4' wide opening, covered with an arch on a 2' radius. Four feet of vertical side wall is exposed under the spring stones on the outflow side. Inflow side is a drop inlet about 7' square and 5' deep, with a stone floor. Outflow sides have splayed wingwalls with their tops about even with the spring stones. Repointing is needed but the culvert is in good condition.
- *131.4 (53-7A)
- 131.99 (53-8) Culvert #195: built c. 1840 of rough limestone with a 4' wide opening covered by an arch on a 2' radius. Outflow face is in bad condition with much of the face wall down, over half of the ringstones missing, and wingwalls tumbled. Inflow face is intact except for a partially tumbled up-canal wingwall. Barrel of arch under the canal appears to be in place and tight.

*See page 113A for insertion.

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131.4 (53-7A) Crone House: Probable late-19th-century 2½-story frame house, shingled gable roof. Shed porches at front and rear supported on wood posts. Shiplap siding. Cement block chimney added at one end. 1200 square feet of area. House is unoccupied and in good condition. Adjacent are a small one-room frame shed and a frame workshop and garage of uncertain date.

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- 132.40 (53-9) Culvert #197: built c. 1840 of rough faced limestone with a 4' wide opening covered by an arch on a 2' radius. This culvert is unique to the canal as only here does the headwall rise vertically in mortared stone to form a curb for the river side of the towpath. This rise is about 14' from top of arch to top of coping. This towpath curb runs for about 12' centered on the arch below. Long angled wingwalls are required on either side but they top out about 4' below the coping stones. The face wall is intact and in good condition but stones are fallen from the tops of the wingwalls. The inflow side is more normal with about 4' of vertical wall above the top of the arch. Silt and litter cover the opening to above the spring stones, so little of the stepped, splayed wingwalls is exposed. What is clear appears in fair condition.
- 133.17 (53-10) Wasteweir: no evidence remains to indicate that this concrete weir was a replacement of an earlier stone structure. Twelve inches thick, post 1900, concrete walls about 10' apart cut through the towpath bank with a slab cover at towpath level of about 15' width. Sloping side walls confine the towpath slope, both in the canal and on the river side. On the canal face of the weir two concrete posts divide the opening into a 34½" center and a 33" opening on either side. These openings have a clear height of 8'-9". The wood frame to hold the drop gates and the gates themselves is missing.
- 133.96 (53-11) Guard Lock #6 Entrance to Canal: the canal runs close to the river for the approximate 550' between Locks #54 and #55 but within this bank, paralleling both the river and the canal is the guard lock channel that allowed for watering of the canal from this point down to Dam #5, a little over 27 miles, besides providing an entrance and egress for the barges to the river. The Guard Lock is just below Lock #55 and the discharge of the Guard Lock channel is immediately below Lock #54. The towpath is interrupted and the lower towpath wingwall is continued at full lock wall height to become an abutment of the bridge for man and mule. A large stone abutment, of similar height, at the juncture of the guard channel and canal was built for the down-canal bridge end. One abutment has a 13' wide face, the other 15'-2", and the high wood bridge, now gone, must have been about 12' wide. The abutments are in fair condition.
- (54-1) Lock #54: 8' lift. The contract was let for construction early in 1836 to Henry Smith, a contractor whose

finances were so shakey that by 1839 materials had been gathered but little work done. Late in that year the contract was abandoned. No further contractor is recorded, but a 1841 Company report gives a notation that 2/5ths of the work on the lock was finished, probably by the Company work force. Most work on the canal came to a halt in this period due to the financial straits of the Company itself. It wasn't until 1848 that work was resumed and the lock finished by Company workmen. Both gray limestone and a tan sandstone were used, much of it inferior stone. This lock follows the 1836 specifications as to dimensions and details. There is much evidence of disintegration of the stones from an early period, as there are many replacements of many varieties, even timber cut to fill the place of a missing stone. Since the 1920's there has been no maintenance, stones have given or fallen in quantity, walls have shifted and tilted, and the lock is in very poor condition. The lock was earth filled in 1974 to stabilize what does remain.

- (54-1a) Lockhouse (see insert at bottom of page)
- 134.06 (54-2) Dam #6: the contract for a 475' dam across the Potomac, the sixth dam built for the Canal Company to give river entrance and to water the canal, was given to Hollman and Reynolds in September 1836. The contract for the stone abutments on either side of the Potomac to which the dam would anchor was given to George Weaver at the same date. The abutments were finished in the summer of 1838, but the work on the stone-filled heavy wood cribbage of the dam was going so slowly at this date, the contractor was fired. The dam was finally completed in the spring of 1839 by Company workmen. Floods took their toll on the dam, that of 1889 taking it almost completely out, requiring rebuilding by 1891. The unrepaired damage in 1936, 1942, and 1972 have left much of the abutments, but the dam is gone. The dam must be one of the few in the world to suffer a major fire, which was started in a dry season by fishermen on the wood-covered structure. The fire raged out of control and the required repair was extensive.
- (54-3) Guard Lock #6: the contract for this structure was given to George Weaver in the fall of 1836, and he finished both this and the dam abutments in the summer of 1838. A stone wall connects perpendicularly to the down river end of the back side of the dam abutment and runs about 80' to connect to the up end, perpendicularly, of the river side wall of the guard lock. The other wall of the lock is built to give a 15' clear dimension between the two. Both walls are notched immediately back from the river face to receive a no-longer-existing drop gate. This →
- (54-1a) Lockhouse, Lock 54. Two story, 24'3" x 14'2", wood frame house with horizontal wood siding, on stone full basement. On berm side, unoccupied and deteriorating rapidly.

river front entrance has 14' high walls that decrease by 7', in equal steps of about 1 foot after 8' of high flat run. From the face, the guard lock runs for about 90' to a 10' long 14" deep, lower guard lock gate pocket. Nothing remains of these wood gates. Down canal from the gate pockets the extension walls run 12', make a rounded 90° turn and the towpath wingwall runs about 10' to receive the perpendicular dry laid stone wall that protects the earthen bank between the guard channel and the river itself. The berm wingwall runs about 22' beyond its 90° turn from the extension wall and runs into the perpendicular berm bank of the guard channel, which is also the towpath bank of the canal adjacent to it. In this area we have a tight fitting canal, guard channel, and river, all in a parallel run. The bypass flume for the guard lock is parallel and 8' away on the land side of the guard lock. The entrance to the flume is by an arched culvert 8' wide through the up-river lock wingwall, and outflow is through down-river wingwall. The culvert is built of stone and is earth covered. The guard lock is in good condition and has been repaired and stabilized during the summer of 1975. With the completion of Dam #6 the canal became operative below Lock #54 on down to Georgetown. In 1842 when all construction was halted due to the financial straits of the Canal Company, this portion of the canal did operate and bring in some needed cash to the Company. It also inspired the rallying cry of "only fifty miles to go" that in 1848 brought the State of Maryland to the aid of the Canal Company with the cash to complete the canal to Cumberland. Although much work had been above Lock #55 by 1842, when work resumed in 1848, two years of construction time were required for completion and the "grand opening" in 1850 of the total 184½ miles of the Chesapeake and Ohio Canal.

134.06 (55-1) Lock #55: 8' lift. Henry Smith received the contracts for Locks #54 and #55 in early 1836. He had difficulties with Lock #54 resulting in the abandonment of that contract. Construction wasn't started until 1839 on #55, and it was brought to completion in late 1840. Financial problems had caused the difficulties for Smith on Lock #54, and why the same difficulty didn't loom over #55 is not known. This lower lock towpath wingwall connects directly with Guard Lock #6 upper berm wingwall. This common wall is about 65' long. The limestone is an inferior stone and there has been much deterioration as in #54. The lock is a variation of the normal with 16" deep, 10' wide lock pockets on either end of the 90' run of lock. There is almost no upper extension wall as the walls angle

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out at about 30° above the upper lock pockets for a length of about 14'. Beyond the lower end of the lower pockets the extension continues about 20', makes a sharp rounded turn of 90° and the lower berm wingwall and runs for 26' to the berm wall of the lower canal. Although finished in 1840 this lock was not put into operation until 1850. The lock has some spalling in its stones, but stones are in place and the lock is in quite good condition. Even much of the timber flooring of the lock is in place, an unusual fact. The unusual continuous angle joints between stones in some of the walls in the complex of abutments, Guard Lock #6, Lock #55, and connecting walls is explained by the fact that each of the structures was built by a different contractor and each provided a key-in from one project to the next with their breakoff wall at an angle. Multiple contractors working in close proximity seems not to have been a problem.

Bypass flume: although provisions were made for the emergence of the flume in the lower berm wingwall, there seems to be no indication that a bypass flume was used with this lock.

- (55-2) Lockhouse, Lock #55: Probably built previous to 1850. Located just above mid lock about 10' back from the berm wall of the lock. Only a 16' by 24' stone foundation remains of what was probably 1½ story frame house.
- 134.23 (55-3) Polly Pond Entrance: in an area that was a low flood plain the engineers took advantage of the site to widen the canal by using the natural contours of the land and utilized the area as a boat basin. In 1905 the Western Maryland Railroad was given permission to build a dyke parallel to the canal which closed off this basin making it a pond (Polly) on the land side of the new dyke and road bed of the railroad. The railroad was required to build an entrance to this pond and that was accomplished by two concrete abutments about 20' apart with a trestle over to carry the tracks. Barges could then turn out of the much restricted canal and pass between the abutments to enter Polly Pond (which is fed by Polly Creek).
- 134.25 (55-4) Spillway and Wasteweirs: to drain the canal of excess water due to the creeks that feed into the long hollow basin, the river side of the towpath was confined by a cut stone, mortar laid, vertical wall that extended down about 12' below the towpath elevation. This section of wall was cut by four stone piers 8' apart. The river side

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wall was dropped 4' below towpath level between the piers and the piers contained 3" deep by 20" wide grooves so that heavy wood drop plank gates could be used to regulate the amount of water to be let out of the canal. The wall continued for 22' on either end of the piers and was dropped 25½" below towpath level but this tip of stone wall was heightened by a 10" x 10" timber bolted to the top edge of the stone wall, giving an effective depth for each of the 22' long spillways of 15½" below towpath elevation. This area of towpath which then was often under water was spanned by a wood plank bridge, which is now gone. The entrance to the wasteweir through the towpath is spanned by a 10' wide, post 1900 concrete slab.

- 134.93 (55-5) Culvert #199: constructed c. 1840 of rough cut limestone with a 6' wide opening covered by an arch on a 3' radius. The inflow is obscured as the railroad bed butts the berm bank. A 36" diameter cast iron culvert goes under the road bed and must connect to the inflow of the canal culvert. The outflow is filled with silt and trash to above the arch spring stones, but that portion of the wall that is exposed appears to be in good condition. There are no apparent leaks through the canal bed into the barrel of the arch.
- 135.05 (55-6) Pedestrian Bridge Foundation: in the post 1900 period several high, wood, pedestrian bridges were built to span the canal and towpath. They were elevated so that a 15' clearance was had from the canal water level to the underside of their structure. A considerable run of wood steps was required on the berm side and at the side of the towpath to take the traveler up to the bridge elevation. The object of these foot travelers to the river front lands is now obscure but must have been important enough at the time of their construction to justify the effort and money needed for a bridge. Two small concrete piers on either side of the canal; and at the edge of the berm and towpath two massive concrete foundations remain. These formed the base for the steps and the abutments to receive the thrust of the bridge above. A "1914" is scratched in the concrete on the berm pier next to the canal. The wood bridge is gone.
- 135.10 (55-7) Culvert #200: built in 1840 of limestone with a 10' wide opening covered with an arch on a 5' radius. The inflow face is covered by the road bed of the railroad and connecting culvert under that bed. The outflow face was in very poor condition as the heavy timber foundation on which the culvert was built had undermined, resulting in

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the face and wingwalls pitching forward and partially tumbling. Little stone on the face wall remained except for the ringstones. The first 15' of the barrel had dropped various amounts with resulting leaks eroding away the tow-path above. The culvert has been totally restored during the summer of 1975.

- 135.71 (55-8) Culvert #201: built in 1840 of limestone with 10' wide opening covered with arch on a 5' radius. This culvert is unique as its wood foundation, no doubt original, is almost intact. A bed of 12" x 15" timbers was placed about 8" apart, perpendicular to the run of the culvert, and continuous under the side wall, across the culvert floor, and under the opposite side wall. These timbers are the foundation for the stone side walls. The floor of the culvert is 2" planking of 12" and 15" widths, tongue and groove, laid parallel to the run of the culvert over the heavy timbers. The decking and the heavy timbers are largely sound. Both inflow and outflow face walls need some repointing but the general condition makes this one of the best preserved original structures on the canal.
- 136.01 (55-9) Culvert #202: this culvert appears to have been under contract in 1840, but only a trench was dug by the time in 1841 when the Canal Company suspended all construction work on the canal. Work must have resumed after 1847 and the culvert was finished before the 1850 opening date of the canal. The limestone for this structure is much rougher than that used previously, a reflection of haste and cost cutting that becomes apparent in the 1847-1850 flurry of building to complete the canal. The culvert has a 6' wide opening, with about 2'-3' vertical side wall under the arch spring and covered by an arch on a 3' radius. Outflow face wall is intact, angled wingwalls are some tumbled at the top, much repointing is needed. Inflow face shows a settlement with stones out of line and up canal ringstone immediately above spring stone out. Wingwalls are partially tumbled. The first 30' of the inflow end has a stone paved floor, the remainder is heavy decking. The culvert is in fair shape.
- 136.21 (56-1) Lock #56: 7'-8' lift. The location is 3.01 miles below Lock #57 and 2.15 miles above Lock #55 and Dam #6. John Cameron was given the contract for the lock in late 1837. Due to rapidly rising material prices and difficulty in obtaining suitable stone, progress of construction was slow. The lock was about half finished when the contract was declared abandoned in 1839. Work was resumed in 1848-early 1849. A soft gray limestone was used for the walls

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and the dimensions and construction are typical to the 1836 specifications. Sometime after 1880 the upper half of the lock's towpath wall was removed and replaced with concrete. Some of the salvaged stones were put in the forms with the concrete poured around, no doubt cutting the cost. Other stones that were salvaged are still piled on the riverside of the towpath. A 10" concrete curb was added above the coping stones to increase the depth of the lock. The date "March 8, 1917" is scratched on the towpath side in concrete. The canal below the lock is cut and laid stone for about 100', the last 40' of which slope up to gain the height of the lock. The minimum clear lock dimension is 14'-2½", just below the lower gate pockets, and maximum is 14'-8" above the upper gates pocket. The limestone is very stratified but appears to be sound. The gates and most of the hardware is missing. The lock structure is almost wholly intact and is in general good condition.

- (56-2) Bypass Flume: a continued upper berm wingwall becomes the lock wall of the flume entrance. The water entrance has shoulders on either side against which a wood drop gate would rest. Protruding bolts on each side of the opening wall indicate that a 6" x 6" timber was additional support at top. The flume is a wide ditch of dry laid stone parallel to the lock. The flume outlet was a 8'-6" wide depression, 4'-8" deep from the wall top, through the lower berm wingwall.
- (56-3) Lockhouse, Lock #56: the lockhouse fronts, with its narrow side, the towpath at about mid-lock and is 30' from the towpath lock wall. The ground floor is about 12" above towpath level. The slope of the land side of the towpath falls away rapidly to expose a full stone basement for the house. The foundation measures 18' x 29". The house is a 2-story wood structure covered with vertical boards and battens. A brick chimney is enclosed within the house at each end. A ¾ length, 1-story porch with shed roof has been removed from the down-canal face of the house, apparently some time ago from the amount of weathering on the house's lower face. The porch was partially supported on a stone foundation. The house is un-lived in and boarded up, but appears to still be reclaimable.
- 136.56 (56-4) Sideling Hill Creek Aqueduct: this creek originates in Pennsylvania, crosses into Maryland about 6 to 8 miles north of the Potomac at this point. The run is year-round, and some quantity of water is carried. Due to the fact that the region has many rock outcroppings, the

Potomac passes through a narrow gorge and often the river is backed up into the creek. The contract to construct an aqueduct to run the canal over the creek was let to John Cameron in late spring 1837 and work was commenced. By the start of summer in 1840 the work was largely finished and final payment was made, although a few minor details need be added. These details were subject to the work moratorium of 1841-1848, and it was at the later date that the finishing was done and the aqueduct labeled as complete. The trough of the aqueduct is about 20' wide with the berm parapet 7'-6" high and about 5' wide and the towpath the same height and about 8' wide. The down-river shore of the creek is a natural rock outcropping, utilized by the engineers as a foundation, but resulting in an asymmetrical arch to span the creek. The clear opening of the span is 60'-9", with the center of the arch about 35' from the up-river side, and about 25' from the down-river vertical. The maximum rise of the arch is 11'-9" and the minimum is 5'-9". The aqueduct is about 82' long, the end 4' both up and down canal protrudes 4' from the face as buttresses. On the river face, wingwalls come out at about 60° from the end of each buttress, make a straight run for about 21', turn and run about 25' parallel to the aqueduct face. On the up-creek side, up-canal, the wing and extension are similar, but the down-canal side is a wasteweir spilling out onto the natural rock outcropping. The channel of the aqueduct was extended by rock-faced vertical walls at each end for about 40' before splaying out to normal canal width. The river face of the aqueduct is almost intact, including quite a portion of the wrought iron towpath railing, but the entire up-creek parapet had collapsed, damaging that face of the barrel arch to the point of danger to the whole structure. In the summer of 1975 the aqueduct was stabilized. (\$35,000 cost).

Wasteweir: is a portion of the aqueduct structure as it butts the creek side down-canal wall of the aqueduct. The opening is edged by notched stones 14' apart on the channel side and 12' on the creek side. The notch held the vertical wood timber members of the frame that made up the weir gates. The wood was replaced post 1900 by 10" x 12" concrete members in a frame composed of sill, head, two side members, and two equi-spaced vertical dividers. The three openings thus created had a clear height of 7'-9" and probably drop plank wood gates were used to regulate the water level, although there are no remains of the gates. The water that was released splashed out of this berm side discharge onto the natural rock

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outcropping, on down a short distance, and into the creek. In 1924, after the demise of the Canal Company, the railroad blocked off the discharge from the weir with a concrete retaining wall to eliminate the water undercutting of the nearby railroad bed embankment.

- 139.22 (57-1) Lock #57: 8' lift. Located 4.74 miles below Lock #58 and 3.01 miles above #56. This is the last of the locks typical to the 1836 specifications. James Wherry recieved the contract in the spring of 1838. There appears to have been no difficulty in its construction and completion was in late 1839. Even though finished, it was unused until 1850 as it lacked the water that finally the 1848-1850 construction provided. The stone, a gray limestone, is soft, probably from the same quarry as those in Lock #56 as similar stratification occurs. Sometime after 1880, from mid-lock to the upper wingwall on the towpath side, the top half of the lock wall was removed and rebuilt of concrete utilizing salvaged stone blocks used in quantity as fill. The strange effect acheived resembles laid stonework with especially wide horizontal and vertical joints. At this time concrete was added to reinforce the corner of the upper gate pocket that housed the gate pivot. A 10" curb of concrete was added above the coping stone, for deepening lock, on which a 1917 date is scratched. The lower berm wingwall is noticably bulged and there is a slight bulge midlock on the towpath side. The frame of the lower berm gate is in place. Little hardware remains. The lock is quite intact and with Lock #56, in a much better unrestored condition than most.
- (57-2) Bypass flume: the typical return of the upper berm wingwall becomes the lock side of the bypass flume entrance. The entrance was restricted by a 12" thick concrete wall with a 3'-7" square opening added at an unspecified date and for an unknown reason. The flume is a wide ditch, parallel to the lock, which emerges in the lower berm wingwall through a 4' deep by 9'-4" depression in that wall.
- (57-3) Lockhouse, Lock #57: built mid-lock, 27' towards the river from the towpath side lock wall, with a narrow end facing the lock. The full stone basement is 19'-7" wide by 29'-8" out to out. The house was of two stories and of log construction that was later sheathed over with vertical boards and battens. The house is in ruinous condition with walls standing only to about $\frac{1}{2}$ of the second floor level. The total roof structure is gone. Almost all of the boards and batts are gone. The house appears to have had a porch on the down canal side as a door to the main floor occurs back two thirds from the front corner, and as the towpath slope falls rapidly, it is about 6' above grade. Nothing of the porch remains.

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140.90 (57-4) Fifteen Mile Creek Aqueduct: about $1\frac{1}{2}$ miles above Lock #57, Fifteen Mile Creek, starting in nearby Pennsylvania, carries a considerable amount of water throughout the year down to the Potomac. An aqueduct was necessary to carry the canal over the body of water. The contract was let to Enos Childs in May 1838. By June of 1840, it was estimated that the aqueduct was only $\frac{1}{2}$ completed and work was suspended. No further work was done during the 1841-1848 period. Work was resumed in the early summer of 1848 and documentation of its completion has not been found but was probably in early 1849. The trough of the aqueduct is 7'-6" deep by 20'-7" wide and 78'-3" long. The towpath parapet is 8'-6" wide and fenced on the down creek side by a wrought iron rail that is similar to most of the aqueduct railings. The berm parapet is 6' wide. This structure is carried over the creek by a 50' wide arch that rises 9'-6" with vertical exposed wall under the spring stones of about 6' above usual creek water level. Eight foot buttresses are on either side and flush with the arc face; the buttresses then broaden by about 5' and run another 4'-6" parallel with the face walls. On the down creek face the buttresses are met with wingwalls of about 23' coming out at about a 60° angle. On the up creek face the abutment and wingwall is similar on the down-canal side, but on the up-canal side, a natural outcropping of rock provides the thrust for support. The interior walls of the trough are extended by about 32' of dry laid vertical stone wall except on the up-river, up-creek end, where the dry laid wall splays out at about 50° to run for 34' from the trough to the entrance of a berm side wastewear. Some of the coping stones are missing and dangerously bulging face wall in the arch spandrel areas have been the object of \$130,000 stabilization project underway in 1975.

*Little Orleans: the area around Fifteen Mile Creek has long been settled. Indian camp sites have been found on both banks of the creek as it enters the Potomac River. The creek had received its name, as on the map of the "new" road of 1760, it was fifteen miles east to the village of Hancock and fifteen miles west to Town Creek, the next sizeable creek coming into the Potomac on the Maryland side. The village of Little Orleans is long standing. The graveyard of the small St. Patrick's church has many unmarked graves thought to be some of the Irish canal workers. In early 1838, as the Canal Company's finances became more harried, dissent between the workers and the contractors over slowness of pay built up and here on May 17, 1838, a riot broke out. Irish workers were fired, replacements hired, and extreme violence ensued. At least one German worker was clubbed to death and one was burned to death. A shipment of 500 hunting guns was received by the

* Not included in boundary.

Irish and by August the state militia from Baltimore was brought in to confiscate guns and to quell the bloody riot or rebellion. Order was restored to everything, except the Canal Company's money problems, and that grew only worse.

- 140.93 (57-5) Wasteweir: as noted above, the wasteweir occurs in a 13'-6" break in a dry laid up-creek, up-canal wingwall of the Fifteen Mile Creek Aqueduct. The original timber frame to hold the drop gates of the weir were replaced post 1900 with a similar concrete frame with its members having a 10" face with 12" thickness. The three openings are about 37" wide with a 8'-2" clear vertical dimension. Nothing of the drop gates remains. The weir spilled out onto the natural rock outcropping and on down to the creek.
- 143.96 (58-1) Lock #58: (first of thirteen "composite locks"). This is the first of the locks mainly built in the 1848-1850 period. Some contracts had been let in 1838, but little work was done before the dormant period of construction starting in 1841. When money had been secured in 1848, construction was resumed. There was much to do, money was limited, and new cheaper methods had to become acceptable. In the spring of 1838 the contract was let to James Wherry. In December 1839, the lock was estimated 2/5 completed and the contract was voided. The Annual Report of 1848 states that the stone for the lock was cut, but not delivered. The lock was probably finished in 1849.

The "Composite Lock" differs from the other two forms of typical locks in the following fashion. Between the lower end of the lower gate pockets to the lower end of the upper gate pockets the stone walls were moved further apart 9 $\frac{1}{4}$ " on each side, resulting in a clear dimension between lock walls of 16'-6 $\frac{1}{2}$ " rather than the 15' previously adhered to. The normal clear dimension was resumed both up from and down from these points. The walls were of rough cut and rough coursed limestone, principally dry laid where the walls were widened and laid with mortar when in their typical positions. Between the lower end of the lower gate pocket and the lower end of the upper gate pocket vertical rows of three, 1" round iron bolts, 4' long, were spaced on 2 $\frac{1}{2}$ ' center for the lock length. The 4' bolts protruded from the stone about 8" and held 5 $\frac{1}{4}$ " square timbers. These timbers were carried to a full height of stone wall and their base was mortised into a 6" wide by 3 $\frac{1}{2}$ " deep timber bolted to the juncture of the bottom of the stone wall and the lock floor. The

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vertical timbers became the studs to which a 2" planking was attached horizontally, with a tight fit, and a second layer of 2" planking, laid tight, vertically for a complete wood sheathing of the rough stone lock walls. The inner wood surface was "kyanized" (a liquid applied to the wood, in the period, that gave some "waterproofing"). An application of creosote was used at a later date. The lower corner of the upper and lower lock gate pockets against which the lever post of the gate rested was of heavy wood timber that was capped by a heavy coping stone, the centered stone of three. Wood timbers were used in place of coping stone for the remainder of the lock. The wood sheathing of the lock interiors required frequent replacing, and around 1900 many repairs were made by stripping out all of the wood and pouring a cement liner with a 15' clear dimension retained between lock walls. The wood timber corner post in the lower corner of the lock gate pockets was sometimes replaced by cement, as was the coping for the walls. The upper extension walls (just above the upper gate pockets) extend 4' in line with the lock, turn of an almost square corner and continue about 5' perpendicular to the lock for the transition back to normal canal width. The lower extension walls run for about 12', turn at about 60°, and run about 15' to gain width of the canal. Lock #58 follows the above description with cement replacing all former wood members. A 1909 date is impressed on one of the walls. Stone walls are exposed only on the extension and wingwalls. The clear dimensions of the lock have held remarkably intact, with no more than a 3" reduction. The wood frame of the upper berm gate is in place but almost all of the lock's hardware has been stripped off. A Service-built wood pedestrian bridge crosses over the lower extension walls. The lock is in good condition.

- (58-2) Bypass flume: water enters the flume through a wide and shallow ditch notched into the top of an extension of the upper berm wingwall. Thirty four feet above the lower berm wingwall the ditch narrows and is restricted by dry laid stone walls on each side. Five feet above the wingwall, a 6" wide concrete frame with a center division giving two openings 50½" wide and 6' clear height that held drop plank gates on the upper side. The lower berm wingwall is notched down from the top 6' for an 11' run to release water onto a rock tumble placed against the bottom of the wall in the canal.

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- (58-3) Lockhouse, Lock #58: a narrow end of the house faced the canal mid-lock 28' back from the towpath lock wall. The wood framed 1½-story house is gone; only the stone walled full basement remains. It measures 17'-8" by 28', and was built c. 1848.

- 146.01 (58-4) Wasteweir: only a concrete structure, dated 1915, remains. The towpath side of the canal is breeched by two concrete walls 10' apart, this is covered by a 10" thick slab at towpath level about 10' wide. The opening is divided into three 34" openings by two 10" wide, 11½" deep, 9'-2" high, concrete piers. Nothing remains of a probable wood frame that held, now non-existing, drop plank gates on the canal side. As the bank towards the river drops rapidly, a railroad tie cribbing has been placed below the weir slab floor to prevent the bank erosion.

- 146.56 (59-1) Lock #59: (2nd of "Composite Locks"). The Canal Company, seeing financial peril arising, was anxious to complete the Canal to Cumberland to generate ready cash that the paying traffic of barges on a completed canal would bring in. In May 1838 the contracts were let to James Wherry for Locks #59 through #66. The available stone quarries couldn't handle that size order in their product of suitable stone. Stone was lacking, finances became more limited, little work was done, and the attempted spurt of action became thwarted. The contracts were voided in December 1839. An attempt to finish the canal was made in 1845, when a contract for its completion was given to the firm of Gwynn, Thompson, Hunter, and Cunningham. Everything that concerned finance of the Company became such a battle that delays became more prevalent than action. In June 1846 there were only 10 laborers at work on all of the completion projects. When a fresh supply of money was guaranteed by the Maryland legislators, a new contract was relet in November 1847 to the same contractors, who had reorganized and were now principally by Hunter, Thompson, and Harris. Most of the work was sublet and so little information was included in the Company records that few completion dates can be given other than a general listing of between 1848 and 1850.

This lock is very similar in construction to Lock #58,

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with two exceptions: first, is that the wood portions of the lock appear to have lasted much better than in #58, and when repair was needed it was always of wood. Cement modification was not used here. Second, this lock, probably in the mid 1870's, was extended at its lower end by rock filled wood cribbage to double its original length for running two barges through the lock at a time to speed traffic. Only remnants of the wood cribbage remain, but the rocks fallen from their confining timbers indicate the outline of this extension. Worn 5½" square vertical studs, some pieces of the horizontal 2" planking, and a few of the 2" vertical planking remain of the wood lining of the body of the lock. The wood timber forming the corner of the lower corner of the towpath lock gate pocket remains in place, it is the only example. All of the wood coping is gone. Because the dry laid backing wall is almost totally exposed, there are many fallen stones, but because of the remaining wood sheathing this becomes a more interesting lock example than #58, although that lock is more intact as it is held together by its cement repairs.

(59-2) Bypass flume: the entrance is a wide but shallow opening in the upper berm wingwall. The flume is ill-defined, but appears as a wide, shallow ditch parallel to the lock. The flume exit in the stone lower berm wingwall is 10'-6" wide and 6'-2" deep. The probable wood frame to hold drop gates for this opening was replaced post 1900 with a similar concrete frame that has a center pier. Nothing of the wood frame, nor gates for the concrete replacement, remains.

(59-3) Lockhouse, Lock #59: built in the 1848-1850 period. The house was located mid-lock on the towpath side with a narrow end facing the canal. The remaining stone foundation measures 19'-9" by 30'-11". It was a wood frame house, probably 1½-story with simple gable, wood shingled roof. Only the stone foundation remains.

146.92 (59-4) Culvert #206: started by 1840, finished in 1850. The opening is 12' wide, covered by an arc with a 5' rise. This is the first culvert to substitute brick instead of the typical stone ringstones, and the pattern is two curved rows of two bricks, alternating a header and a stretcher with a third row above, composed of

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stretchers only. The surrounding face is rough cut, random laid stone. On the outflow face much of the stone face wall above the arch is down, and side walls, if any, are covered with silt. The culvert carries considerable water. In the post 1900 period, the inflow face, other than the brick ringstones, was replaced with concrete. The concrete wall extends up about 4' above the brick ring and splayed wingwalls step down from the top level. The lower course of header and stretcher brick of the ring is beginning to fall. The culvert is in poor condition on its faces, although apparently the barrel is intact as no leaks are indicated in the canal above.

148.24 (59-5) Culvert #207: built in the 1848-1850 period with 8' wide opening covered with arch of 4' radius. The arch ring is of brick of two rows, each of alternating head and stretcher. The remainder of the face is rough faced limestone laid in a regular pattern with a stone coping 12" thick. On the outflow face, the headwall and about 4' of the barrel are down, and wingwalls, if any, are down. On the inflow face silt is up to the spring of the arch, but the long facewall, with no wings, is intact although total repointing is needed. There appears to be no leaks in the canal bed, therefore, the remaining barrel appears to be intact. General condition of culvert is poor.

149.45 (59-6) Wasteweir: there is no evidence of a previous stone weir at this location and what does remain is a badly damaged post 1900 concrete weir. Water flow from the canal and weir has totally undermined the floor slab of the structure and caused it to drop about two feet. The two 10" x 12" concrete piers that divided the 10'-2" wide opening in the towpath into three sections for drop gates are fallen. The Service has shored up the towpath banks on either side with heavy wood cribbing and a modern wood footbridge at towpath level covers the ruin.

149.69 (60-1) Lock #60 (third "Composite Lock"): See (59-1) Lock #58 for construction details and (59-1) Lock #59 for builder and dates. Both #59 and #60 were extended by rock filled wood cribbage on their lower end to double

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the lock's length and only long rock piles remain. As in Lock #59, Lock #60 received wood repairs in its wood lining, rather than being plastered over with concrete. A few of the vertical heavy timber nailer are left, and shreds of the horizontal planking, but no vertical planking is in place. More of the wood lining is in place in Lock #59. The rough cut, random laid stone walls are still intact, with little if any tilt, and in generally good condition.

(60-2) Bypass flume: entrance is through the upper berm wing-wall and the flume itself is a wide earthen ditch parallel to the lock. About 40' above the lower berm wing-wall, the walls become dry laid rocks and continue about 15' where they lead into a 7'-6" wide, 4'-9" long concrete culvert divided in its up-canal end with a 10" x 12" pier, which supported drop plank gates on its up face. The flume is rock walled to the lower berm wing-wall which is notched down 6'-2" for a 11' width as an outlet. Rocks are piled below this opening as a tumble.

(60-3) Lockhouse, Lock #60: built in the 1850 period and located mid-lock on the towpath side with narrow end facing the lock. Only a stone foundation measuring approximately 18'x 30' remains, with indications of a fire place at each end. Economy of construction costs ruled the Canal Company's building at this period, and this house probably was a story and a half wood frame house of minimum standards.

151.18 (60-4) Culvert #208 (Robey's Culvert): built in the 1848-1850 period. This large culvert has a brick lined barrel. The opening is 12' wide and covered with an arch of 6' radius. The top row of the brick arch is entirely headers, the two inner courses are composed of a pattern of alternating one stretcher and two headers. The remainder of the face wall on the outflow side is rough faced stone in a random pattern. The inflow face, including the brick arch ring, has been surfaced with concrete, probably in the 1900 period. The concrete surface includes about 4' to 6' of the inner arch barrel from the inflow face. Stones have tumbled from the outflow face and bricks from the ring have given. Quantities of repointing are needed and both brick and stone infills. The culvert is in poor condition.

- (60-5) Busey Cabin: the cabin sits back some distance from the berm side of the canal in a concealing grouping of trees. Its front faces roughly north, to the rising bank that confines the flood plain. The story of the cabin's use as a construction office for the canal in the 1848-1850 period is fairly persistent but is with no foundation. Its method of construction would indicate anything from late 1700 to late 1800. The rough stone foundation about 20' long and 17' wide protrudes above ground to hold a 1-story log cabin, with corners of saddle notched logs. The space between the logs is filled with wood chinking and mud daubing. The roof is a simple gable with the gable ends sheathed with vertical board and battens. A board and batten addition is across the western end and adds about 9' to the length of the house. Its roof is slightly sloped shed originating at the main roof eave height. There is no indication of chimney or fire place. The cabin is unoccupied, boarded up, and in fair condition.
- 151.24 (60-6) Railroad trestle: In the period of 1905 the Western Maryland Railroad built this branch of their line, and in a relatively short distance five crossings of the canal and Potomac are made. Two large 8' high stone piers about 18' apart sit 12' back from the towpath bank of the canal to carry the steel truss on which the steel railroad trestle rested on its span over the canal and on towards the river.
- 153.01 (60-7) Wasteweir: a post 1900 concrete wasteweir applied on the original stone weir. Approximately 8" thick concrete walls were built inside of the stone weir walls that pass through the towpath bank of the canal. The clear width of about 10' is broken into three units on the canal side by two 10" wide by 12" thick concrete piers that held wooden drop gates for the three openings that could release the canal water. The weir top slab is about 15' wide at the towpath level but the towpath is restricted to 12' clear by concrete curbs of 6" thickness and 20" height. The concrete is intact but nothing remains of the gates or frame to hold them.
- 153.10 (61-1) Lock #61: (4th of Composite Locks) See (59-1) Lock #59 for builder and construction dates. See (58-1) Lock #58 for construction details and repair. Lock #61 is very similar to #58 as the timber lining required so much repair that it was totally replaced, c. 1900, with concrete. The remaining exposed stonework on the lower wingwalls is quite true and intact. The stones are rough faced and random laid. The canal below the lower towpath wingwall is dry laid, random patterned stone for 100', the last 40' approaching the wingwall slopes up to gain the elevation of the top

of the lock walls. The lower berm wingwall is indented for a section as the by-pass flume discharge. Portions of the lower gates are in place.

- (61-2) By-pass flume: see (60-1) as this flume, with its post 1900 concrete culvert toward the lower end, nearly duplicates that at Lock #60.
- (61-3) Lockhouse, Lock #61: built in 1848-1850 period, mid-lock, towpath side. Only the stone 22'x26' foundation remains. Although these dimensions are not typical, the house was, no doubt, an economy 1½-story wood frame building.
- 153.46 (61-4) Culvert #210: built in the 1848-1850 period with 12' wide opening covered with brick arch on a 6' radius. The outflow face is rough, random laid stone other than the ringstones of brick. The ring is patterned, a top row of headers, and 2 rows of alternating stretcher and headers. Silt covers to the spring of the arch, and stone inface wall and splayed wingwalls are tumbling from the top. Inflow face is similarly silted, but this face has carefully cut and laid stone ring with brick taking over immediately after the ring for the interior of the barrel of the arch. Most of the stonework, other than the ringstones, has been covered with concrete. The exposed splayed stone wingwalls are tumbling from the top.
- 153.92 Location of Dam #7 that was omitted: the proposals and plans for the Canal as submitted by the chief engineer included 8 dams across the Potomac for a build-up of water that could be drawn off to fill and regulate the water in the canal for its entire 184.5 mile length. Dam #5 was completed in 1835. Dam #6 was built 27.3 miles further up, and was completed in 1839. This was the period when the finances of the Canal Company became very precarious and all possible economies were considered. From Dam #6 to the proposed Dam #7 site was 19.8 miles, and from #7 to Dam #8 was 30.6 miles. The expense of building a dam was considerable, and the work difficult and subject to the frequent floods on the river. The decision was made during this period that the proposed Dam #7 could be eliminated and the distance of the last 50.4 miles up from Dam #6 could be fed by Dam #8 at Cumberland. This was an economy measure, one of many that the Canal Company had to make, for their terribly limited cash could cover only essentials.
- 154.16 (62-1) Lock #62: (5th Composite Lock) See (59-1) Lock #59 for builder and dates and (58-1) Lock #58 for construction details. Lock #62 is just over a mile above #61 and down

from #63 1/3 about one third of a mile. In this area natural stone outcroppings are prevalent on the berm bank, shortly to become high stone cliffs. This lock has a lift of 10'. Probably due to the quantity of water funneled from the restriction above this lock an extra 2'-2" height of stone wall from the lower end of the upper gate pocket was added at an early date. The normal gate was 14' high (8' rise plus 6' canal depth) but with a 10' rise in these locks 16' high gates were required. With the addition of 2' to the walls of the upper lock pocket and above an unusually high gate of 18' had to be installed. In the early 1900's repair work to the wood sheathing in both the upper and low lock gate pockets was extensive enough so that the sheathing was removed and a 9 1/2" fill of concrete added on each side, to bring the concrete out to the plane of the former wood. The breast wall in its top two courses of stone has concrete in-fillings for missing stones. The heavy wood frame-work of the upper towpath gate is in place. The upper berm wingwall runs perpendicular to the lock for 31'-0" to the 10'x10' inflow of the by-pass flume. This long wall is buttressed approximately at mid point by a thickening of 3'-6" for a 3'-3" distance. On the upper towpath wingwall a 3'-3" buttress is placed after a 9' run of wall. After a straight run of 13' the lower extension walls splay out at a 60° angle for about 15' and the lower berm then runs for 19', perpendicular to the lock to the 11'-3" deep, 16' wide outflow of the flume. The rough stone walls of the lock are quite plumb and little of the wood sheathing remains, and in general the lock is in quite good shape.

- (62-2) By-pass flume: this by-pass flume was built to run a considerable volume of water. With a 10'x10' opening about 30' away from the lock this deep channel used as its berm side the natural rock cliff. The stop plank slots occur a short distance from the inlet. The deep and wide channel parallels the lock down to its outlet through the lower berm wingwall.
- (62-3) Lockhouse, Lock #62: only concrete foundations, 7" thickness, about 27' long by 16' wide remain just below mid lock on the towpath side. It was probably built near 1900 with a 1 1/2-story wood frame above.
- 154.29 (62-4) Spillway and Wasteweir: 6' thick stone walls, 11 1/2' apart divide the towpath bank of the canal. The opening is divided into 3 by two concrete piers 10'-2" high, that replaced the former wood timbers. The concrete piers are grooved near their canal face to receive stop gate planks. This weir is abutted for about 31' on either side by a stone wall for a spillway through a lowered towpath. Both up and down canal ends are stopped off by heavy stone

buttresses. The towpath has been brought up to normal level so any remains of elevated foot plank supports are covered.

154.48

One lock was eliminated in this area from those originally planned in order to cut costs; it was Lock #65. Somehow or another, a revised numbering system involving fractions became acceptable to the powers that were, and the sequence of locks is known as Lock #62, #63 1/3, #64 2/3, and #66. Just above Lock #62 the Potomac starts on a wondering course that resembles a large "M" with an extra loop added. By cutting directly across the necks of land, the distance would be about two and a quarter miles; along the river bank it was well over eight miles. This savings of distance involved the disadvantages of closely spaced locks and a lengthy tunnel through a solid rock cliff, all difficult and expensive to do.

154.48 (63-1)

(63-1) Lock #63 1/3: (6th Composite Lock). See (59-1) for contractor and dates, (58-1) for construction details, and (62-1) for lift. Lock #63 1/3 is a little over 500' below the next lock, #64 2/3, and about 1/3 of a mile above Lock #62. The wood liner for upper and lower pockets was removed and replaced with a concrete filler, including the coping of the lower extension and wingwalls, on which "1910" is inscribed. There is quite a bit of patching in concrete on this lock, probably post 1900. No wood sheathing remains, but the protruding bolts give evidence of its existence. One of the lower lock gates is in the bed of the chanel. The timber triangular bottom stops on the floor of the gate pocket for the gates, when in their closed position, is in place in the upper gate pocket and is in unusually good condition. The remains of this lock appear quite stable, walls are plumb, and condition is fairly good.

(63-2)

(63-2) By-pass flume: the entrance to the flume was through the upper berm wingwall and the ditch parallel to the lock was of dry laid rock bottom and sides. Water re-entered the lower canal at a notch at the end of the lower berm wingwall using a natural earth bank as the land side of the flume.

154.60 (64-1)

(64-1) Lock #64 2/3: (7th Composite Lock). See (59-1) for contractor and dates; (58-1) for construction details; (63-1) for number explanation. This Lock is about 530' below Lock #66 and about 630' above #63 1/3. Concrete replacement of original wood lining in both the upper and lower lock pockets is dated with an impressed "1910". The original stone coping of the corners of the gate pockets was retained but the wood coping for the approximate

ten foot length of the pockets also replaced in concrete. The concrete coping continues in the lower extension and wingwalls. The wood coping for the run of the lock and above the upper pockets was retained but is now missing. The lower berm wingwall is buttressed with a $4\frac{1}{2}$ ' wide stone wall that is stepped down in its 25' length parallel to the run of the lock. This buttress helped to keep the turbulence created by the by-pass flume discharge separated from the water at the entrance to the lock. The breast wall at the upper end of the upper gate pockets still has its heavy wood coping member, although some missing stones of the wall were replaced with concrete at an indeterminate period. The battered lower lock gates are askew in their proper location. The stone walls of the lock are plumb for the most part and in quite good shape. Considerable portions of the wood lining, timber studs, horizontal and vertical sheathing, remain in place although much weathered and partially rotted. This lock would be the best example to study for original "Composite Locks" as it is most intact of the several.

(64-2) (441) By-pass flume: the entrance to the flume is past the upper berm wingwall where a dry laid stone wall starts and runs for 20' parallel to the lock to become the lock side wall of the flume. Just below the upper berm lock gate pocket a dry laid stone wall, perpendicular to the lock, runs for $41\frac{1}{2}$ ' to connect with the lower end of the 20' wall. The perpendicular wall is resumed after about 29' with a stone buttress along the land rise. Both the buttress and the end of the wall are notched to receive a drop plank gate to control the flume water. It would seem likely that there was an intermediate vertical timber or stone column, as a drop plank gate 29' long would be unmanageable. The flume water re-enters the lower canal next to the buttress that supports the lower berm wingwall.

(64-3) (442) Lockhouse, Lock #64 2/3: about 10' above towpath grade at the upper end of the lock, is a small plateau (probably built up with tailing from the construction of the tunnel) on which remains a partial stone foundation of the typical lockhouse size that is the probable site of the lockhouse. It is likely that a lockkeeper was needed and a house provided. Records from this period of flurry of construction are so scant that we have little proof of the existence of a house for the locks in this general area.

154.70 (66-1) (443) Lock #66: (8th Composite Lock). See (59-1) for

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contractor and dates, (58-1) for typical construction. This lock is about 500' up from #64 2/3 and approximately ½ mile below the down canal entrance of the Paw Paw Tunnel. Early in the 1900's the wood sheathing of the lock pockets, upper and lower, was replaced by a concrete lining including the former wood coping. Concrete coping also was added to replace the wood on the lower extension and wingwalls. The breast wall retains its wood coping. The lower lock gates are in a state of collapse, but the upper lock gates are in fair condition. Little of the wood sheathing of the lock is left. The stone walls are quite plumb and the original clear width between lock walls has remained almost intact. The lock, minus its wood lining, is in fair shape. The wood bridge crossing over the lower extension walls is Service built.

- (66-2) Bypass flume: A 4' wide stone wall, 5' down from the upper berm lock gate pocket runs out from the lock, perpendicular, for 47'. A concrete form, full width of the wall, and divided into two sections by a center pier, gives two openings 4½" wide by 4'-7" high with a 12" deep by 2½' wide concrete lintel above. The front face of the concrete is slotted for drop plank gates. After the frame the stone wall continues to the natural bank. The flume continues down to the lower wingwall with the natural bank on the land side and dry laid shale on the river side.
- (66-3) Lockhouse, Lock #66: reference is made to an early photograph showing a two story frame house, perpendicular to the lock and with a down-canal side porch, on the berm side. Visual evidence remaining gives no indication of its size and exact location.
- (66-4) Carpenter Shop: the large frame carpenters shop, on the towpath side of the lock, burned in the early 1960's almost totally. A 6' high, 28" diameter metal creosote tank remains, with the concrete pit below that accommodated the heating fire.
- 154.85 - (66-5) Paw Paw Tunnel and Approach: the river course, known as the Paw Paw Bends, takes some giant bends, rather like a huge script, lower case "m" with an extra loop at the end which presented the canal engineers with a problem requiring an ingenious solution. The Maryland banks of the river were stone cliffs with shear drops to the river bank, and the Virginia bank was quite restricted. Actual mileage of the winding river course was approximately six miles, whereas a tunnel cutting through the rock ledge at the lower end of the "m" would be about one mile. Charles B. Fisk, Chief engineer, felt a tunnel to be feasible, and through his urging the tunnel was the solution pursued. He prepared plans and specifications in early 1836 and the contract was let in March 1836 to Lee Montgomery, a Methodist minister
- 154.85 - 155.2 approach
155.2 - 155.78 tunnel

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who had built a 660' tunnel for the Union Canal near Lebanon Pennsylvania. Completion date was set for July 1, 1838. That date was formulated upon "a single hand can bore seven to eight feet a day", whereas the actual rate proved to be that an entire crew, (about twenty) was able to bore 10' to 12' per week. The digging of the tunnel was a tremendous task with only black powder (for blasting) and human strength as the tools with which to accomplish it. Montgomery was conscientious to the point that the building of the tunnel became an obsession with him. Each year in the late 1830's the Canal Company's lack of cash became more acute, resulting in withheld payments to the contractors, which was reflected in late, or even no pay money for the workers; resulting in worker riots - resulting in state militia to quell the riot and the Canal Company black listing (an attempt to prevent other employers from hiring a striking worker), which only caused further violence. By 1840 most of the tunnel was dug but Montgomery had, in lieu of cash from the Company, used his own money and borrowed heavily, and in the financial crises that developed, he went under. The Canal Company subsequently gave him little credit for what they billed as "A Wonder of the World". The construction of the tunnel was accomplished by sinking two double shafts 8' in diameter and 23' center to center, from ravines in the hills above the near center of the tunnel line. Men and materials were lowered through the shafts and work was from the center out toward each end. At the same time the restricted approach to the lower end of the tunnel had to be widened by considerable blasting. By late 1839 the cut to the lower entrance was excavated and two thirds of the tunnel itself dug. In 1840 the tunnel was put through although shaping and arching were incomplete, and the towpath not constructed. Work was resumed on the project in 1847, and the tunnel was ready for traffic when the Canal was officially opened in 1850, although some finishing was still needed. A date has yet to be found for the interior bricking of the walls and barrel. The tunnel has a 24' wide opening with brick side walls 11' high and is covered with a brick barrel arc on a 12' radius. Within this volume a 4' wide brick towpath ledge is built up about 7' high on the river side. A heavy wood railing borders the towpath and shows deep ruts and burns from the tow ropes that restrained the barges. The total length of the tunnel is 3,118'. Each end has an architectural portal of carefully cut and laid limestone, with 5' wide pilasters out 2' on either side of the arched opening, a belt course that rides the elevated and projected keystone, and a projected coping about 8' above the top of the arched opening. Stepped wingwalls come out almost perpendicularly beyond the pilasters. The up-canal face keystone is inscribed "G.B. Fisk, Engineer". An

inscribed stone in the parapet in the down-canal face reads "T.M. Coale, President, 1850". In 1966 extensive repair work (costing approximately \$500,000.00), was done by the Service in repair work to the tunnel and the boardwalk or the down canal approach. The interior of the tunnel remains in good condition. Both end portals have been forced from their natural stone backing due to water seepage and winter freezing. Stabilization of the two portals is a current proposed project. The 0.85 mile approach to the lower portal is the area in which the gorge had to be widened to accomodate the canal and towpath. The boardwalk of the towpath is built onto the side of a shale cliff and the entire length of path has a heavy wood hand rail. Moisture seeping into the shale freezes in the winter time and the fact that there has always been a slide problem is attested by iron bars inset into the rock in an attempt to hold the rock surface. Several sections of the canal in this area are currently filled with shale from major slides, although the towpath has been cleared. The boardwalk is constantly in danger from rock slides, and nothing short of stabilizing the cliff bank will remove the danger.

- 156.16 (66-6) Section Superintendent's House: built around 1850, with a "L" shape, brick foundation (about 20" exposed above grade), 2-story wood frame, with horizontal wood siding and a metal covered roof. The house is unoccupied and boarded up and in fair condition. The ground around and near the house is filled with remnants of thousands of bricks. The contractor for the Paw Paw Tunnel, Lee Montgomery, had bought a pattered brick making machine in Baltimore, in as much as there were no local suppliers for the brick that would be needed for in the tunnel construction. In his attempt to use local clay with his maching he was much thwarted, as the product was too soft to be acceptable. His try was a prodigious one as the thousands of samples testify, and the huge waste of man power and materials must have furthered his financial difficulties.
- 156.30 () Highway #51 bridge over the Canal: West Virginia Highway 29 passes through the village of Paw Paw close to the Potomac bank, bridges the river and becomes #51 in Maryland. The bridge that crosses the canal is a post-1900 structure with concrete retaining walls, held back 12' from the canal edge on the towpath side, and the metal span having a 12' towpath clearance. The berm side construction is similar.
- 156.51 (66-7) Railroad Bridge over the Canal: this metal web bridge crosses at an angle over the canal and is an early 1900 structure built by the Western Maryland Railroad. The concrete buttress is held back 10½' from the canal edge on the towpath side and has a 13' towpath clearance.

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- 156.65 (66-8) Spillway and overflow: only a few small portions of well cut and well laid stone wall indicate a towpath spillway that is under a quantity of fill. The structure appears to be of some length, and only with careful excavation can its dimension be established and its true nature discovered.
- 156.66 (66-9) Wasteweir: large stone walls, about 12'-6" apart separate the towpath with their flat tops about 12' long and at towpath level. The walls step down on each side of the high level in uniform steps to contain the towpath canal and outside bank slope. The wood frame that held the gates was replaced in the early 1900's with a concrete frame with the two division posts 10" wide and 12" deep, giving 3 clear openings about 3' wide by 9'-9" high. A 8" slab 2' wide forms the bottom sill and a concrete beam 12" thick and 30" wide serves as the upper lintel. This is an instance where a wood towpath bridge was retained rather than building the normal 12' wide concrete slab cover. No gates remain. Some stones are fallen in the up-canal wall, but the down-canal wall is in good shape. The current wood bridge is Service built.
- 157.27 (66-10) Cemetery: this field of several acres was, by tradition, a construction workers camp and became a burial ground for some of the quantity of men who succumbed in the cholera epidemics of 1830. There are scattered unmarked stones, but necessary investigation and archeology has not been done. There are a few marked stones but these are said to be of a later date.
- 157.40 (66-11) Culvert #211 (Pursland Run Road Culvert, Greenwells Hollow Road Culvert, and Road Culvert of Davis' Farm): Built in the 1848 period of sandstone with a 14' opening, 5' vertical wall to the arch spring, and covered by an arch of 7' radius. Top of coping about 4' above top of arch opening. Flat face wall extends 2' beyond opening and 6' wide buttresses, stepped down from the coping, come out at a 90° angle. Interior barrel arch of brick. Both faces are in good condition, and entire culvert has been recently repointed.
- 158.79 (66-12) Culvert #212 (Fairplay Station Culvert): because this culvert is so blocked and carries so much water inspection gives few facts. The culvert appears to have an 8' opening. The water runs above the top of the stone arch on the outflow face and wingwalls, if any, are totally covered by earth. Water comes to within a few inches of the arch top on the inflow face, and all wall observable has been plastered over with concrete. There are

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stepped wingwalls on this face coming out at a slight angle. There are no breaks in the canal bed, so it would seem that the barrel is intact. The culvert needs to be dug out and cleared for factual confirmation.

160.26 (66-13) Spillway and Wasteweir: stone walls, 10'-8" apart, cut through the towpath embankment with a flush top at towpath level 11' long that steps down both on the canal side and river side. This formerly held a timber frame to hold the drop gates of the wasteweir. About 1900 the wood frame was replaced by a concrete frame with two concrete piers 10" wide, 12" deep, placed on the river side, dividing the space between the walls into three openings of 3' each. A concrete slab of 7" bridges the 11' towpath width. The weir drop plank gates and wood frame are gone. For a distance of 25'-8" both up and down canal from the weir walls the towpath is depressed to an elevation of 6' above the bottom of the canal as a spillway. The spillway is terminated both up and down canal with a stone wall and the river side of the towpath spillway is formed of cut stone, dry laid in about a 4' high wall. A water collection flume, 9' wide, is at the wall base, with the flume's river side edge of dry laid stones in a 2' high wall. This flume spills its water around the river side of the wasteweir walls to merge with the wasteweir discharge going down to the river. This arrangement provided both a method of maintaining a 6' level of water in the canal (by the spillway) and for total drainage of the canal (by the wasteweir). Many stones in this structure have fallen, and much of the spillway has been filled in. This complex structure for handling water in the canal is in poor condition.

161.76 (67-1) Lock #67 (Darbey's Lock): (9th Composite Lock). The original contract for this lock was let in May of 1838, but abandoned shortly thereafter. For further contractor and dates see (59-1); for construction and dimensions see (58-1). Repair of the wood lining of this lock became extensive enough in the early 1900's that all was removed and a new approximately 9½" concrete wall was poured on each side to bring the lock to the standard 15' clear dimension for its interior. This pour included the lower lock gate pockets, plus a thin concrete plaster coat for the upper lock gate pockets. As the upper pockets were not wood lined in the composite locks this concrete was thin to the point that it has mostly peeled off, exposing the stone pocket as it originally existed. As was standard only the corners of the lower ends of both the lower and upper pockets were coped in stone; all other coping for the lock was wood and was replaced by concrete. A pair of gates survive in their upper pocket location,

and although most of the lower portion, that contained the wicket gates, is rotted away, much of the heavy timber gate frame is sound. The balance beam, for opening and closing the gates, is missing, but very few have survived. Both upper extension walls are about 5' long, turn at 90° into short wingwalls, all with concrete copings at the lock coping elevation. The lower extension walls run about 13', splay out at about 60° for a 14' run, and the berm wall turns again to run perpendicular to the lock for about 23' to a 10½' wide opening for the by-pass flume lower exit. The towpath approach to the lower end of the lock is dry-walled for about 100'. Most of the exposed stonework and concrete in this lock is intact and the lock is much better than average condition.

- (67-2) By-pass flume: the upper berm wingwall was abutted by a stone filled wood cribbage about 16' wide that extended about 25' up canal. In the wingwall plane beyond the cribbage an opening allowed water to enter into a wide earth ditch that became walled on either side with dry laid stone, started about 30' above the lower wing and was continued to the wingwall itself where it then flowed out of the 10½' opening of that wall.
- (67-3) Lockhouse, Lock #67: probably built c. 1850, at mid lock, towpath side, back 20' from the near lock wall. The full story basement measures 18' x 30' with fireplace on each end. This was probably topped with a story-and-a-half wood framed house, which has not survived.
- 161.82 (67-4) Culvert #215 (Big Run Culvert): built in the 1850 period of rough cut and faced limestone in random pattern with a 16' opening, covered by a brick ringed arch on a 8' radius. The barrel of the arch is of brick. The outflow face has heavy wingwalls, stepped down from coping, coming out at a 90° angle. The culvert carries some quantity of water (when observed up to the spring stone), so height of vertical side walls could not be determined. Some brick and stone has fallen, others will soon. The outflow face is in fair condition. The inflow face is covered by a post-1900 concrete culvert of the same width and square head at key stone height, built by the railroad under their adjoining road bed.
- 162.34 (67-5) Town Creek Aqueduct: the original contract was let in September 1837 to Frederick Pratt for the construction of an aqueduct over Town Creek, the last of the substantial feeder creeks originating in Pennsylvania and flowing into the Potomac, before the area of Cumberland is reached. Almost no work was done on the contract, and it was abandoned the next year. This project sat in limbo

until commencing again in the rush of work in 1848. The aqueduct was finished in late 1849. The structure is built of regularly cut, rough faced limestone carefully laid. The ringstones are smooth faced and the keystone protrudes up, down, and out. A simple stone arch, with a span of 60' and a rise of 14'-8", crosses between the buttresses on either bank of the creek. The towpath is 8'-6", the trough 19'-6" by 7'-6" deep, and the berm wall is 6'-6" wide. The straight run of the interior trough walls is 88' long and is met at each end by dry and random laid stone wall extensions. Both face walls continue 8' beyond the arch both up and down side of creek, then comes out at 90° for a 4' thick buttress with a 4' face parallel to the aqueduct face, and then splays out at a 60° angle for 24' for buttress extensions, turns again to run 8' more parallel to the aqueduct face. The bottom of a continuous 8" belt course is 4'-6" above the top of the arched opening, and the aqueduct is capped with 12" thick stones that protrude 8" from the face. The down creek edge of the towpath has the holes in which the railing was grouted, but nothing remains of the railing. A berm side wastewear above the aqueduct has been blocked by a railroad right-of-way dike, therefore water running in canal has frozen and the aqueduct weakened to the point that the down canal 1/3 of the berm side wall of the aqueduct has totally given down to the barrel of the arch, taking with it a sizeable portion of the buttress adjoining it. The up-canal buttress has bowed and stones are gradually slipping out. On the down creek face both 4' x 4' buttress at the transition of the angled wingwall are pulling away, and face stones are moving out.

(Since the foregoing was written, the aqueduct has been stabilized and a modern railing added in lieu of the original.)

162.40 (67-6)

Wastewear: cutting through the berm bank 12½' apart are 2 walls, 3'-2" thick, composed of large, single stones. A flat run of about 16' is at the top elevation of the berm, and steps down in equal steps to confine the berm bank of the canal. The width of the weir is restricted by a 1' ledge on either side, 5' from the inland face of the weir, no doubt to hold the wood framework for the drop gates for the release of the canal water. The water from this weir would have flowed along the inland side of the berm bank on back to Town Creek. This flow was blocked by the fill dumped in it by the railroad bed construction at the turn of the century. The land side of the weir now is filled into berm top elevation, but the canal side is exposed and the huge stone blocks are in place and intact.

162.41 (67-7)

Wasteweir: in the early 1900 the Western Maryland Railroad built their bed, skirting the canal at this point, which caused item (67-6) to be ineffective so the railroad added a concrete weir, slightly above the original, to drain water from the canal and under the road bed, via a concrete culvert, back into Town Creek. The weir, through the berm bank, is similar in size to the one it voided. For an unknown reason, and at an unknown time, the inland side of the weir was covered with fill, thereby causing water to run, year around, in the canal that has resulted in the damage to the Town Creek Aqueduct.

164.82 (68-1)

Lock #68, Crabtree Lock: (10th Composite Lock). The original contract for this lock was let in 1837 and abandoned the next year. The contract was relet in late 1847 as covered by item (59-1). Item (58-1) covers the typical construction of the Composite Locks. The lock is nearly 2 miles below #69, and 2½ miles above lock #67. The lift was eight and a fourth feet. Although the concrete liner of this lock is undated, it was probably added in the early 1900's when the needed repair of the original wood liner was so extensive it required total replacement. Concrete covers all lock walls from the lower end of the upper lock gate pockets through to the start of the lower extension walls, and all wood coping was replaced by concrete. On the towpath side spaced bolts, protruding 4" above the concrete indicate an added continuous wood member, but this may have been added as the concrete edge, over which the tow ropes ran, made the life of the tow ropes quite short. This lock was extended below by rock filled wood cribbage in the 1870's to double its length. The piles of rock are more intact, with fragments of the wood cribbage, than any of the extended locks. Rock filled wood cribbage was used above the lock on the berm side to divide the flow of water into the lock and into the by-pass flume. The upper pile is well defined also. The lock is dammed by a concrete wall at its upper entrance, a post World War II endeavor to create fishing areas in the canal bed above this point. A wooden barrier is across the lower end of the lower gate pockets, purpose unknown. This lock is in fair shape, the walls are nearly plumb and are reduced in their original 15' clear dimension only by a few inches. Much of the early hardware is in place. Twelve feet high stone abutments at the lower extension walls occur on the river side of the towpath and the land side of the by-pass flume to carry a high, 14' wide metal bridge that is a probable late-19th-century replacement of a wood bridge. The road crossover was necessary to carry traffic to the

Maryland bank of the Potomac for the commercial ferry that crossed over to West Virginia and French station, the B. & O. South Branch Depot. The bridge and abutments are intact.

- (68-2) By-pass flume: the entrance to the flume is just past the rock filled wood cribbage built out from the upper berm wingwall. The upper portion of the flume is poorly defined and unlined. Twenty one feet up from the lower berm wingwall the flume becomes walled on each side with dry laid stone. The outlet is a 6'-4" deep cut in the lower berm wingwall that runs for 9', and is stopped off by the bridge abutment. This opening contained a wood frame to receive drop plank gates for the control of the flume water.
- (68-3) Lockhouse, Lock #68: the post 1900 house is just above mid lock on the towpath side. The 2-story wood frame house, 16'-4" by 26'-4" rests on a full concrete basement. A 8' wide, partially inclosed, 1-story wood porch with a shed roof, fronts the 26'-4" length of the canal side of the house, and rests on short concrete piers. The house is covered in horizontal wood siding, and has a simple gable roof with wood shingles with brick chimneys centered protruding at each end. The house has been occupied until recently and is in good repair.
- 165.45 (68-4) Culvert #216: constructed in the 1848-1850 period of rough faced, regularly course limestone with a 6' opening covered by arch with a 3' radius. The interior barrel arch is of brick. The inflow face has angled wingwalls that are mostly covered by land slide. The outflow face has angled wingwalls, the lower is tumbled, and the upper will soon be. The upper face wall is badly bulged. Sections of the brick barrel are out close to both faces. The culvert is in poor condition.
- 166.10 (68-5) Culvert #217: constructed in the 1847-1850 period to take care of two small streams, Seven Springs Run and Cresaps Mill Run. The culvert has a 20' opening covered by a low rise of about 5'. The 24" deep ringstones are smooth, with other stones of rough faced limestone, regularly laid. Both faces have thick stepped wingwalls coming out at 90°. Both face walls rise for about 5' above the top of the opening. The interior barrel is brick lined. Some concrete repair work has been done to the face wall and down stream wing on the inflow face. Back 4' from this face is a 8' long, 2' wide, hole in the barrel arch. The culvert is in fair condition.

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- 166.24 (68-6) Wasteweir: the concrete structure is marked 1920 and if it replaces a former stone weir, nothing remains of the original. The two concrete walls that cut the towpath are $11\frac{1}{2}$ ' apart with a flat slab at the towpath level and sloping sides to confine both the canal bank and the towpath river side bank. The opening is divided into three, about 33'-wide openings, 8'-8" in height, by two 10" x 12" concrete piers on the canal side. The wood frame and the drop plank gates remain. The top slab is curbed, with both curbs inscribed, one "1920 W.M. Burgoyne", the other "1920 J.C. Wilson".
- 166.44 (69-1) Lock #69, Twiggs Lock: (11th Composite Lock). This lock is one of the series (#68 through #71) given out in contract in September 1837 and, due to no work being started, canceled in 1838. See item (59-1) for reissuance of the contract; item (58-1) for the construction and concrete repairs. Lock #69 is located about a quarter of a mile below Lock #70, and two-thirds of a mile above #68. The area is a fourth of a mile from the village of Oldtown, an early Maryland settlement. Start of work on the lock was in 1848, and it was finished in early 1850. The wood lining was totally replaced with concrete after 1900, including the coping and much of the upper and lower extension and wingwalls. Protruding existing bolts on the towpath side indicate an added heavy wood timber to the top of the wall, probably as a tow line rub, but no wood remains. The lower concrete-covered lock gate pockets are 22" deep rather than the normal 16", one of the few instances in variance of this dimension. The upper lock gates remain, the towpath gate in place and in fair condition, the berm is fallen and in a rotted condition. Much of the gate hardware is in place, although not of the original type. The walls are nearly plumb and variance in the original 15' clear width is slight. The lock, as a concrete repaired lock, is in good condition. The lock has been dammed with concrete at the upper end of the upper extension wall, a part of the Post World War II project to make fishing ponds above for the recreational development of the area. The alternate name, Twiggs Lock, stems from the family of John and Rebecca Twigg, who had built a cabin and occupied the area in the mid 1700's. Their issues were associated with area for many years.
- (69-2) By-pass flume: the entrance to the flume from the upper berm wingwall was obscured when the damming of the lock to make the fishing pools occurred, as well as much of the upper ditch. The wide ditch emerges with dry wall stone sides and 20' above the lower berm wing becomes restricted to about 11' and contains the frame for drop

gates for the control of the passage of water. The 11' flume continues to the wingwall, which drops 6'-5" by 11' wide as an outlet. At the land side of the flume outlet a thick, stepped stone buttress, coming out at 90°, supports the wingwall.

Lockhouse, Lock #69: the lock is reported to have had a wood frame house on the towpath side, however there remains no observable trace.

166.70 (70-1) Lock #70, Oldtown Lock: (12th Composite Lock). as stated before, original contract was let in 1837, abandoned in 1838, and reissued and let in 1848, see item (59-1) for latter information. See item (58-1) for the construction and concrete repairs. Lock #70 is about one third of a mile below #71, and one fourth mile above #69. The Canal Company took advantage of an existing creek, Mill Run, in which to locate the lock and the canal bed above the lock. Because the area was populated and the creek had provided water power for local mills, the Company, through court rulings, was forced into building a bridge across the lock to allow passage to the river edge for an existing ferry service plus building a road into the nearby village of Oldtown. Other accommodations were required that allowed part of the above creek to continue to supply water power for the mills. Because of the 1945 project to provide fishing areas, the upper end of the lock is dammed with concrete, and the lock and below carries water to within a foot and a half of normal canal operating level, the general area looks much as it must have looked during the operating period of the canal. In the early 1900's repair of the wood lining of the lock was abandoned and a concrete liner was substituted. Both lower extension and wingwalls are also covered with a thin layer of concrete. The original wood coping was also replaced with concrete except below the lower gate pockets, which is stone, probably a re-use of cut stones from another location. The remains of the upper lock gates remain in a closed position, and much of the gate hardware, both upper and lower, although it appears to have been a replaced item at the time of the installation of the concrete. The remains of a stone filled wood cribbage is seen above the upper berm wingwall, used to separate the flow of water to the lock and the by-pass flume. The lock appears to be in good condition but because it is watered, detailed inspection is difficult. The required bridge that the Canal Company built was a pivoted, wood structure for horse and wagon, and cost \$250.32, although its exact location along the lock's

length has not yet been determined. In the late 1800's a high level, covered wood bridge replaced the pivot bridge, and it was this bridge that burned in 1906. It was replaced by a similar structure of iron, probably by utilizing the existing foundations. Just when this bridge was removed is uncertain. The current wood pedestrian bridge across the lower extension walls is a fairly recent replacement.

Nearby Oldtown has a long history, although its present condition belies the fact. One of the several Indian trails leading to the coast goes through the immediate area. It is thought that in 1692 a group of Shawnees settled here, and the village became known as King Opressa's Town, from their chief, which later became Shawnee Oldtown. Col. Thomas Cresap bought 200 acres in the vicinity, in 1741-1742, a portion of the King's Patent. The stockade that he built here was called Fort Skipton, and later Fort Cresap. George Washington, as a youth of 16, worked as a surveyor out of the Fort for a time. A log house, with several later additions, originally built by Thomas' son Michael still stands. The town prospered as an early trading post with the migration to the west, but now it has been by-passed and is a sleepy, small village. During the canal days the surrounding woods brought prosperity as the water way provided transportation to a ready market down the river. The oaks available allowed a canal barge building industry to spring up in the town.

- (70-2) By-pass flume: the upper end of the flume and the entrance through the upper berm wingwall was obscured by the damming done in 1945. The remaining upper portion of the flume is a wide, earthen bank ditch which becomes walled with dry laid stone about 35' from the lower berm wing. The lower berm wingwall is dropped 7'-6" for a 11' length for the flume exit. Just beyond, as the wall rises back up to height a 3' wide stone buttress protrudes at 90°. It is stepped down in equal increments along its 20' length, disappearing into the canal water. Certain evidence is lacking as to the location of the flume control drop gates.
- (70-3) Lockhouse, Lock #70: the current house is the replacement built after a 1906 fire had demolished the original. It is located near the lock upper end and on the towpath side. Concrete piers support a wood framed, two-story house, 26'-4" long, (facing the canal), by 16'-4" deep. The roof is a simple gable. A 7'-2" wide 1-story porch, full length, faces the canal, and is covered by a low pitched, shed roof. The house is in good repair and is utilized by the Park as a Ranger office. A careful dig or search might reveal the location of the former house

and pivot bridge, but it is unlikely that the current house is in the original location.

* (70-4)
167.04 (71-1)

Lock #71, Oldtown Lock: (13th Composite Lock). This lock, too, was under contract in 1837, which was abandoned in 1838 as no work had been done. The contract was relet in 1847; see item (59-1) for contractor and dates. See item (58-1) for typical construction and concrete repair. Lock #71 is about a quarter of a mile above #70, and almost 7½ miles below #72, and at the western edge of Oldtown, Maryland. In the post 1900 period extensive repair was done to the lock. The upper lock pockets received a thin coat of concrete. The lock walls from the lower end of the lock pockets down for a distance of 15½' used concrete as replacement for the wood lining. The next 59' down remained wood lined, and at that point, 16' up from the upper edge of the lower lock gate pockets, concrete again replaced the wood lining including the lower lock gate pockets which became 20" deep on the upper end and increasing to a 27" depth at the lower end, as done in no other pocket. The towpath wall coping of wood was replaced with 12" deep coping stones; apparently the berm wall coping remained in wood, but it's now gone. Below the lower gate pockets all wood copings were replaced with concrete. The concrete dam at the upper end of Lock #70 backs up water to the top of the breast wall, in the intervening canal and this lock. Piled stone above the upper berm wingwall indicate a stone filled wood cribbage about 15' wide extending up canal for 21' to divide water entering the lock and the by-pass flume. The pair of upper gates remain in a closed position, but they are in poor condition. Part of the gate hardware remains. The lock is in fair condition. The berm dike is wide here and above, as it was used as the road from Oldtown to Cresap's Mill. The Mill Creek adjoins the inland side of the berm bank.

(71-2) By-pass flume: the entrance to the flume is in the upper berm wingwall adjacent to the rock filled wood cribbage, and the upper end appears to be a wide earthen ditch. Thirty-one and one half feet above the lower berm wingwall the ditch becomes bordered with dry laid stone wall, continuing down to the wing. A concrete frame, giving two openings 3'-10" wide by 6'-7" high for drop gates, is at upper end of the wall. The frame would have originally been of wood. The flume terminates at the lower berm wingwall, which is notched down 7'-4" for about 11' for the passage of water back into the lower canal.

*See page 146A for insertion.

MILEAGE

166.70 (70-4) Moore House: Probable mid-19th-century 2½-story house with gable roof. Twin chimneys on one end and a single one on the other. A moderate overhang at the eaves is supported by brackets possible added late in the century. Porch with decorative scrollwork may also be a late 19th century addition. A round-headed window lights each end of the half-story gable, contributing to the Italianate impression fostered by the eave brackets. The other windows are headed by jack arches. The interior has a standard center hall/four room plan and an exceptional country staircase with walnut balusters. Condition of the house is good. Also on the property are a frame barn, shed, corncrib, and smokehouse contributing to the farm historic scene.

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- (71-3) Lockhouse, Lock #71: the two story, wood frame house approximately 16' x 24' appears to be a post-1900 replacement of an earlier house. The house rests on a stone foundation, probably the remains of the older house, and a full length, one-story porch across the lock side is supported on concrete piers. The house is in good repair and is used by the Park Service.
- 167.11 (71-4) Wasteweir and Spillway: the berm dyke is broken by two stone walls about 12' apart, full height across the berm walk and stepped down for canal and land side banks. The width is broken into three equal divisions by 10" wide, 12" deep, 8'-2" high concrete piers that are capped by a similar sized beam. This frame held the wood drop gates and was a replacement of an earlier wood frame. The land side of the berm is dry walled for the next 117' above, terminating in a stone pier. The normal top of the berm is lowered 2' for this distance so as to drain off any water above the 6' operating depth of the canal. Most of the depressed 2' has been filled in and is currently much over-grown.
- 169.17 (71-5) Culvert #221, (Pigmans Run): built in the 1848-1850 period of rough faced limestone with a 6' opening, 4' vertical walls to the spring, and covered by an arch on a 3' radius. The interior barrel is of brick. The outflow face wall continues up above the top of the opening 4', and a wide stone buttress on each side of the opening comes out at 90°. The buttresses stepdown from full height to a 4' height. The inflow side is met by and covered by a culvert under the adjacent railroad bed. Condition is fair.
- 170.37 (71-6) Culvert #222: the culvert is silted in to above the spring line, but that portion exposed appears to be a duplication of (71-5) including the railroad culvert joining on the inflow side. Condition is fair.
- 170.84 (71-7) Culvert #223 (Kelley's Road Culvert): built in the 1848-1850 period to allow passage to an operating ferry crossing the Potomac. Similar to items (71-5) and (71-6) but with 10' opening and arch on a 5' radius. Condition is fair. This culvert was repeated in concrete inland by about 50' to go under the railroad bed.
- 171.45 (71-8) Spillway: the towpath was depressed 2' for a length of 250' and the river side of the towpath slope was an approximately 4' high cut and laid, vertical stone wall, with heavy stone buttress at each end. A walking plank, probably supported on spaced stones, carried foot

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traffic above the water that was being skimmed off to keep the canal at normal 6' operating level. The previous stone supports were replaced with concrete piers 13" high, with a flat top dimension of 10" x 24" (maximum dimensions of a pointed end towards the canal). These piers are at 9'-6" centers. Soil has been deposited over the depression for years, but the remaining stone wall gives an idea of the extent of this structure.

- 172.10 (71-9) Culvert #228 (Brice Hollow Run Road Culvert): similar to items (71-6), (71-7), and (71-8), but with a 12' opening covered by an arch on a 6' radius. The railroad culvert abuts the inflow face. This culvert carries so much water that its present use as a roadway is limited.
- 173.37 (71-10) Culvert #230 (Spring Gap): the culvert is totally covered on inflow and outflow sides, and has been extended from these faces by a 54" diameter corrugated iron pipe to light. The original culvert appears to have a 4' opening and to be intact.
- 173.64 (71-11) Patterson Creek Bridge Abutments: This road carried traffic to a ford in the Potomac, leading to the settlement of Patterson Creek, West Virginia. The tow-path abutment is held 12' back from the canal side, and is of rough faced, laid stone to a height of 15'. The abutment runs for 22' parallel to the canal, and a wood bridge spanned the canal. Only the abutments remain.
- 173.78 (71-12) Culvert #231 (Colliers Run): built in the 1848-1850 period and similar to the series starting with item (71-6) but with a 12' opening covered by an arch on a 6' radius. This culvert carries considerable water. Both faces appearing above the water flow look to be in good shape.
- 174.18 (71-13) Site of Auxilliary Canal Water Supply: to supply operating water to the canal, in the original engineering studies and plans for the Company, 8 dams across the Potomac would be required to impound the river water. Six dams had been built according to plan; number six was just below the village of Little Orleans and number eight was essential at Cumberland, but the need for number seven was questioned. Dams were expensive to build, and required much maintenance, as each Potomac flood proved. Seven was to be located just above where the South Branch of the Potomac divides off, a couple of miles below Old Town. After much deliberation, the Canal Company made the decision to eliminate Dam #7 (probably the major factor in the decision was lack of money). The resulting Canal did

open and operate in 1850, but an exceptionally severe drought in the summer of 1854 resulted in the closing down of the upper portion of the canal for a two month period. As the necessary alternate source of water, a mechanical pumping station was built opposite the mouth of the South Branch, and a wooden flume carried river water over into the canal. It was contracted for in 1855 and completed the next year. It was defective in operation and wasn't accepted by the Company until 1858. Later the original pumps were moved to this location. Mounded earth, some brick and foundation stones on the Potomac bank at 164.82 are thought to ^{be} the the 1855 location of the pumping station. At this loc^otion the concrete platform exists, but none of the pump machinery. The 47th Annual Stockholders Report, 7 June 1875, indicates a centrifugal pump raised 24 cubic feet of water per second to a height of 25 feet into a well, then flowing by channel to the canal. Here a wood, 23 x 23 foot engine house and a boiler room, 18½ x 32 feet, of brick were built on concrete foundations. The brick exterior walls remain up to about a 2' height above the foundations. A concrete flume, 6 feet wide and 6½ feet deep, braced by 10" x 10" concrete beams at 6' on center connected the pumping station and the canal. This flume is intact except for about 200' before it enters the canal, a section washed out by one of the severe floods. The flume is partially earth and trash filled and some beams are missing.

- 174.32 (71-14) Wasteweir: there are no traces of an earlier stone wasteweir evident at this post 1900 concrete structure. Two 12" thick concrete walls, 11'-9" apart, cut the towpath mound, rising to towpath level for a width of 11'-6". A 6" slab, with 14" high and 6" wide concrete curbs, covers the cut, and with an earth fill on top, becomes the towpath crossing. The opening is divided into three sections with 10" wide, 12" thick concrete piers, on the canal side, that held drop gates. Part of the drop gates remain in the two outer openings. Condition of the weir is good.
- 174.44 (72-1) Lock #72 ("The Narrows"): the contract was let in September 1837, work was underway in 1839, three-fifths done in mid 1840, and finished by the end of that year. Limestone was from a local quarry, location now unknown, that was able to furnish stone in some quantity, for the locks above here seem to have the same stone. This lock is almost 7 miles above Lock #71 and almost a mile below #73. This is a fine example of a stone lock, and is in remarkably good condition. The materials must have been good, the construction careful, and any needed

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 maintenance done in time. The walls are quite true, clear dimensions close to the original construction, and the stones in place, although in need of some repointing. Bolt holes and one remaining bolt protruding from the coping indicate an addition of a heavy timber coping that was later removed or rotted away, and the bolts pulled for another use. The frame timbers of the upper lock gates are in place with complete gate hardware, as not often found. Some of the lower gate hardware remains. Twenty-two inches up in the upper extension wall from the upper edge of the upper lock gate pocket is a 3" wide, 2½" deep continuous vertical slot, both sides, for a drop gate. The upper extension walls are 4' long, and turn at about a 60° angle to become the upper wingwalls, 14½' long for the towpath, and 13' on the berm, which then turns back to run for 6' parallel with the lock. This becomes the entrance to the by-pass flume. The lower extension walls are about 14' long, then splay at about 60° to become wingwalls. The berm then makes another turn and runs perpendicular to the lock to the exit of the by-pass flume. "The Narrows" was a term used among the boat captains for this area of restricted land between the river and the rapidly rising bluff of the Maryland shore.

(72-2) (408) By-pass flume: water enters the flume through the upper berm wingwall. The upper part of the flume is a wide, shallow, earthen ditch, which narrows 50' from its lower end and has been filled in. The outflow notch in the lower berm wingwall is 27" deep and 12' long. Evidence of the location of the drop gate for control of the flume is lacking.

(72-3) (418) Lockhouse, Lock #72: built post 1850 and located mid lock with the narrow side fronting the edge of the towpath. The stone walled, full basement become totally exposed at the rear of the house, as the towpath embankment has a rapid slope. The overall dimensions are 17'-7" by 30'-2". The two story house is of log construction that sometime later was covered by vertical boards and battens. Centered brick chimneys are inclosed at each end. The roof is a simple gable, and is now covered with rolled roofing. A one story porch, with a shed roof, runs full length of the down canal side, and is supported on wood posts on stone foundations as it becomes elevated above the sloping earth bank. The house is unoccupied, boarded up, and in fair condition.

175.35 (72-4) (427) Culvert #233 (Moores Hollow): probably built in the pre-1840 period of limestone with a 7' opening covered with an arch on a 3½' radius. This is one of two

culverts with a 7' opening; almost all culverts are of even feet. The inflow face is in poor condition with the lower buttress mostly down and partially covered. The face wall itself has broken from the barrel and looks as though it would collapse with the next flood. The out-flow face with its buttresses coming out at 90° is in much better shape, although the buttresses are partially covered with fill. The creek bed is much filled in on both sides. Other than at the inflow face, the barrel of the culverts appear to be intact.

175.36 (73-1)

Lock #73 (the first of those known as "Three Locks"): the contract for this lock (and Locks #74 and #75) was let in September 1937 to George G. Johnson. In the fall of 1839 it was reported that satisfactory progress was being made, but by December of that year the contract was abandoned. In early 1840 the contract was reneged with the same contractor, and work was finished by late that year or early 1841. As the Company's finances worsened in 1840, they hoped to utilize these finished locks for the passage of barges from Cumberland out to the river below Lock #73, and via the river to just above Dam #6, where the Canal would be re-entered for the passage down to Georgetown, as the Canal was useable or finished below that point then. The plans were complete, but action was delayed, and the Canal went into a period of limbo in 1841, that lasted until 1847, when the Canal officers were able to convince the Maryland legislation the necessity of passing the bill authorizing a new supply of money. Lock #73, and others, sat idle and unused from 1840 to 1850. The limestone for locks #73, #74, and #75 is believed to be from the same nearby quarry, although that in #73 is a harder stone than the other two, and shows much less water erosion. These locks were built to the 1836 specifications. About mid way in the 4' long upper extension walls is a 3" wide, 2½" deep drop plank gate slot that terminates 3' down from the coping on the towpath side and at a similar height on the berm widens to 10" to continue up through the coping. This was probably to aid getting the heavy, 15'-plus drop planks in position to slide down. The upper wingwalls angle out at about 60° above the end of the extension wall and continue for about 14'. The berm only turns again to run back for 6' parallel to the lock and become part of the by-pass flume. The lower extension walls run for about 14', turn at about 60° to run for another 14', the berm wing only turns again to run perpendicular to the lock to become the wall that is notched to provide an exit for the by-pass flume. Both sides of the canal approaching the lock have dry laid stone walls, 45' long for the berm, and

about 100' for the towpath. A 20' long pile of stones between the lower entrance to the lock and the by-pass flume exit indicate a former rock filled wood cribbage that divided the turbulent water, caused by the spill of the by-pass flume, from quieter water that the barges needed to get themselves into the lock. There is some post-1900 patching of concrete around the upper gate pockets. There appears to be a minor tilting of the walls and some movement especially near the lower gate pockets where 10" has been lost from the normal 15' clear. No gates remain, but some gate hardware is in place. The lock is in fair shape. The canal is quite wide for a short distance below Lock #73, and is wide above for the distance to Lock #74. The above wide area is probably the "North Branch Boat Basin" that is referred to in some reports.

- (73-2) (S.S.) By-pass flume: the entrance to the flume is parallel to the upper end of the berm upper lock gate pocket and over 20½' from. The upper end is a wide, earth ditch until 20' from the lower wingwall where the side walls become dry laid stone. Four feet up from the wingwall 1' wide shoulder confines the ditch and hold slots for the drop planks that once regulated water flow. The lower berm wingwall is notched down 2½' for a distance of 12' as the flume spill.
- (73-3) (S.S.) Lockhouse, Lock #73: post 1850 period. Located mid-lock on the towpath side, with a short face facing the lock. Only the fieldstone walls, about 18'-30', of the full basement remain. This was, no doubt, a two story wood frame house similar to that for Locks #71 and #72.
- 175.43 (73-4) (S.S.) Railroad bridge: as a result of court litigation over right-of-way for the B & O Railroad and the C & O Canal, the railroad had to cross the Potomac at this point to West Virginia and run down to Harpers Ferry before recrossing back to Maryland. Large stone piers carry a steel trestle bridge across the berm, canal, and towpath. The line is still in operation and the bridge is maintained.
- 175.47 (74-1) (S.S.) Lock #74 ("Middle Lock at North Branch"): See item (73-1) for dates and contractor. The lock was built to the 1836 specifications and is typical to that standard. The lock is about 500' above Lock #73 and 500' below #75. The stone is gray limestone of a uniform quality except for coping stones, which have a pebble finish of sand stone. The variation could be accounted for by different strata of the same quarry. Concrete has been used as replacements for berm side coping. The upper extension walls continue for about 4', then splay out at

about 60°, and continue for about 13', with the towpath sloping down to the towpath side of the upper canal 6" in 12' by a thinning of the coping stones. On the upper berm the wall returns on itself at the end of the splayed wing to run back 6' as the start of the river side of the by-pass flume. The lower extension walls run for 13', splay out at about 60° for about 15', where on the towpath side it meets the canal towpath side. The berm makes another turn to run for 3' perpendicular to the lock, then drops 30" for 13' for the exit of the flume, rises again to lock height for 4' and is met by a canal berm bank retaining wall. In the early 1880's this lock was fitted with a drop gate located at the breast wall section of the upper end of the upper gate pockets and the standard pair of swinging upper gates removed. The Company's detail drawings for the drop gate and necessary mechanism for its raising and lowering is dated 1882 and is among the existing Company records. The prosperous period of the late 1870's brought in many renovation of the Canal to speed the barges through the locks and hopefully increase the revenue for the Company. The time required to pass a barge through a lock was normally ten minutes, and was said to be cut to three minutes by the installation of a drop gate in place of the swinging gates. The renovation was made to limited locks, principally Lock #73, #74, and #75, and in a slightly different manner on the Seven Locks, which includes Lock #12 where the mechanical pulley survives as well as a restored drop gate. Both walls of the lock are tilted inwardly, and the standard clear lock width is lost down to a maximum restriction of 14'-1½" just above the lower lock gate pocket. Some of the gate hardware is in place and intact. The lock is generally in good condition, but with some repointing needed.

The road indicates a long standing traffic crossing at this lock but the evidence has not been found of a probable early wood pivot bridge. The present steel bridge, crossing at mid lock, is a post 1920 addition.

- (74-2) By-pass flume: the approach to the mid span bridge crossing has obliterated much of the flume. The entrance is beside the return of the upper berm wingwall and the upper portion of the flume appears to be wide earthen ditch. The last several feet of the flume have dry laid stone walls, and the exit is through the 14' wide 30" deep slot in the lower berm wingwall. The collection of rocks between the lower entrance of the lock and the flume exit indicate a former division of stone filled wood cribbage.

(74-3) Lockhouse, Lock #74: probably built near 1850 and located mid-lock, back 50' from the towpath lock wall. The two story wood frame house, 22'-4" long (parallel to the lock) by 16'-4" wide, is covered by narrow clapboard and has a simple wood shingled gabled roof with a single brick chimney through the ridge near the down canal end. A 14'-4" wide wing protrudes from the rear of the house about 22'. It is on a low stone foundation, and low 2 story wood structure is sheathed in vertical boards and batts. There is a single brick chimney centered on the river facing end. The roof is a low gable whose ridge just comes to the eave of canal front wing. It appears that the rear wing was the original house for it is consistent with and similar to the two previous lockhouses. There is no reason to suppose it wasn't built at the same time, and probably by the ^{same} workmen as the others. Its distance back from the lock is unusual, and it well might have been moved when the new front was added, which from appearance would seem to be around 1880. Few of the lock houses are covered in clapboard as it was more expensive than board and battens, and cost, not style, was the guide. The house is unoccupied and boarded up. The rear wing is in very poor condition and the front is fair. Burned to ground, 1976.

175.58 (74-4) Wasteweir: no evidence remains that the present post 1900 concrete weir replaced an earlier stone structure. The distance between the two concrete walls cutting the towpath bank of the canal is about 12'. Each wall is full towpath height for 13'-8" and then tapers down at about 45° on each face to confine both slopes of the towpath bank. The weir opening is divided into three 34" wide, 10' clear height divisions by 10" wide concrete piers on the canal side. Onto these piers is bolted a 4" x 10" wood member that forms the slot in which are placed the drop planks for regulating the water in the canal. This weir is one of the few examples where drop planks have survived and are in place. The towpath continues over the weir by the concrete slab that boxes in the weir. The condition is good.

175.60 (75-1) Lock #75: See item (73#1) for dates and contractor. The lock was built to the 1836 specifications and is typical to that standard. The lock is just less than 700' above Lock #74, and is the last of the numbered lift locks of the Canal. The gray limestone used was of good quality, construction was careful and of a high standard, the earth bed on which the foundation rests was solid, and as a result the lock is in a remarkable state of preservation. Equal spaced bolts protrude above the coping indicate that a continuous 6" wood coping had been added to

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deepen the canal; however, no timber remains. The 4' long upper extension wall is grooved vertically midway up to receive drop planks. This lock was fitted with a drop gate atop the breast wall to replace the upper gates, but nothing remains of the gate or its operating mechanism. The upper wingwalls flare out at about 60° above the upper extension wall and run for about 13', the towpath butting into the upper towpath canal wall, and the berm to return on itself to run for 6' parallel to the lock. This wall becomes the lock side of the by-pass flume entrance. The lower extension walls run for 13', flare out at about a 60° angle. The lower towpath wingwall runs for about 14½' to butt into the 100' long dry laid stone wall of the lower canal and towpath rise. The berm wing runs for 14½', turns again to run perpendicular to the lock for 8½' before butting into the 6' deep, 8' wide notch for the by-pass flume exit. After the exit, the wall returns to full height to run another 8½' into the lower canal berm bank. This last portion of wall is buttressed by a 3' thick, stepped wall which extends down canal for 50'. A pair of good condition, creosoted, lock gates remain in a closed position in the lower lock gate pocket. They lack mainly their balancing beam, but the hardware is intact. Both gates and hardware must be replacements made late in the operating period of the canal to have survived so well. The walls are quite true and their minimum clear width is 14'-5" just below the upper gate pockets. This lock is one of the most intact unrestored locks of the canal.

A large, natural boat basin was created above the lock by utilizing the natural flood plain through which the canal passed in this area. No berm wall was built and the natural rise of ground some distance back provided the berm embankment.

- (75-2) By-pass flume: from the entrance through the upper wingwall the flume is a 20' wide ditch with 5' high side walls of dirt riprapped with field stones. The flume becomes restricted to 8' wide about 18' above the lower berm wingwall with an angled shoulder wall. It is probable that drop planks were used on the up side of the lower wingwall to control water flow.
- (75-3) Lockhouse, Lock #75: built c. 1850, mid-lock, on the towpath side with its length perpendicular to the lock. The full stone basement, 17' wide, 29'-3" long, is exposed 6" facing the lock and about 4½" on the river end. The two story house is constructed of squared logs that are "v" notched and trimmed for their corner fit. The

chinking between logs is wide. Although the house had inclosed, centered brick chimneys at each end only that facing the canal protrude through the roof ridge. The house did not have fireplaces and the chimneys were provided for wood or coal burning stoves. The one story board and batten addition with continuous canal facing porch that is shown on the 1961 H.A B.S. drawings has been removed. Although its condition was poor, its construction was so similar to the houses at #73 and #74 that it would appear to be an early addition to the house that could have been incorporated if the building were to be restored. No doubt the small rooms, two down and two up, of the original house were cramped quarters for the large family that was considered to be an asset for a locktender in as much as the gained extra hands for the necessary work came cheap. The house is unoccupied, boarded up, and in fair condition.* Measured drawings of the plans and elevations exist, produced from on-site measurements for Historic American Building Survey field office in 1961 for the National Park Service.

*Lockhouse reconstructed with new materials 1978.

177.67 (75-4)

Culvert #235: this culvert provided a 4' opening covered by an arch, on a 2' radius, of cut stone. The outflow face is so silted in, although still carrying water, that only the three upper stone courses (including a slightly projecting coping) are observable. Stepped down stones, projecting at right angles on either side of the face wall, indicate existing wingwalls below the fill. The inflow face is completely silted in although water does seep through. Only by excavating can the condition of the culvert be known.

178.50 (75-5)

Railroad trestle: because this steel trestle bridge on high stone pier was built to the Canal Company's requirements as to clearances, it can be dated as pre-1920 construction. The abutment at the towpath edge gives a 12' clearance to the canal towpath wall and a clear height to the underside of the bridge from the towpath is above 14'. The bridge was built by the Western Maryland Railroad, a line now defunct.

178.61
and
178.84

The Canal has been filled in at these two locations and is crossed by modern paved roads to the flat land between the canal and the Potomac River.

179.10 (75-6)

Culvert #236: the cut stone culvert has an opening of 4', covered by an arch with a 2' radius. At two feet either side of the outflow face heavy, stepped stone buttress come out at right angles. Both the buttresses and the face wall above the key stone has been extensively

repaired with concrete. Silt fills the face wall to above the spring line of the arch. Also there is a distortion in the up canal segment of the arch which measures a 3" push in, although this partial collapse appears to be stable. The inflow face is silted in even higher than the outflow and the two right angle buttresses appear to be total replacements of concrete. The culvert appears to be in fair condition but some excavation would be necessary for a more thorough assessment.

- 179.31 (75-7) Culvert #237 and Wasteweir: a partial post 1900 concrete weir has replaced an earlier stone structure. Concrete walls about 12' apart cut through the berm bank, the wall on the up canal end being tied to a stone pier that ends a long stone wall that is part of the face wall of a culvert inflow on the land side of the berm bank. A concrete frame with two intermediate 10" wide, 12" deep, piers covered by a similar sized lintel divides the opening, on the canal face into 3 equal openings of 34" by 9'-4" height. The base of the opening is natural, solid rock. The further wood frame and drop planks to control the water are missing, as is any wood bridge that would have been required for any foot traffic on the berm bank. At this location the canal was built across a gully. The outflow of the berm bank weir was on high ground and water that was let from the canal flowed down the gully side (but in the opposite direction of the canal water flow) to a culvert opening in the high face stone wall that confined the land side of the berm bank across the gully. It is about 40' from the edge of the stone abutment (up-canal side of the weir) to the culvert opening. That distance, and to the rapidly rising ground beyond, is a wall of carefully cut and laid stone. The culvert has a 5' opening, covered by an arch on a 2½' radius. About 4' of vertical wall is exposed below the spring stones and the face wall extends up for more than 20' above the key stone. This inflow face of the culvert needs much repointing but is generally intact and in fair condition. The outflow face wall extends about 4' up above the top of the arched opening and wingwalls, now largely tumbled, come out, at a wide angle, about 7' either side of the culvert opening. The floor of the culvert opening is about six feet above grade and water from the culvert becomes a water fall into a small collection pool that then drains to the river. This face wall has been repaired with some concrete infills, further stones are missing, and others are giving. The coping of the wall is intact but the wall and wings are in poor condition.*

*Culvert stabilized 1978.

- 180.01 (75-8) Culvert #239: built of rough cut, coursed, limestone with a 7' opening, with about 4' vertical side wall showing below the spring stone, and covered with an arch on a $3\frac{1}{2}$ ' radius. On the outflow face the wall continues up above the top of the arch for $4\frac{1}{2}$ '. Heavy stepped wingwalls come out at right angles. A few stones are out and more are giving. This face is in fair condition. The inflow face is covered by a butting culvert running under the adjacent railroad bed. The interior barrel appears to have been totally plastered at one time, although most of that addition has now scaled off. The last 20' of barrel needs repoints. Stones on edge are used as the flooring of the last portion of the culvert and these continue out several feet between the wingwalls. An inspection of the canal bed above the culverts indicates no breaks or leaks.
- 180.66 (75-9) Evitts Creek Aqueduct: the contract for this aqueduct was issued at the same time, September 1837, as those for Locks #73, #74, and #75, with the bid of the contractor George G. Johnson, being accepted. By mid 1840, the Company Engineer reported that construction was $\frac{3}{4}$ complete and that the finished product would be expected by the end of the season, and that probably became a fact. Evitts Creek empties a year around flow of water into the Potomac a short distance below Cumberland, the terminus of the canal. This is the smallest of the aqueducts, with an arch span clearance of 68'-11". Both granite and limestone are used for the structure. The arch ring is smooth cut, the other stone is textured. Although the coursing is mainly regular some random coursing appears in the spandrels. The low arch rises 13'-4" above the spring line. The 88' face wall is terminated by a $4\frac{1}{2}$ ' wide buttress, protruding $4\frac{1}{2}$ ', before 23-foot-long wingwalls, at about a 30° angle, help take the thrust of the arch. Walls parallel to the face wall continue from the end of the wings for about 22' to terminate the structure. The interior run of $99\frac{1}{2}$ ' of aqueduct is continued for another 30' at each end with cut stones, then angles out at about 30° for another 42' to regain the canal width. The interior aqueduct clearance is 20'-7". The towpath wall is 8'-2" wide, and the berm 6' (both including coping overhang of a few inches). The flume of the aqueduct is 7' deep. Both up and down creek faces are similar. The down creek face of the towpath wall had a wrought iron railing, evidenced by holes in the stone that are similar to those for existing railings, but no railing survives. The down-creek face of the aqueduct is quite intact except for a few missing stones including some coping. The up-creek face is seriously damaged with both spandrel given back to the stone rubble fill, taking the berm

parapet above, and subsequent tumbling of nearby face stones. The barrel of the arch has held and the finished ringstones are in place. The center third of the berm parapet has held, but the damage on either side continues back to the corner buttress. The interior of the aqueduct is much filled with silt. The aqueduct has recently been stabilized.

- 181.20 (75-10) (75-2) Culvert #240: built in the 1838 period of smooth faced limestone for the ring, rough for the remaining walls, with a 10' opening covered by an arch on a 5' radius. The bed of the culvert has been filled into near the spring of the arch. Wingwalls come out at a slight angle on each side stepped down from the coping height. The coping is just one course above the top of the key stone. The down-canal face of the outflow has a number of fallen stones in the spandrel and that wingwall is bulged. Re-pointing and repair are needed. The inflow face is totally obscured by an abutting railroad culvert through fill of an adjacent railroad yard. There are no breaks in the canal bed above the culvert, indicating an intact barrel.
- 182.22 (75-11) (75-11) Railroad trestle: a post-1900 steel trestle bridge resting on concrete buttresses that clears the towpath, canal and a berm side road. A 11' clearance is provided from canal to outside edge of towpath, with a vertical clearance of 11'-6" from top path to underside of bridge structure. The bridge was built by the now defunct Western Maryland Railroad Co.
- 182.62 The stone and steel bridge crossing the canal at this location is a modern addition for vehicular traffic.
- 182.63 (75-12) (75-12) Culvert #241: thought to be a 6' opening. Outflow face filled to a course or two under the coping. Inflow is a concrete, drop inlet with a flat, square opening 9½' wide by 72'. The opening is full of trash and water. Full scale digging would be required to determine what is there and in what condition.
- 182.97 (75-13) (75-13) A post-1900 steel trestle bridge, carried on concrete abutments, that crosses over the towpath, canal, and portion of the berm side. A clearance of 15' is maintained between the concrete abutment and towpath canal face and a 12' height from towpath to underside of steel trestle. Bridge was built by the Western Maryland Railroad Co., a line no longer in existence.
- 183.39 (75-14) (75-14) Stop Gate and Wasteweir: the canal is restricted

by lock-like walls, 18' apart, with a set of close to standard dimension lock gate pockets near its up-canal end. Both gates and hardware are missing. The down canal berm wall turns 90° with a small radius to run as an equal height wall for a few feet to a wasteweir opening. After the opening the stone wall continues into the rising berm bank. The wood frame and drop planks of the wasteweir are missing. This unusual structure appears to have had the function of retaining water in the Cumberland boat basin during the winter while allowing the upper canal to be drained, but this does not account for the berm side weir. Its need and use is not understood. Both structures have a 39"-high addition of concrete atop the stone walls. The addition was done after a severe flood in early 1924. It was hoped that this change would prevent similar flood damage, but a second flood in 1924 proved the hope to be wrong.

183.55 to
184.50

This last mile of the C & O Canal has largely vanished. When the Canal opened in 1850, its terminus was in the small but thriving town of Cumberland. The B & O Railroad also serviced the town and both right-of-ways were parallel and adjacent. The rivalry was intense and the use of both means of transportation increased until the late 1870's. The financial difficulties and major flood damage that came at the end of the 1870's were the blows from which the Canal Company could not recover. Profits had always been plowed into repairs and improvements of the Canal and not into the huge indebtedness for the borrowed capital for original construction. When the Canal Company was forced into receivership in the 1890's, the B & O took over the canal. They were required by court order to keep the canal in operation. That operation became more and more marginal after 1900. As the town of Cumberland grew and business expanded, so did the Railroad. Much of the physical expansion for the B & O spread to former C & O land after 1924, when operation ceased on the canal. In this last mile there was no thought of saving an outmoded form of transportation, the land had increasing value, was needed for expansion, and was used by the Railroad Company. It is probably remarkable that there are any vestiges of the Canal left in this area.

183.55 (75-15)

Spillway and Wasteweir: the boat basins in Cumberland were extensive to handle the number of boats loading, unloading, and those just waiting and were at a lower elevation than the town. Storm sewers from the town as well

as some early sewers drained into the basins; therefore the post-1900 concrete spillway continuing down from a stone wastewear at this location probably was a repair to an earlier lowering of the section of the towpath bank to provide drainage to keep a proper water level in the canal. The heavy stone walls of the weir cutting through the towpath are 11' apart, and carry to towpath height for about 11' with sides tapering down on both canal and river side bank. Former wood timber vertical dividers were replaced by two 10" x 12" concrete posts on the canal side, giving three 3'-1" clear openings that would have been closed off by drop planks. The river side of the spillway which ran for about 124' below the down-canal wastewear stone wall was a concrete retaining wall to hold the earth fill of the bank. A severe flood in the spring of 1924 caused much damage in this general area of the canal. To prevent similar damage from future flooding immediate repairs were made. The plan was to elevate the towpath from the guard lock at 184.50, the terminus of the canal, down to the stop gate and wastewear, item (75-14), at 183.39. Three feet three inches of concrete was added to the top of the stop gate structure. An eight-foot concrete wall was added above the 124'-long spillway. This wall was pierced by nine equal-spaced gate openings 18½" high (starting at the old concrete) by 7' wide with a 3' wide buttress each side, on the river side, that was vertically grooved next to the opening face wall to accommodate a 2" oak plank drop gate. The canal side of this wall was battered 1 to 4 other than the vertical sections for the nine openings. To provide a dry walkway for the towpath, hollow triangles of stock flat iron were bolted to the concrete 3' beneath the top of the wall on which 18"-wide wood planks were placed as a continuous walkway. Under normal conditions the gates of this spillway would be open and the spillway would function to draw off excess water from the canal, but in flood times the gates would be closed, thereby keeping the overloaded Potomac out of the Canal. From this point up to the guard lock, at the terminus, the towpath was to be elevated with 9' of fill, and the work was no doubt started. A second severe flood occurred in the fall of the same year, causing extensive damage up and down the canal. It was this final blow that provided the B & O Railroad Co. the legal means with which to cease the canal operations.

The canal above this point widened out into a series of basins, but the conformation of such is almost totally obscured by extensive flood control work done in the 1930's by the U.S. Army Engineers on the upper (northern)

section of the Potomac. Much of the elevated former flood plain was then utilized as railroad yards. The area has been so disturbed that physical evidence of the canal is scarce.

184.46 (75-16) Dam #8: the contract for the construction of Dam #8 (and Guard Lock #8) was awarded to the firm of Sterritt and Lockwood in September 1837. But by 1839 only a part of the Virginia abutment and the foundation across the Potomac had been accomplished. The dam was far from complete when construction operations were suspended on the canal in 1841. A contract was relet in 1848 and work was restarted on the stone dam. It was completed in late 1849 or early 1850. The dam was placed just below the site of where Wills Creek (coming in from the north and running through the town of Cumberland) joins the Potomac and water backed up into the two was used to water the first fifty miles of the canal. In the flood control project of the 1930's, the dam was blown up and most evidence removed. Only a portion of the Maryland bank stone abutment can be seen rising out of sloping concrete retaining walls at the edge of the river. It is unlikely that the abutment rises to its former height as the Army Engineers altered much of what was existing.

184.50 (75-17) Guard Lock #8: see item (75-16) for dates and contractor. These twin locks have a lift of 6' and are located in what was the tidal basin created in Wills Creek by the dam. One lock was the feeder lock (for the passage of boat traffic to and from the river and creek), and the other the inlet lock (to water the canal down to Dam #6). Local tradition has it that the northern lock was used as the "feeder". Apparently traffic in from the creek was slight after 1900 for soon thereafter the Western Maryland Railroad low trestle across the northern lock voided its use and one lock was used to handle both watering the canal and traffic coming in. Construction of the locks was of limestone, of a mixed poor and better grade, that was laid in a roughly coursed pattern. Both locks are 15' wide and about 91' between lock gate pockets. The pockets are about 15" deep and 10' long. Both have short upper extension walls and one common wingwall less than 20' long. From the wingwall joining of the two locks, the locks proper fan out at about a 30° angle. They had a longer lower common wingwall but this is now covered. The walls above the lower corner of the upper gate pockets were approximately 14' higher than the remainder of the locks. The transition from the high wall was by series of stepping down each course to the lower level wall. Small sections of the other two upper

wingwalls remain but the locks have been stopped off with concrete bulkheads and a lower concrete retaining wall added, all part of the "flood control" work, so that only the top sections of the upper gate pocket, extension, and wingwalls can be seen. Much of the interior of the locks has been filled, the northern almost totally so. The post-1900 railroad trestles, and those added after the abandonment of the canal, with their abutments and supports so encroach on the locks that it is difficult to form a picture of them in their original situation.

Chesapeake and Ohio Canal National Historical Park
Addendum for National Register Description 1/80

<u>Mile</u>	<u>Feature</u>
4.80	Bank of Little Falls Creek - possible site of a Powder Mill that pre-dates the C & O Canal, it may have been related to the Patowmack Canal and/or the Magazine at Little Falls. Two dry-laid stone walls on the east bank of the Creek remain.
4.80	Little Falls Creek culvert. The berm bank has been modified to carry the Potomac Interceptor Sewer.
5.0-5.64	Feeder Canal. Runs from Dam #1 to join the main canal at Lock 5, to supply water to the canal. The current structure (1832) includes the Patowmack Canal Company's Little Falls Skirting Canal (1795) which in turn includes sections of John Ballendine's Canal (1780). Sections of collapsed wall remain on the upper stretches. A low masonry dam connects the base of High Island with the first inlet gates - this dam, covered with concrete in the 1960s, controlled outflow from the feeder.
5.0-5.64	High Island. Evidence for two undated quarries has been found, one at either end of the island. Fireplaces and foundations of recent summer cottages are on the crest, and more substantial ruins of a house (1920s) remain at the lower end.
5.5	Magazine Lot. The Magazine pre-dates the C & O Canal. How substantial the structure was is unclear, but a foundation 80 foot long remains. There is a stone and brick drain in the bank of the feeder canal that may be related to this.
10.9	High Wall of Canal. A dry-stone retaining wall located about 200 feet west of Milestone 11. This masonry wall is about 900 feet long and nearly 40 feet high at its highest point. It is stepped back at two places, once 6 feet above the base, and again at 11 feet. About 325 feet from the east end of the wall, a pair of rough-stone steps leads from the towpath at the top of the wall to a natural rock outcrop 10 feet south of it, providing an excellent view of the wall itself. A plan of

1827 shows a much longer wall, and it seems possible that a section of steep slope west of the present wall and now covered with rip-rap may contain the remains of more masonry wall. The 900 feet of wall now visible is in good condition. In 1853 this section of the canal and of the Potomac Valley was described by Lt. M. Meigs, the first engineer of the Washington Aqueduct:

Protected by high walls against the face of jagged and vertical precipices, in continual danger of being undermined by the foaming torrent which boils below, the present canal is a monument of the energy and daring of our engineers. The route seems occupied, and no mode of bringing in the water except by iron pipes secured to the rocks or laid in the bed or the canal seems practicable.