Thunderbird Archeology

ARCHEOLOGICAL AND HISTORICAL DETERMINATION OF TRADITIONALLY NAVIGABLE WATERS IN NORTHERN VIRGINIA AND A COMPREHENSIVE METHODOLOGY FOR THE DETERMINATION OF THE TRADITIONAL NAVIGABILITY OF WATERWAYS IN THE UNITED STATES

Goose Creek Canal, Loudoun County Virginia

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ABSTRACT

This document presents the results of an archival and documentary study on the Traditional Navigability of Waterways in Northern Virginia. The study area is depicted in Attachment 1 of this report and is roughly bounded by the Potomac River on the north and east, the Opequon Creek watershed on the west and the Rappahannock River watershed on the south. The study was conducted by Thunderbird Archeology, a division of Wetland Studies and Solutions, Inc. of Gainesville, Virginia.

The purposes of this work are threefold. The primary purpose is to assist consultants and regulators in completing Section III of the U.S. Army Corps of Engineers Approved Jurisdictional Form. In order to accomplish this goal, a working definition of what constitutes Traditional Navigable Waterways was prepared. This definition will aid in the determination of Waters of the United States jurisdiction for the U.S. Army Corp of Engineers within the study area. Secondly, using specific archeological and historical information, the paper demonstrates that certain rivers and streams can be identifiable as Traditional Navigable Waterways. It is also possible to consider the use of streams for recreation, e.g. canoeing and kayaking to determine that many streams are navigable-in-fact. This data can expand the determination of TNW status where historic and/or historic documentation is lacking. Finally, the applicability of this research methodology to define Traditional Navigable Waterways, based on archeological and historic materials, will be considered for other regions in Virginia and the United States.

In addition, while preparing this document, the potential for other navigable waters within the study area became apparent. Although not defined as Traditional Navigable Waters, the possibility for commercial and/or recreational usage of some streams exists, and other streams are known to be navigable based on the personal experience of WSSI staff. Broad Run, Bull Run and Cedar Run are examples of streams which experience has shown to be navigable but for which no historic or documentary evidence supporting navigability could be found. Further investigation, and possibly experimentation, would be required to document these navigability of these streams.

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I. INTRODUCTION

This document and the attachments represent the results of an archival and documentary study of the Traditional Navigability of Waterways in Northern Virginia conducted between June and July, 2007 by Thunderbird Archeology, a division of Wetland Studies and Solutions, Inc. of Gainesville, Virginia. The study area considered herein refers to the portion of Northern Virginia depicted on the map of *Traditional Navigable Waters in Northern Virginia* provided as Attachment 1 and appended to this report. The geographical extent of this study area is roughly bounded by the Potomac River on the north and east, the Opequon Creek watershed on the west and the Rappahannock River watershed on the south.

The key purpose of the work reported herein was to assist consultants and regulators with completion of Section III of the US Army Corps of Engineers (USACE) Approved Jurisdiction Form. However, in order to accomplish this goal, a working definition that clearly identifies the nature of what constitutes a Traditional Navigable Waterway (hereinafter TNW) had to be formulated. Such a definition will aid in the determination of jurisdiction of Waters of the United States (WOUS) for the USACE in the current study area. Thus, this paper uses both archeological and historical information to demonstrate that certain rivers and streams in the study area can be identifiable as TNW. Furthermore, this paper considers briefly the applicability of this research methodology to similar studies elsewhere in Virginia and the United States.

II. DEFINITION AND DETERMINATION OF TRADITIONAL NAVIGABLE WATERS

For purposes of this work, the development of our definition of what constitutes a TNW is derived from the working description presented in the Federal regulation 33 C.F.R. 328.3(a) (1). This act, herein referred to simply as 328.3(a) (1), states that a water body can be identified as Navigable Water if it is "subject to the ebb and flow of the tide, or waters that are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce". Note the word traditional does not appear in the original definition offered by 33 C.F.R. 328.3(a) (1) although the term "Traditional Navigable Waters" and a discussion of what constitutes a TNW in subsequent case law and regulations frequently refer back to 328 (a) (1) as the source. The Federal Register (Volume 68, No. 10 dated Wednesday, January 15, 2003, page 1996) uses 328 (a) (1) to define Traditional Navigable Waters as well as other legislation. The concept of a "traditional navigable water" can be traced back to the Supreme Court Case known as *The Daniel Ball*, 77 U.S. 557 (1970) where "navigable waters of the United States" are considered "to include not simply the tide-waters, as is understood by

it in England, but also the great fresh-water rivers and lakes of our country; and, in a still broader sense, we apply it to every stream or body of water, susceptible of being made, in its natural condition, a highway for commerce, even though that trade be nothing more that the floating of lumber in rafts or logs".

The impact of *The Daniel Ball* is clear when viewing 33 C.F.R. 329.6, Definition of Navigable Waters of the United States. Here one finds the following statement to the effect that, for determining whether or not a stream/river is navigable, it is sufficient only to "establish the *potential* for commercial use at any past, present, or future time…"; that a particular river or stream is a TNW (emphasis added herein). Demonstrating that a particular body of water, e.g. stream, river or bay, may be identified as a TNW can be developed using archeological data and, to a greater extent, historical data. Archeological data from the pre-Contact period may consist of the riverine distribution of sites and closely related ceramic styles that only could have been dispersed or distributed by means of indigenous water travel.

Historic records such as maps and other archival information can be used as well and, perhaps, more effectively. In the latter instance, sufficient commerce "may be shown by historical use of canoes or other frontier craft, as long as the type of boat was common or well-suited to the place and period" (33 C.F.R. Part 329.6). Such wording gives one the mandate to look specifically for historical records to demonstrate that particular rivers and streams in the study area are identifiable as TNWs.

In light of the preceding discussion, this paper offers a working definition of a TNW with a consideration of how it will *inform* or substantiate the research, using the concept of "navigability" to mean trade, exchange or commerce in both prehistoric and historic periods. This working definition will include some of the recent legislation and review earlier discussions of this concept such as the 1922 observation found in the Harvard Law Review (Starr 1922). Here, a note of the Supreme Court decision (Starr 1922 cited Economy Light & Power Co. vs. United States 1919, Illinois v. Economy Light & Power 1909) indicates that "the ancient use of the stream by methods of primitive navigation established a public right which is not lost by non-user has far-reaching effect [*sic*]". This statement has ramifications for the current study, particularly when viewing how to define TNW and the adjacent tributaries and wetlands.

The working definition that is employed in this paper builds on or enhances that offered in 33 C.F.R. 328(a) as well as the earlier Supreme Court decision *The Daniel Ball*. Building on the latter (and in part borrowing from it) we suggest that a TNW should be rigorously, albeit broadly, defined as *any* body of water (stream, river or bay) that is either (or both): **1) subject to the ebb and flow of the tide; 2) has been used, or was capable of having been used in the past, despite recent watercourse modifications, for transport, trade, exchange or commerce within and between states or specific geographic regions.** Historic transportation may have included water craft that was typical of the era in question, e.g. canoes (Native American and Colonial types), bateaux and related "frontier craft", used to move commodities up or down the course of a particular stream, river or embayment. We should note that natural barriers along a

particular stream or river course are *not* an impediment to navigation and do not serve as an implied limit to definition of a TNW along the length of a particular stream. As noted in the Virginia Navigability Report (cf.americanwhitewater.org) "portaging is an incident to navigation…" and serves to link distinct navigable sections of any particular stream or river by transporting watercraft overland around geographic markers such as rapids or falls.

III. CURRENT GUIDANCE ON TNW RIVERS INCLUDING VIRGINIA MARINE RESOURCES COMMISSION POSITION

Currently, guidance appears limited to specific waters indicated in a narrow range of examples, e.g. 1) regulations that consider all tidal waters to be navigable; 2) a list of Section 10 rivers and streams (Section 10 of the Rivers and Harbors act of 1899) in Virginia that have had final determinations made of their navigability or non-navigability (Table 1a, n.d. provided by Keith Lockwood, USACE, June 2007); and 3) a list of Section 10 rivers and streams in Virginia that have been previously studied, but for which no official determinations have been made. Assumptions based on these previous studies have been suggested for administrative uses (Table 1b, n.d. provided by Keith Lockwood, USACE, June 2007). It must be noted that these determinations and assumptions, largely based on research conducted in the 1970s, are based upon a definition of navigability that did not necessarily include the criteria used in defining and determining "traditional navigable waters" as defined herein. As noted above, the following table lists Section 10 waters where navigability has been determined.

TABLE 1a: SECTION 10 WATERS OF THE COMMONWEALTH DETERMINATIONS OF NAVIGABILITY

By regulation, all tidal waterbodies are considered to be navigable. In addition, the following rivers and streams in Virginia have had final determinations made of their navigability or non-navigability:

WATERWAY	DETERMINATION	LIMITS	DATE
Blackwater River (tributary of Nottoway)	Navigable	From its mouth to State Route 620 Bridge (River Mile 42.9)	18-Aug-81
Carter Run	Navigable	From confluence with Rappahannock River to Cliffs Mills (2.2 miles)	14-Aug-81
Clinch River	Navigable	From Virginia Line to confluence with Indian Creek (River Mile 322.7)	16-Feb-81
Hazel Run	Navigable	From confluence with Rappahannock River to Castle Mills (19.8 miles)	14-Aug-81
North Fork Holston River	Navigable	From Virginia Line to Route 16 @ Chatham Hill (River Mile 109)	30-Nov-79
Middle Fork Holston River	Navigable	From confluence with South Fork to Route 11 @ Seven Mile (River Mile 32.2)	16-Feb-81
South Fork Holston River	Navigable	From Virginia Line to Loves Mill Dam (River Mile 93.8)	16-Feb-81
Jackson River	Navigable	From its mouth to the confluence with Back Creek (River Mile 55)	Feb-78
Levisa Fork	Navigable	From Virginia Line to confluence with Dismal Creek (River Mile 151)	1-Nov-77
Maury River	Navigable	From its mouth to Cedar Grove (River Mile 32.8)	19-Nov-74
Meherrin River	Non-Navigable	Entire portion in Virginia	14-Aug-81
New River	Navigable	Entire portion in Virginia	N/A (Combination of court case and Federal Energy Regulatory Commission ruling)
North Anna River	Non-Navigable	Entire portion	20-Mar-80
Nottoway River	Navigable	From mouth to Route 634 Bridge (River Mile 46.9)	18-Aug-81
Pound River	Navigable	From Russell Fork to and including Flannagan Reservoir	7-Nov-77
Powell River	Navigable	From Virginia Line to confluence with South Fork (River Mile 178.1)	5-Feb-80
North Fork Powell River	Navigable	From confluence with Powell to Sandlick Bridge (River Mile 7.2)	5-Feb-80
Rappahannock River	Navigable	From mouth to Blackwell's Warehouse (53.9 miles above Fredericksburg)	14-Aug-81
Rockfish River	Navigable	From confluence with James River to Howardsville (0.6 mile)	13-Aug-81
Russell Fork	Navigable	From Virginia Line to Russell Prater Creek (River Mile 24.6) (at town of Haysi)	1-Nov-77

TABLE 1b: SECTION 10 WATERS OF THE COMMONWEALTH ASSUMPTIONS OF NAVIGABILITY

The following rivers and streams have been studied, but official determinations have not (yet) been made. Based on these studies, the following assumptions are used for administrative purposes:

WATERWAY	DETERMINATION	LIMITS
Appomattox River	Navigable	From confluence with James to Planters Town (132 miles, at end of Route 638 in Buckingham County, near Appomattox/Prince Edward County line)
Banister River	Navigable	From Kerr Reservoir to Route 642 bridge @ Meadville
Blackwater River (tributary of Roanoke)	Navigable	From Smith Mountain Lake to a point approximately 1.25 miles below Norfolk &Western railroad bridge, located on USGS Redwood Quadrangle map
Catawba Creek (tributary of James)	Non-Navigable	Entire
County Line Creek (tributary of Dan River)	Navigable	Entire portion in Virginia
Cowpasture River	Navigable	From confluence with James to confluence with Simpson Creek (6 miles)
Craig Creek	Navigable	From confluence with James to confluence with Johns Creek @ New Castle (48 miles)
Dan River	Navigable	From Kerr Reservoir (Buggs Island Lake) throughout Virginia Except for upper reaches west of Martinsville
Deep Creek (tributary of Appomattox)	Navigable	From confluence with Appomattox River, 5 miles upstream to Route 153 bridge
Dunlap Creek (tributary of James)	Non-Navigable	Entire
Hardware River	Navigable	From confluence with James to Route 20 bridge (19 miles)
James River	Navigable	Entire
Mattaponi River	Navigable	From confluence with York River to Guinea Bridge (nearest existing landmark is Route 722 bridge @ Milford)
North and South Mayo Rivers (tributaries of Dan River)	Non-Navigable	Entire Virginia portion
Pamunkey River	Navigable	Entire
Pigg River (tributary of Roanoke)	Navigable	Entire
Potomac River	Navigable	Entire Virginia portion
Potts Creek (tributary of James)	Non-Navigable	Entire
Rapidan River	Non-Navigable	Entire
Roanoke River (Staunton River)	Navigable	From Virginia Line to confluence of North and South Forks
North Fork Roanoke River	Navigable	From confluence with South Fork to confluence with Bradshaw Creek (2.8 miles)

TABLE 1b continued

WATERWAY	DETERMINATION	LIMITS
South Fork Roanoke River	Navigable	From confluence with North Fork to Route 11/460 bridge (2.4 miles)
Seneca Creek	Navigable	From confluence with Roanoke to Route 633 bridge @ Marysville in Campbell County
Shenandoah River	Navigable	Entire Virginia portion
South Fork Shenandoah River	Navigable	From confluence with Shenandoah to confluence with South River at Port Republic
Slate River (tributary of James)	Non-Navigable	Entire
Smith River	Navigable	From Virginia Line up to and including Philpott Reservoir
South Anna River	Non-Navigable	Entire
Tinker Creek	Navigable	From confluence with Roanoke to Route 460 bridge (1.8 miles)
Tye River	Navigable	From confluence with James to Route 56/680 bridge @ Massies Mill (26.1 miles)
Willis River	Non-Navigable	Entire (tributary of James)

There are many other non-rigorous definitions of what constitutes a TNW and not all will be referenced herein. In the Subaqueous Guidelines prepared by the Virginia Marine Resources Commission (VMRC) it is stated:

> In a May 3, 1982 opinion, the Attorney General advised the Commission to assume jurisdiction on non-tidal streams that were determined to be "navigable-in-fact" unless the landowner could show clear title to the riparian land acquired by grant prior to July 4, 1776. Where the stream was determined to be "non-navigable-in-fact", the Commission was advised to assume jurisdiction unless the landowner could show a grant prior to 1792 in that part of the State draining to the Atlantic Ocean, or prior to 1802 in that part of the State draining toward the Gulf of Mexico.
>
> The question of navigability is a question of fact as to whether a stream is being, or has been historically used as a highway for trade or travel or whether it is capable of such use in its ordinary and natural condition (i.e. disregarding artificial obstructions such as dams which could be abated). The Commission assumes that all perennial streams with a drainage basin of greater than 5 square miles, or a mean annual flow greater than 5 cubic feet per second, are navigable-in-fact until evidence is presented proving non-navigability (VMRC 2007: Forward [*sic*]).

> The Commission has defined the minimum size of non-tidal waterways as those perennial streams with a drainage area of 5 square miles or with a mean annual in-stream flow of 5 cubic feet per second. Activities within waterways with characteristics below these threshold attributes do not require authorization from this agency (VMRC 2007: Section VII).

It is apparent in the VMRC guidelines that an assumption of navigability for all perennial streams with a drainage basin of greater than 5 square miles or a mean annual flow greater than 5 cubic feet pre second is made. A map titled *Streams with VMRC Regulated 5 Square Mile Drainage Areas in Northern Virginia* is provided as Attachment 2. In addition, many streams for which no documentation of traditional navigation was found are included under these criteria. Although an argument may be made for the facility of implementing such a definitive and streamlined definition for navigability, it cannot be assumed to fulfill the requirements of Federal Law and was not used in the determinations herein. Further, there may be little evidence that many of the lesser streams potentially considered navigable under the VMRC regulations were, in fact, traditionally navigable. It must also be noted that, in the regulations these streams are considered navigable until proven otherwise. Research efforts indicate that it is an even more difficult task to document the historic non-navigability of a stream than to document its historic navigability.

IV. TRADITIONAL NAVIGABLE WATERS IN NORTHERN VIRGINIA BASED ON HISTORIC DOCUMENTATION

The following sections of this paper provide an additional list of TNW rivers and streams in the study area using the definition developed herein and backed by historic documentation and archeological information (Table 2). Table 2 is followed by a brief historic overview of the navigation of rivers and streams in the study area; an overview that also serves to provide a context for the research data. The specific documentary evidence for establishing TNW status is presented, as are copies of the original source documents or other material for each examined stream; the evidence is included later in this report.

TABLE 2: DOCUMENTED NAVIGABILITY OF STREAMS AND RIVERS IN NORTHERN VIRGINIA

WATERWAY	CLASS	LIMITS	SOURCE	SOURCE DESCRIPTION
Accokeek Creek	Tidal Supported or extended by TNW	Unknown	(Virginia Herald, 1 November, 1820:3-4)	19th century newspaper advertisement
Accotink Creek	Tidal Supported or extended by TNW	[From its mouth to Accotink Village…]	(United States Government Printing Office 1949)	Army Corps Survey 1949
Aquia Creek	Tidal Supported or extended by TNW	Wharton Landing, 7.5 miles above the mouth, cited as head of navigation in the 20th century	(Virginia Herald, 1 November 1820:3-4; United States Government Printing Office 1908)	19th century newspaper advertisement
Beaverdam Creek	TNW	From Site 44LD0995 to confluence with Goose Creek	(VDHR site form 44LD0995)	Archeological evidence
Cameron Run	TNW	From confluence with Hooff's Run to confluence with Potomac	(VDHR site form 44AX0112)	Archeological evidence
Carter's Run (Carter Run)	Navigable (supported by TNW)	"… [flatboats operated on] Carter's Run as far as Parr's Mill, then known as Gaskin's Mill [now Cliff Mills]"	(Trout 2004, citing Armstrong 1932)	Local history
Chopawamsic Creek	Tidal Supported or extended by TNW	Unknown	(United States Government Printing Office 1865: 448)	Civil War naval records
Dogue Creek (Dogue Run)	Tidal Supported or extended by TNW	Formerly navigable to Washington's grist mill site	(Prussing 1927:223)	Papers of George Washington
Goose Creek	TNW	From its mouth to Duer's Mill site on Snickersville Turnpike (Route 734) near Mountville	(Trout 1994; ACS Form 1973; Library of Virginia 1832 map; VDHR site forms)	19th century canal/navigation, various records
Hazel River	Navigable Supported or extended by TNW	From confluence with Rappahannock River to Castle Mills on Rappahannock County line (19.8 miles)	(Trout 2004; ACS Form 1973; VDHR site forms)	19th century canal/navigation, various records
Hazel Run	TNW	"…a battoe may be brought by the tide within a small distance of the mill door, the river, where sea vessels may lie close to the shore, not exceeding a quarter of a mile from the place where the mill must stand"	(Virginia Gazette 8 June, 1769:3)	18th century newspaper advertisement

TABLE 2 continued

WATERWAY	CLASS	LIMITS	SOURCE	SOURCE DESCRIPTION
Hooff's Run	TNW	From confluence with Old Cameron Run channel	(VDHR site form 44AX0112)	Archeological evidence
Little River	TNW	From confluence with Goose Creek to Mercer's Mill/Aldie Mill site on U.S. 50 in Aldie.	(Trout 1994; Library of Virginia 1832 map)	19th century canal/navigation, various records
Neabsco Creek	Tidal Supported or extended by TNW	[With] improvements…. (Navigation) may be practicable to the crossings of Telegraph and Colchester Roads…	(United States Government Printing Office 1881:2-3)	1881 United States War Department survey
N. Fork of Goose Creek	TNW	From confluence with Goose Creek to Coe's Mill site (approximately 1 mile upstream of confluence)	(Trout 1994; Library of Virginia 1832 map)	19th century canal/navigation, various records/maps
Occoquan River	Tidal Supported or extended by TNW	From its mouth at Sandy Point to the Town of Occoquan (6 miles)	(United States Government Printing Office 1897:1321)	1897 United States War Department survey
Opequon Creek	TNW	"more or less Navigable" "…susceptible of navigation for small craft, twenty-four or twenty-five miles from its mouth"	(Jackson and Twohig 1978:59; Kercheval 1850)	Papers of George Washington, local history
Pimmit Run	TNW	Unknown	(VA 1730 Historic marker)	Local History
Pohick Creek	Tidal Supported or extended by TNW	"…the mail for Gunston Post Office is delivered at the wharf…"	(United States Government Printing Office 1881:3-5; 1879 G..M. Hopkins map)	1881 United States War Department survey, 19th century map
Potomac Creek	Tidal Supported or extended by TNW	Unknown	(Virginia Herald, 1 November 1820:3-4)	19th century newspaper advertisement
Potomac River	Navigable Supported or extended by TNW	Entire Virginia portion	(Armroyd 1830: 209-218; see also Jackson and Twohig 1978:54-59; Ward, George Washington 1899)	18th and 19th century canal/navigation, various records
Quantico Creek	Tidal Supported or extended by TNW	[to the original Dumfries wharf in the town of Dumfries]	(Karnes 1998: 13)	Local history

TABLE 2 continued

WATERWAY	CLASS	LIMITS	SOURCE	SOURCE DESCRIPTION
Rapidan River	TNW	55 [river] miles from its confluence with the Rappahannock River, as planned by the Rappahannock Company, organized in 1816	(Trout 2004;see Virginia Herald, February 6, 1828)	Local history
Rappahannock River	Navigable Supported or extended by TNW	From its mouth to Blackwell's Warehouse (approximately .5 mile upstream of Route 211 in Rappahannock County	(Trout 2004; ACS Form 1973; VDHR site forms)	19th century canal/navigation, various records
Shenandoah River	Navigable Supported or extended by TNW	From confluence with the Potomac to West Virginia line.	(Armroyd 1830: 309-310; see also Jackson and Twohig 1978:54)	19th century canal/navigation, various records and papers of George Washington
South Fork Shenandoah River	Navigable Supported or extended by TNW	From confluence with the North Fork, "the river has long since been made navigable for boats up to Port Republic in Augusta"	(Armroyd 1830: 309-310; see also Jackson and Twohig 1978:54)	19th century canal/navigation, various records and papers of George Washington

V. RESEARCH METHODS AND MATERIALS

A critical aspect of the definition of TNW provided in this paper is its reliance on clear archeological or historical documentation; evidence indicating that a particular body of water was used in transport, trade, exchange or commerce along part of or throughout its reach. The late prehistoric record of the region can serve as a prelude to identifying the major rivers such as the Potomac and its headwater tributary, the Shenandoah River, as TNW bodies of water. The archeological record supports this interpretation, especially when the distribution of Late Woodland archeological sites in Northern Virginia is considered. It can be readily shown that the Potomac River and the Shenandoah River were linked within a larger cultural sphere reflected in the riverine distribution of Late Woodland wares such as Potomac Creek and Keyser Ware ceramics. The linear distribution, close stylistic comparisons and narrow date range of these ceramic types can be used to argue that their widespread geographic extent was only made possible by watercraft, in this case, canoe travel. This cultural interaction sphere can be extended back into time. It is amplified and adequately supported by the subsequent historic period documentation. The use of the Late Woodland archeological record for demonstrating the TNW status of the smaller tributary streams of the Potomac is more difficult and will not be attempted herein.

Historic resources provide abundant, although variable, information regarding navigability of streams within the study area. Numerous primary and secondary documents pertaining to the historic navigation and susceptibility to navigation of the inland waterways within the study area were consulted. These documents included historic maps, various records of the Commonwealth of Virginia and the Federal

government, newspaper articles and advertisements, deeds and other land records, business records, personal journals and correspondence, travelogues and local histories. This research included viewing electronic versions of various documents and maps collected and housed by the Virginia Historical Society, the Library of Virginia, and the Smithsonian Institution. The temporal range of historical documents consulted spanned the 16th, 17th, 18th, 19th and 20th centuries.

The Data Sharing Service of the Virginia Department of Historic Resources (VDHR), a geo-database that includes all recorded archeological and architectural resources in the Commonwealth, was also consulted. Specific resource types relevant to this study were examined; these included canals, canal locks, wharves, and other river navigation structures. Several maps showing the locations of archeological sites and architectural resources derived from the geo-database are included in the latter portion of this report as evidence for the traditional navigability of specific streams.

Initially, background research was conducted on individual streams in order to create an historic context for viewing the available data. As with the archeological investigation of any area, the initial establishment of an historic context, essentially a model depicting the relationship or associations between diverse groups of data, is critical for providing a framework to conduct research and viewing the results against the background of existing information. This historic overview may be found in the next part of this document. A review of the specific terminology associated with the navigation of inland waterways was also conducted as part of the research process.

No known precedent for a study of this type was available for consultation. The initial plan called for the investigation of each watershed in the study area, beginning with the higher ranked streams and proceeding through the various tributaries. Although this is likely the best method for a truly comprehensive study, in the interest of expediency, a stratified sample of streams in the study area was used. The streams were selected for investigation based upon the initial background research and a cursory examination of the local waterways. This sample included streams that have been previously assessed as navigable, tidal streams and streams that have not been assessed to be navigable.

Perhaps the most basic historic map showing the region is the early 17th century document prepared by John Smith. This map clearly shows the extent that Smith traveled in the Chesapeake Bay and its tributary streams; most importantly, the Potomac River and several of its smaller tributaries. Accounts of John Smith's voyages and other early explorations of the Potomac and Chesapeake Bay include descriptions of navigation inland to the Falls on several rivers in the study area, but yielded no information on lesser streams. The writings of and about early explorers of the Virginia Piedmont, including John Lederer (see Carrier 1939) and Governor Spotswood, also failed to produce relevant data regarding TNW identification as most of these explorations only used the inland waterways as reference for land navigation.

Early trade maps accompanied by descriptions of trading in the 17th century were initially considered a promising area for research. However stringent regulation of trade with the native population in Northern Virginia during the 17th century may be responsible for a scarcity of data. Further, much of this trade was likely limited to the forts and other trading posts located at the Fall Line on major streams. By Act of Assembly in 1631, all trade with Indians was prohibited (Henning 1823: 173). In the 1640s, trade with the Native Americans became heavily regulated and directed through several forts at the Fall Line on the Pamunkey River, James River and Chickahominy River; only designated Indian messengers bearing badges or wearing special striped shirts were allowed to enter Colonial territory (Henning 1823a: 293; Moretti-Langholtz 2005). In other regions, with more intensive or lengthier traditions of fur trading, this could still be an important avenue of study.

Although no relevant information was discovered in this research for Northern Virginia, the use of waterways for the floating of logs to mills may constitute a finding of traditional navigability, as in a decision by the U.S. Ninth Circuit Court of Appeals in *State of Oregon v. Riverfront Protection Association*, 672 F2d 792 (1982). The Court of Appeals held that mile 0 to 37 of Oregon's McKenzie River was title-navigable due to evidence of the transporting of logs on the river. In some regions, research in this area would certainly be valuable.

Specific resources that might be useful in future research include Armroyd's *A Connected View of the Whole Internal Navigation of the United States: Natural and Artificial* (1830), the *Official Records of the Union and Confederate Navies in the War of the Rebellion* and various volumes of Congressional Serial Sets that include official correspondences and survey notes prepared by the War Department. Details of 19th century canals in Virginia may be found in the records of the Virginia Board of Public Works, established in the early 19th century with "the purpose of rendering navigable, and uniting by canals, the principal rivers, and of more intimately connecting, by public highways, the different parts of the Commonwealth". State records of this type are likely available throughout most of the United States.

Historic canal projects, either planned or completed, and other attempts to improve the navigation of inland waterways constitute a primary research concern. These projects are often well documented in business and government records, maps and various correspondences, as well as in extant archeological and architectural features and their associated databases. Further, waterway surveys were often carried out in the planning stages of such projects and associated field notes and maps may be available and of use in determining historic navigability. The historic navigation of rivers, streams, and canals remains of great interest to many historians and avocational groups including the American Canal Society and the Virginia Canals & Navigations Society, whose membership and publications were consulted for this study. Similar organizations include the Friends of the Delaware Canal, the Canal Society of Indiana, the Canal Society of New Jersey, the Canal Society of New York State and the Portage Canal Society (of Wisconsin). In brief, there is abundant information that could be utilized for

specific drainages, both in the study area as well as in other parts of the state. Needless to say, such documents exist for other states where historic canals were constructed to enhance riverine transportation, commerce and trade. In many ways, a canal is the ultimate form of portaging which, as noted above, is incident to navigation.

Early industrial sites apart from canals can be used to determine navigability. For instance, mills of various types present intriguing research topics as well as interpretive problems for TNW determination. Many 18th century mills within the study area were likely seated on navigable streams and mills are well depicted on historic maps. Unfortunately, without identifying specific mills and conducting sometimes extensive research on individual properties, it may be difficult to determine whether a mill was sited to utilize the local waterway for power alone or if products from the mill were also shipped on the stream, thus satisfying a key attribute of TNW determination.

Thomas Jefferson, in describing Virginia's waters in *Notes on the State of Virginia* (1853:2) wrote "An inspection of a map of Virginia, will give a better idea of the geography of its rivers, than any description in writing. Their navigation may be imperfectly noted". This passage points to the difficulty involved in assessing the navigability of a stream, particularly at a remote point in time and likely under different environmental conditions. Due to the vast amount of data that must be considered in a research project of this type, it is practically impossible to determine and establish that any given stream was not susceptible to navigation in the historic era and thus not traditionally navigable. With sufficient time and the opportunity to focus on a particular stream and examine numerous associated land deeds, wills, tax records, court records and minute books, inventories, newspaper items and additional material, it is possible that some piece of information may be found that evidences navigability or potential navigability at a specific point in history.

It is certain that variability in the number and kinds of available source material, coupled with the intensity of historic navigation, will certainly be encountered in similar studies conducted in other parts of Virginia or the United States. Any comparable research into TNW determination beyond Northern Virginia, including the examination of similar sources such as noted above, would be useful.

VI. OVERVIEW OF THE HISTORIC NAVIGATION OF INLAND WATERS IN NORTHERN VIRGINIA

The early historic settlement of Virginia was explicitly linked to the extensive waterways within the Commonwealth. Historic settlement, at least until the mid 18th century, was primarily found on the inland waterways below the Fall Line. In Northern Virginia, early navigation on the Potomac and Rappahannock Rivers, like the James River to the south, was complicated by the presence of shallows, rapids and falls.

The difficulties for navigating the inland waterways of Virginia appear to have rendered - rafts and flat boats impractical beyond a certain point along the reach of a number of streams. However, and as alluded to above, these streams were heavily utilized by the native population in dugout canoes prior to European contact, as described by Hu (1910):

> Perhaps nowhere on the American continent were canoes more extensively used than by the Virginia Indians of the tidewater region. …these vessels were upon every stream, and their journeys were swift and silent… through many a maze of creeks, channels, estuaries, and lagoons".

Further, Merrell (1979) documented the manufacture of such canoes by the native population for the colonists. To an extent, this reflects the reliance that the European colonists had on traditional Native American culture in adapting to the New World.

Trade within the region began early; the Potomac region was within a broader trade and exchange system dating before intensive settlement of the region. A number of early English entrepreneurs were trading for provisions and furs along the Potomac River in the early 1600s. Later in the 17th century, the numbers of fur trappers had increased to the point that their fur trade activities required regulation. Henry Fleet, the best known of the early Potomac River traders, was trading in the late 1620s along the Potomac River as far as the Fall Line where Great Falls is located (Gutheim 1986:28, 29, 35, 39). The fur trade in Northern Virginia was plagued by various economic and political difficulties, and it is often noted that superior furs were available to the north and from the North Carolina frontier. The history of fur trading in the study area is short and largely undocumented and its importance in the local economy never equaled that of tobacco cultivation (see Potter 1994:188-192; Moretti-Langholtz 2005).

Growth and sale of tobacco fostered the development of large plantations in the 17th and 18th centuries. Colonial plantations were seated along the Rappahannock River by the 1640s and along the Potomac by the 1650s (Hening 1823: 352-353; Potter 1994: 193). This expansion was tied to the growing demand for tobacco in England and elsewhere. By the 1730s, the combination of a rapidly increasing population and the depletion of the soils in the Tidewater, due to the intensive planting of tobacco, led to settlement expansion into the Virginia Piedmont. Rolling roads, essentially crude cleared paths used to transport hogshead of tobacco, were established between the early plantations and the nearest navigable waterway or to tobacco warehouses and ports where the leaf was exported to England (Harrison:466-467). In Northern Virginia, transportation in the first half of the 18th century relied upon the rolling roads, the Potomac and Rappahannock River and other inland water ways.

> …the real highways, upon which the houses were built, and upon which the imports and exports flowed, existed when the Englishmen arrived. These highways were the rivers. It was for a good reason that Mount Vernon, Gunston Hall, and Belvoir were built on the Potomac. Similarly the towns of Alexandria and Colchester were built on the Potomac and the Occoquan, and tobacco warehouses were built on the Occoquan, at Hunting Creek, and at Pimmit Run. Even small rivers and creeks were useful as 18th century ships displaced less water and the water levels in the rivers and creeks was greater than it is in the 20th century (Netherton et al 1978: 20).

Other public tobacco warehouses were likely situated on Potomac Creek, Aquia, Quantico, Pohick and Hunting Creeks, and at the Falls of the Potomac (Harrison 1987:466-467). The exact location of most of these buildings remains unknown.

Tye River tobacco planter, Reverend Robert Rose, is known to have employed enslaved laborers to adapt the American Indian dugout canoe to the transportation of tobacco. By 1749, Rose reportedly utilized two canoes lashed together and separated with a sawn board platform, thereby inventing what came to be known as the tobacco canoe or tobacco boat. At the destination, the platforms were removed and sold as cut lumber and the canoes, laden with supplies for the inland planters, were paddled back upstream. The use of tobacco boats hastened the development of the central Piedmont and the rise of Richmond as a trading port (McNaught 2007, Morgan 1998:56). Although it is likely that this method was employed in parts of Northern Virginia; no documentation describing the use of tobacco boats was found.

In the late 18th century, concurrent with the transition of the local economy from dependence on tobacco to the cultivation and milling of wheat and other grains, the use of *bateaux* [from the French *batteau*, "boat" and *bateaux*, "boats", often rendered in English as "battoe" and "battoes"], appears to have superseded the use of tobacco boats in Virginia (Lord 1992; Meany 2006; McNaught 2007). Bateaux, flat-bottom shallow draft boats, pointed at both ends, were well suited for navigating Virginia's waterways as they, even with a full load, were highly maneuverable and light enough to portage (McNaught 2007; see Lord 1992). Bateaux were also used extensively by military forces during the French and Indian War and the American Revolution on the New York and Ohio frontiers (Lord 1992, Meany 2006).

The construction of canals on many rivers in the Eastern United States enhanced riverine trade and exchange and mitigated natural barriers to navigation by linking two navigable portions of a river. The period spanning roughly 1790-1860 has been called the Canal Era in the history of transportation in the United States. Throughout this period, numerous canals and other projects to improve the navigability of inland waterways were developed. By 1860, the coming of the railroads effectively ended the Canal Era in Northern Virginia and much of the country. In the study area, the various canals constructed in the 18th and 19th centuries had very limited success and most were great financial disasters. The navigation of inland waterways, excepting some rivers and tidal bodies, was no longer considered a great concern in the study area by the beginning of the Civil War.

Canal enthusiasts poling the James River in a replica bateau (image donated by Sheila Berry for public use)

George Washington was a great advocate for improvements to waterways for inland navigation and the construction of canals in the late 18th century. He organized the Potowmack Company in 1785 and also served as President for the James River Company. The Patowmack Company built a number of skirting canals to circumnavigate the major falls on the Potomac and, by 1802, the Potomac River was open to navigation in the high water season to the Savage River above Cumberland and to its confluence with the Shenandoah above Harpers Ferry. The major works were four locks at Little Falls, Maryland and five locks at Great Falls, Virginia. Failing in its plan to link the Potomac and Ohio Rivers, in 1824, the Potomack Company's assets were transferred to the Chesapeake and Ohio Canal Company and the planned 185-mile; continuous channel waterway along the Potomac in Maryland was begun in 1828 (Ward 1899). The Chesapeake and Ohio Canal was eventually extended as far as Cumberland, Maryland and operated until 1924.

Washington also considered the entirety of the Shenandoah River, within Virginia and West Virginia, navigable and planned to establish a riverine commercial network connecting the Valley of Virginia, the Potomac, and eventually the northwest. With the removal of mill dams and other obstructions and the construction of several short canals on the South Fork, the Shenandoah was rendered fully navigable by the turn of the 19th century. The most common craft on the river in the early 19th century was the gundalow or gondola, a flat barge about 90 feet in length, steered by means of long poles. The Shenandoah remained nearly impassable in the upstream or southern direction, except during its highest annual flows, and many of gundalow made only one downstream passage to Harpers Ferry, where they were dismantled and their timbers were sold (Trout 2005).

The seven mile long Alexandria Canal connected Alexandria, Virginia to Georgetown, Washington, D.C. Planned in 1830 and completed in 1845, the canal used the Aqueduct Bridge to carry canal boats from the C & O Canal across the Potomac River and into Alexandria. It was eventually abandoned following a break in the aqueduct in 1886 (Office of Historic Alexandria n.d.).

The Rappahannock River navigation system, a series of hand built canals dating to the first half of the 19th century was another significant attempt to enhance navigability. The planned navigation, designed by the Rappahannock Company in 1816, called for the construction of a 50 mile long river navigation system from the mouth of Carter's Run near Warrenton to the falls at Fredericksburg and on the Rapidan River. After a series of false starts, construction in the 1830s was completed only for the 10 mile segment above Fredericksburg. Additional work, conducted between 1845 and 1849, completed the project on the Rappahannock to Carter's Run. Between 1850 and 1854, the Hazel River Navigation Company built a series of dams and locks and a two mile long canal, rendering the Hazel River navigable from Castle Mountain in Culpeper County to its confluence with the Rappahannock. Although bateaux were on the Rappahannock navigation up to the 1850s, it was a great financial failure and both the Rappahannock and Hazel River navigation systems were officially abandoned in 1855 (Trout 2004).

The Goose Creek and Little River Navigation Company (GC & LR) was organized in 1832 to construct a lock-and-dam towpath navigational system for canal boats. As surveyed in 1832, the system was designed to extend from the Potomac for 20 miles up Goose Creek, with a 5-mile branch up Little River Creek to Aldie and another proposed branch on the North Fork of Goose Creek or Beaver Dam Creek. George Carter of Oatlands Plantation was President of the Company and General William Gibbs McNeill was the most notable engineer employed by the project. Work began on the system in 1849 and stopped in 1854 because of the emergence of railway transportation. Twelve miles of Goose Creek were made navigable, extending as far as Ball's Mill. Nine stone locks, four canals with stone guard gates, and four dams were completed. Only one canal boat is known to have used the GC&LR system (Trout 1994).

VII. SUMMARY

This paper provides a definition of Traditional Navigable Waters that may be used in any region where adequate historic or archeological data on the use of rivers, streams or other bodies of water in trade, exchange or commerce within and/or between states and/or geographic regions exists. Historic documentation on the navigability of 26 streams in Northern Virginia (cf. Table 2) illustrates that a determination of TNW status is possible; a determination that will support or aid jurisdictional questions regarding WOUS. It is likely that more detailed historic research, work devoted to uncovering land records and private accounts, could extend TNW status of some rivers and streams or provide greater support for those bodies of water determined to be TNW.

In addition, the potential for other navigable waters in Northern Virginia is apparent. Although not defined as Traditional Navigable Waters, the possibility for commercial and/or recreational usage of some streams exists. There are also streams where WSSI staff, as well as other individuals, are able to and/or have canoed – for example, Broad Run, Bull Run and Cedar Run. We know that these streams are navigable-in-fact, based on personal experience, however, no historic or documentary evidence supporting this position could be found (Michael Rolband, personal communication 2007). Further investigation and, possibly, experimentation in the form of canoe/kayak travel during spring freshets would be required to document these uses.

Certainly the approach reported herein can be applied to the rest of Virginia and any other state in the Eastern United States. Historic documentation for most of Virginia and other states in the region is abundant. Given that most settlement was tied to the major rivers and tributaries, TNW status should be easily determined. The Late Woodland archeology of most areas in Virginia and other states along the Eastern Seaboard were intensely riverine in their orientation, an adaptation based on the use of arable floodplain for the cultivation of corns, beans and squash. As noted earlier, the widespread similarity of Late Woodland ceramic styles along the major rivers is seen as a clear reflection of groups linked by major watercourse in the region.

While the methodology used herein works well for the temperate areas of the United States, its application may also have utility in the more arid parts of the country where waterways are seasonally affected. This would be a fruitful avenue to pursue in the investigation of TNW status in these states.

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IX. SPECIFIC STREAM DATA

ACCOKEEK CREEK

Prior Determination or Classification: Tidal waterbody

Findings: Navigability supported or extended by TNW

Limits of traditional navigability are unknown.

Source Document

Public sale of Marlborough (Virginia Herald Nov. 1, 1820 advertisement transcription)

Public sale of Marlborough.

This farm, containing 350 acres of flat, 180 of first rate high ground, and 100 of uncommonly dry marsh, that may be reclaimed at very small expense, will be offered at public sale, before the door of Mr. Young's Tavern, in the town of Fredericksburg, on Thursday the 30th day of November. Marlborough has natural advantages greater than any farm known to the subscribers, on the Potomac, abounding with beds of superior shell marl, springs of most excellent water, fisheries that alone would render this place valuable, and is bounded by the navigable waters of the Potomac river, Potomac creek, Aquia creek, and Accokeek Creek, so as to make a fence of 3/8 of a mile only necessary to enclose the whole farm. Marlborough is healthy, excelled by no farm in the state in fertility and productiveness, easily cultivated, laid off in convenient lots, double ditched, and under good cedar fencing, is distant from the markets of the District of Columbia 40, and Fredericksburg 11 miles -about 200 bushels of grain was seeded this fall. The stream boat Washington anchors off this place daily. *Slaves for sale Terms of sale, one third on the day of sale, and the residue in two equal annual payments. A correct plat of the land will be left at the Bar of Mr. Young's Tavern previous to the day of sale, and the land shewn by the resident on the place.

John Cooke, George M. Cooke, Ex'ors of J. Cooke, dec'd.

Stafford, November 1, 1820 (Virginia Herald, 1820).

ACCOTINK CREEK

Prior Determination or Classification: Tidal waterbody

Findings: Navigability supported or extended by TNW

Limits of traditional navigability are "from its mouth to Accotink Village"

Source Document

Original document unavailable

"The project for Accotink Creek provided for a dredged channel 5 feet deep and 40 feet wide from the mouth of Accotink Bay to Accotink Village" (United States Government Printing Office 1949).

AQUIA CREEK

Prior Determination or Classification: Tidal waterbody

Findings: Navigability supported or extended by TNW

Limits of traditional navigability are unknown.

Source Document

See Accokeek Creek, (Virginia Herald, November 1, 1820 advertisement transcription)

BEAVERDAM CREEK

Prior Determination or Classification: None

Findings: TNW supported by archeological evidence

Limits of traditional navigability are assumed to be from the location of Site 44LD0995 to confluence with North Fork of Goose Creek

Source Document and Exhibit

VDHR site form 44LD0995
Exhibit 1 (VDHR 44LD0995 Archeological Site Location Map)

ARCHAEOLOGICAL REPORT **Report Generated on:** 7/16/2007

DHR ID#: 44LD0995

City/County: Loudoun
VDHR Site Number: 44LD0995 **Other VDHR Number:**
Site Name: DK1
Temporary Designation: DK1

CULTURAL/TEMPORAL AFFILIATION

Cultural Designation	Temporal Designation
Euro-American	19th Century

Site Class: Terrestrial, open air

THEMATIC CONTEXTS/SITE FUNCTIONS

Sequence Number: 1

Category for thematic context:
Transportation/Communication

Example: Wharf
Comments/Remarks:

Site consists of two stone walls set at right angles to creek 54 feet apart. Each is about 5 feet wide and 15 feetlong.
Specialized Contexts:

USGS Quadrangle(s): LINCOLN

Loran: **Restrict UTM Data?**

Center UTM (for less than 10 acres): 18/4325352/267852

Boundary UTMs (for 10 acres or more):

Physiographic Province: Piedmont
Drainage: Potomac/Shenandoah River
Landform: terrace, first
Aspect: Facing northeast
Elevation: 280.00 **Slope:** 0-2%
Site Soils:
Adjacent Soils:
Nearest Water Source: Unnamed creek
Distance: 0

INDIVIDUAL/ORGANIZATION/AGENCY INFORMATION

Individual Category Codes:
Owner of property

Honorif:
First: Salvatore J
Last: Cangiano
Suffix:
Title:
Company/Agency:

Address: Dry Bridge Road

City: Leesburg **State:** Virginia **Zip:**
Phone/Ext: 000-000-0000
000-000-0000
Notes:

Ownership type: Private

Gov't Agency:

SITE CHARACTERISTICS

Site Dimensions: 5 feet by 15 feet **Acreage:** 0.10

Survey Strategy: Observation

Site Condition: 25-49% of Site Destroyed
Intact Stratified Cultural Levels

Survey Description:
Visual examination

CURRENT LAND USE

CURRENT LAND USE # 1

Land Use: Transportation/Communication **Dates of Use:** 2003/01/28
Example: Wharf
Comments/Remarks:

SPECIMENS, FIELDNOTES, DEPOSITORIES

Specimens Obtained? **Specimens Depository:**

Assemblage Description:

Specimens Reported? No

Assemblage description--reported:

Field Notes Reported? Yes **Depository:** Browning & Associates, Ltd.

CULTURAL RESOURCE MANAGEMENT EVENTS

Date: 2003/01/10
Cultural Resource Management Event: Phase I Survey

Organization or Person

First	Last
Lyle E.	Browning

Id # Associated with Event:
CRM Event Notes or Comments:

PHOTOGRAPHIC DOCUMENTATION AND DEPOSITORY

Sequence Number: 1
Photographic Documentation? Yes
Depository: Browning & Associates, Ltd.
Type of Photos: Digital color photo

REPORTS, DEPOSITORY AND REFERENCES

Sequence #: 1

Report (s) ? Yes
Depository: Loudoun County
Reference for reports and publications:
Dominion Knolls Phase I Intensive Cultural Resources Survey, Browning & Associates, Ltd. 2003
VDHR Library Reference Number:

1 RECORD(S) IN THIS REPORT

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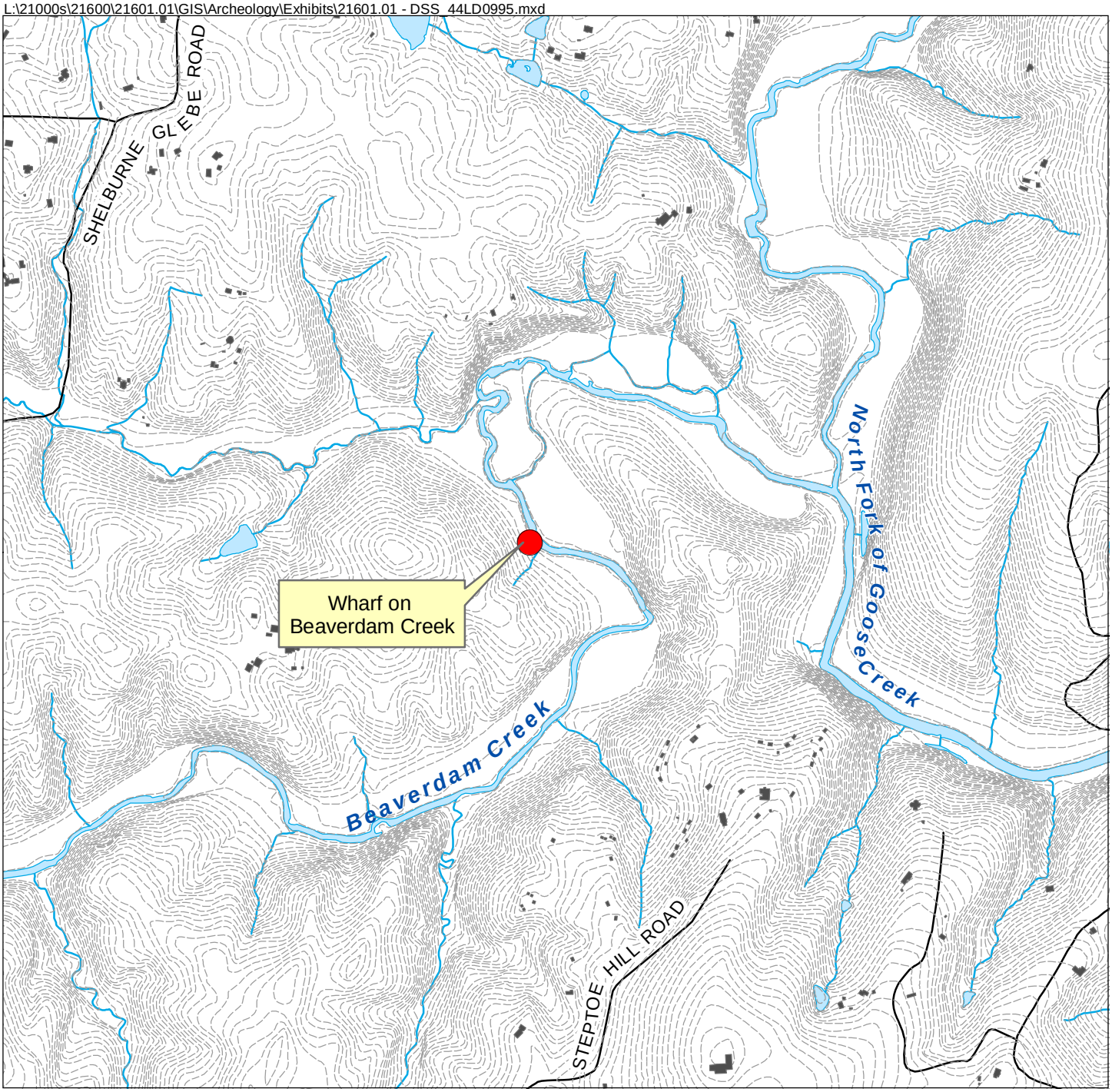

VDHR Archeological Site Map
Loudoun County Digital GIS Data
Traditional Navigable Waters
Scale: 1" = 1000'

- Site 44LD0995
- Buildings (2007)
- County 5 foot Contours
- Roads (2007)
- Waterbodies/Rivers
- Streams

N
W E
S

Thunderbird Archeology
A Division of Wetland Studies and Solutions, Inc.

Exhibit 1

CAMERON RUN

Prior Determination or Classification: None

Findings: TNW supported by archeological evidence

Limits of traditional navigability are assumed to be from confluence with Hooff's Run to confluence with Potomac

Source Document and Exhibits

VDHR site form 44AX0102

Exhibit 2 (VDHR 44AX0102 Archeological Site Location Map)

DHR ID#: 44AX0112

City/County: Alexandria
VDHR Site Number: 44AX0112 **Other VDHR Number:**
Site Name: Cameron Mills
Temporary Designation:

CULTURAL/TEMPORAL AFFILIATION

Cultural Designation	Temporal Designation
Euro-American	18th Century
Euro-American	19th Century
Euro-American	20th Century
Indeterminate	18th Century
Indeterminate	19th Century
Indeterminate	20th Century

Site Class: Terrestrial, open air

THEMATIC CONTEXTS/SITE FUNCTIONS

Sequence Number: 1

Category for thematic context:
Industry/Processing/Extraction

Example: Mill, raceway
Comments/Remarks:

Sequence Number: 2

Category for thematic context:
Transportation/Communication

Example: Wharf
Comments/Remarks:

Sequence Number: 3

Category for thematic context:
Technology/Engineering

Example: Other
Comments/Remarks:

Sequence Number: 4

Category for thematic context:
Industry/Processing/Extraction

Example: Mill
Comments/Remarks:

Historically the site was bisected by a millrace. Site is l
allegedly location of Cameron Mills, which is believed to have l
been built prior to 1752.
Specialized Contexts:

USGS Quadrangle(s): ALEXANDRIA

Loran: **Restrict UTM Data?**

Center UTM (for less than 10 acres): 17/4296630/320185

Boundary UTMs (for 10 acres or more):

Physiographic Province: Coastal Plain
Drainage: Potomac/Shenandoah River
Landform: urban
Aspect: Facing south
Elevation: 20.00 **Slope:** 2-6%
Site Soils: unidentified
Adjacent Soils: unidentified
Nearest Water Source: Cameron Run (infilled)
Distance: 1,800

INDIVIDUAL/ORGANIZATION/AGENCY INFORMATION

Individual Category Codes:

Honorif:
First:
Last:
Suffix:
Title:
Company/Agency:

Address:

City: **State:** **Zip:**
Phone/Ext:

Notes:

Ownership type: Private

Gov't Agency:

SITE CHARACTERISTICS

Site Dimensions: 100 feet by 200 feet **Acreage:** 0.50

Survey Strategy: Historic Map Projection
Subsurface Testing
Surface Testing

Site Condition: Site deliberately buried
Subsurface Integrity
Surface Features

Survey Description:

Site identified during ARPO walkover survey (Cameron Run Survey in July 1979); no subsurface testing.
Visited by C Lee Decker (LBA) in March 1989. Phase I testing of mill site in 1990 (Engineering Science)determined that some features were intact; mill site deliberately buried. Phase I investigations of infilled mill race and appurtenant structures in 2000-2001 (Goodwin & Associates, Inc.)followed by partial development of site

CURRENT LAND USE

CURRENT LAND USE # 1

Land Use: Commerce/Trade **Dates of Use:** 2001/03/01
Example: Parking lot

Comments/Remarks:
Mill race and former wharf location graded and surfaced to provide parking; Mill site slated for parking deck construction (2005), but will be investigated prior to construction

SPECIMENS, FIELDNOTES, DEPOSITORIES

Specimens Obtained? Yes **Specimens Depository:** Alexandria Archaeology

Assemblage Description:

Materials obtained from infilled millrace included mixture of 19th and 20th century ceramics, glass; architectural debris, both modern and historic. Materials recovered from pier excavation included upright pier supports. These were conserved and given to the Alexandria Lyceum (museum).

Specimens Reported? Unknown

Assemblage description--reported:

Field Notes Reported? Yes **Depository:** Alexandria Archaeology

CULTURAL RESOURCE MANAGEMENT EVENTS

Date: 1989/03/99
Cultural Resource Management Event: Phase I Survey

Organization or Person

First	Last
Charles LeeDecker	LBA

Id # Associated with Event:
CRM Event Notes or Comments:

Date: 1990/99/99
Cultural Resource Management Event: Phase I Survey

Organization or Person

First	Last
Dennis Knepper	Engineering Science

Id # Associated with Event:
CRM Event Notes or Comments:
Engineering-Science, Inc tested the mill site with two excavation units and uncovered wall lines. Site was reburied

Date: 2000/99/99
Cultural Resource Management Event: Phase II Survey

Organization or Person

First	Last
Martha Williams	Goodwin

Id # Associated with Event:
CRM Event Notes or Comments:
Mechanized testing documented mill headrace prism, as well as remains of small pier in former streambed of Cameron Run that probably was used to transfer mill products to larger vessels in Potomac River
Date: 1979/07/99
Cultural Resource Management Event: Survey: Indeterminate

Organization or Person

First	Last
Terry Klein	Alexandria RPO

Id # Associated with Event:
CRM Event Notes or Comments:
Klein identified a section of masonry foundation (actually a mortared stone wall) that had been incorporated into the Alexandria Water Co. pumping station which pumped water from the millrace to the reservoir north of Duke Street. THe old section of masonry wall is still intact, but incorporated into brick structure.

PHOTOGRAPHIC DOCUMENTATION AND DEPOSITORY

Sequence Number: 1
Photographic Documentation?
Depository: Alexandria Archaeology
Type of Photos: 35 mm slides
Sequence Number: 2
Photographic Documentation?
Depository: Alexandria Archaeology
Type of Photos: 35 mm color prints
Sequence Number: 3
Photographic Documentation?
Depository: Alexandria Archaeology
Type of Photos: 35 mm b/w prints
Sequence Number: 4
Photographic Documentation?
Depository: Special Collections, Alexandria Library
Type of Photos: b/w prints (historic)

REPORTS, DEPOSITORY AND REFERENCES

Sequence #: 1

Report (s) ? Yes
Depository: Alexandria Archaeology, VDHR
Reference for reports and publications:
Williams, Martha R., et al.
2004 Phase I and Phase II Archeological Investigations of Cameron Farm (44AX182) and Cameron Mills (44AX112), Hoffman Properties, Alexandria, Virginia.
Sequence #: 2

Report (s) ? Yes
Depository: VDHR
Reference for reports and publications:

Title

A Phase IA Background and Documentary Study of Three Properties at 2201 Eisenhower Avenue and 2310 and 2318 Mill Road, Alexandria, Virginia

Author

William Gardner, Gwen Hurst

Sequence #: 3

Report (s) ? Yes

Depository: Alexandria RPO

Reference for reports and publications:

Archaeological Reconnaissance Report Backlick-Cameron Run Impact Area

Sequence #: 4

Report (s) ? Yes

Depository: VDOT

Reference for reports and publications:

Phase 1a Cultural Resource Assessment of the Eisenhower Avenue/Cameron Run Valley by Louis Berger and Assoc.

Sequence #: 5

Report (s) ? Yes

Depository: Alexandria Archaeology

Reference for reports and publications:

Knepper, Dennis, and Madelaine Pappas

1990 Cameron Mills Preliminary Historical and Archaeological Assessment of Site 44AX112, Alexandria, Virginia. Submitted to Hoffman Management, Inc. Engineering-Science, Inc., Washington.

VDHR Library Reference Number: 91

1 RECORD(S) IN THIS REPORT

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VDHR Archeological Site Map
City of Alexandria Digital GIS Data
Traditional Navigable Waters
WSSI #21601.01
Scale: 1" = 1000'

- Site 44AX0112
- Roads (2007)
- Rivers/Waterbodies (2007)
- Streams (2007)
- Buildings (2007)
- City of Alexandria Boundary (2007)

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Exhibit 2

CARTER'S RUN (CARTER RUN)

Prior Determination or Classification: Navigable from confluence with Rappahannock River to Cliffs Mills (2.2 mi.) (14 August 1981)

Findings: Navigability supported by TNW

Limits of traditional navigability are from confluence with Rappahannock River to Cliffs Mills (2.2 miles).

Source Document

Original document unavailable

"Flatboats operated between Waterloo and Blackwell's Mill and on Carter's Run as far as Parr's Mill, then known as Gaskin's Mill [now Cliff Mills]" (Trout 2004, citing Armstrong 1932).

CHOPAWAMSIC CREEK

Prior Determination or Classification: Tidal waterbody

Findings: Navigability supported by TNW

Limits of traditional navigability are unknown.

Source Document

United States Government Printing Office 1865: 448

POTOMAC FLOTILLA.

DESTRUCTION OF REBEL ARMY WAGONS AND SLOOP BUCKSKIN.

No. 196.] UNITED STATES STEAMER DON,
Potomac Flotilla, November 10, 1864.

SIR: I have the honor to inform the department that on the 7th instant Acting Master Tole, commanding United States steamer Anacostia, destroyed two rebel army wagons near Aquia creek, which were used to convey blockade goods from that place to Fredericksburg, Virginia, and on the 9th instant burned in Chopawamsic creek the sloop Buckskin, of Alexandria, which was captured about ten days since by guerillas while anchored in the creek engaged in getting wood.

I am, sir, very respectfully, your obedient servant,

FOXHALL A. PARKER,
Commander, Commanding Potomac Flotilla.

Hon. GIDEON WELLES,
Secretary of the Navy, Washington, D. C.

Destruction of rebel boats and scows in Coan river.

No. 221.] UNITED STATES STEAMER DON,
Potomac Flotilla, December 19, 1864.

SIR: Learning from the provost marshal of Baltimore that the enemy were massing boats on the Coan river for the purpose of making a raid on the bay, I sent the Cœur de Lion and Mercury thither on the 15th instant, under the command of Acting Master Morris, who found collected thirty-one large boats and two scows, all of which he destroyed.

The "home guards," in large force, made a show of resistance, but were quickly driven off.

A suit of schooner's sails were captured, which I shall use in the flotilla.

I have the honor to be your obedient servant,

FOXHALL A. PARKER,
Commander, Commanding Potomac Flotilla.

Hon. GIDEON WELLES, *Secretary of the Navy.*

EXPEDITION TO CHOPTANK CREEK, UNDER ACTING ENSIGN McCONNELL.

UNITED STATES STEAMER DON,
Potomac Flotilla, March 5, 1865.

SIR: The provost marshal of Charles county, Maryland, having informed me that the rebels had secreted a large boat in one of the creeks on the opposite shore of the Potomac, for the purpose of making a raid into Mary-

DOGUE RUN (DOGUE CREEK)

Prior Determination or Classification: Tidal waterbody

Findings: Navigability supported or extended by TNW

Limits of traditional navigability are [from mouth to Washington's grist mill site] (Prussing 1927:223).

Exhibit

Exhibit 3 (1801 Mount Vernon Map)

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1801 Mount Vernon Map
Traditional Navigable Waters
WSSI# 21601.01
Scale: 1" = 1000'

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Map Source: "A map of General Washington's farm of Mount Vernon from a drawing transmitted by the General. By George Washington. Published 1801. Removed from: Letters from His Excellency George Washington, to Arthur Young, [etc.]. London, 1801. Opp. p. (E312.75.A27 Rare Book Rm.) Original Scale 1:6,336. G3882.M7 1793 .W34 1801 TIL Vault. Library of Congress Geography and Map Division Washington, D.C. 20540-4650

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Exhibit 3

GOOSE CREEK

Prior Determination or Classification: None

Findings: TNW supported by historic map and secondary documentation

Limits of traditional navigability are [From its mouth to Duer's Mill site on Snickersville Turnpike (Route 734) near Mountville based on map presented with the petition asking for the establishment of the Goose Creek and Little River Navigation Company] (Trout 1994).

Source Documents and Exhibits

ACS Goose Creek and Little River Navigation Form

Exhibit 4 (1832 Goose Creek Survey map)

Table 3 VDHR canal and River Navigation Sites on Goose Creek

Exhibit 5 (VDHR canal and River Navigation Sites on Goose Creek)

CANAL: Goose Creek and Little River Navigation
Loudoun County, Virginia

STATUS: Abandoned.

(FOR ACS USE)

DATES OF CONSTRUCTION & CLOSURE: 1349 - ab. incomplete 1354

LOCATION (ENDPOINTS OF CANAL) 39°04'N77°35'W; 39°06'N77°29'W
Evergreen (Ball's) Mill to the Potomac

LENGTH: CANAL 1 SLACKWATER 11 TOTAL 12

LIFT LOCKS	NBR.	DIMENSIONS	AQUEDUCTS	TUNNELS
	9	LOCK CHAMBER 52 x 11½' OVERALL ____	NBR. 0 SECTION SIZE ____	0

DESCRIPTION: [Type of navigation, features of note (include USGS coordinates where useful); e.g., feeders (navigable & otherwise), locks other than above, type of locks, use of unusual material or methods of construction, present owner, present use & condition, etc.]

The Goose Creek and Little River Navigation Company was organized in 1332 to construct a lock-and-dam towpath navigation for canalboats from the Potomac for 20 miles up Goose Creek, with a 5-mile branch up Little River, a tributary, to Aldie. President of the Company was George Carter of Oatlands, now a National Trust property. General William Gibbs McNeill was the most notable engineer for this project. Work began on Goose Creek in 1349 and stopped in 1354 because of railway competition, after the work had been completed for 12 miles up to Ball's Mill, involving 9 stone locks, 4 canals with stone guard gates, and 4 dams. Today 4 of the locks are submerged in a new lake; the other 5 lift locks are in excellent to fair condition, and 3 of the guard gates are in very good condition. The gem of the navigation is the two-lock staircase (Clapham's) near the mouth of the creek, and its 1-mile canal. This canal and the lock now belong to Xerox Corporation which has expressed interest in making it available *

NAMES & ADDRESSES OF GROUPS CONCERNED WITH CANAL'S PRESERVATION/RESTORATION:
Mr. John Lewis Minor Bartlow House Hamilton, VA 22068
Mr. Willard H. Duetting, Director, International Center for Training and Development, 8130 Boone Blvd., Vienna VA 22180
Mr. William Stupp, Loudon County Park Authority, 18 E. Market St., Leesburg, VA 22075

REPORTER'S NAME & ADDRESS:
W. E. Trout, III 1932 Vinco Robles Drive, Duarte, California 91010

DATE: 10 June 1973

HISTORICAL SUMMARY: [Original aims of company, date of incorporation, prominent engineers, cause of closure, significant alterations to structure or route, height of traffic date, transfers of ownership, etc.]

* to the public as a park. The rest of the works may be incorporated into a Loudoun County park along Goose Creek.

Clapham's lock is of particular interest because, although a two-lock staircase requires only 3 pairs of miter gates, this lock has four, for reasons not yet understood. Also, the dimensions of the chambers are unusual, being designed for boats half as long as those used on the C&O Canal, so that two boats could have been locked through a C&O lock at one time. However, only one canalboat is known to have used the GC&LR Navigation so this interesting experiment was never carried out, in spite of the fact that the C&O Canal Company had constructed the Goose Creek River Lock in their canal, opposite the mouth of Goose Creek, to provide access from the Creek to the C&O Canal. This lock was also a 2-lock staircase, but with three pairs of gates.

BIOGRAPHICAL SUMMARY: [Published works relating to Canal]

"The Goose Creek and Little River Navigation", W. Trout, Virginia Cavalcade, Winter 1967, 75¢ ppd. from Virginia State Library, Richmond, Va. 23219. 5pp.

"The Goose Creek and Little River Navigation", W. Trout, unpl. ms., 14pp+, maps, JR&K Canal Library, Reynolds Metals Co., Richmond, Va. 23213.

UNPUBLISHED RECORDS, LOCATION OF PHOTOS, DRAWINGS & IMPORTANT PERIODICAL REFERENCES

Reports of the Goose Creek and Little River Navigation Company to the Virginia Board of Public Works, Virginia State Library, Richmond, Va. 23219.

NATIONAL REGISTER & HAER (HISTORIC AMERICAN ENGINEERING RECORD) STATUS:

None, yet.

RETURN TO: CANAL INDEX COMMITTEE, C/O P.H.STOTT, HAINES ROAD, MOUNT KISCO, NEW YORK 10549

USE ADDITIONAL SHEETS AS NECESSARY.
TO MAKE AN INDEX CARD SUITABLE FOR FILING, CUT ALONG THE HEAVY LINES AND FOLD BACK ALONG THE DOTTED LINE.

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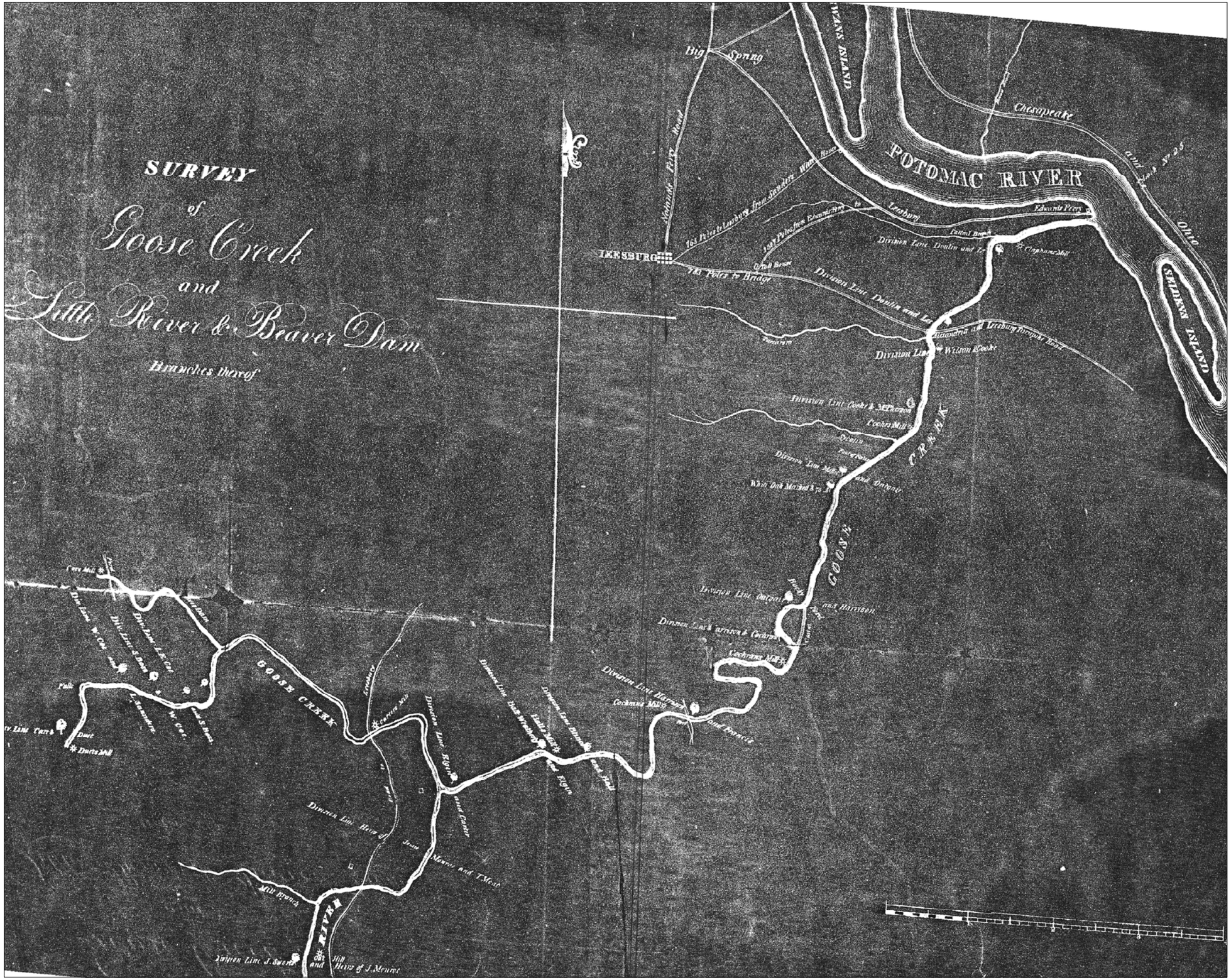

1832 Goose Creek Survey Map
Traditional Navigable Waters
WSSI# 21601.01
Scale: 1" = 1 mile

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Map Source: "1832 Survey of Goose Creek and Little River & Beaver Dam Branches thereof". Source: Library of Virginia 755.27 H9

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Exhibit 4

TABLE 3: VDHR CANAL AND NAVIGATION STRUCTURE SITES ON GOOSE CREEK

DHR ID	DESCRIPTION	TEMPORAL DESIGNATION
44LD0231	Canal lock	Historic/Unknown
44LD0232	Canal lock, Dam	Historic/Unknown
44LD0233	Canal lock, Dam	Historic/Unknown
44LD0234	Canal lock, Dam	null
44LD0235	Canal lock, Dam	Historic/Unknown
44LD0236	Canal lock, Dam	Historic/Unknown
44LD0237	Canal lock, Dam	Historic/Unknown
44LD0239	Canal lock, Mill	Historic/Unknown
44LD0240	Canal lock	Historic/Unknown
44LD0241	Canal lock, Mill	Historic/Unknown
44LD0296	Canal lock	19th Century
44LD0485	Dam	Historic/Unknown
44LD0487	Canal lock, Dam	19th Century: 2nd/3rd quarter

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VDHR Canal and Navigation Structure Sites on Goose Creek and Little River

Traditional Navigable Waters
WSSI# 21601.01
Scale: 1" = 1 Mile

Select VDHR Architectural Resources and Archeological Sites

Navigable Goose Creek and Little River

Leesburg

Potomac River

Loudoun County

North Fork of Goose Creek

Goose Creek

Goose Creek

Little River

44LD0296

44LD0233

44LD0487

44LD0234

44LD0237

44LD0235

44LD0231

44LD0232

44LD0239

44LD0240

44LD0485

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Exhibit 5

HAZEL RIVER

Prior Determination or Classification: Navigable from mouth to Blackwell's River Warehouse (53.9 mi. above Fredericksburg) (14 August 1981)

Findings: Navigability supported by TNW

Limits of traditional navigability are from confluence with Rappahannock River to Castle Mills on Rappahannock County line (19.8 miles) (Trout 2004).

Source Documents and Exhibits

ACS Hazel River form

Table 4 (VDHR Canal and River Navigation Sites on Hazel River)

Exhibit 6 (VDHR Canal and River Navigation Sites on Hazel River)

CANAL Hazel River Navigation, Virginia

(FOR ACS USE)

STATUS Abandoned.

DATES OF CONSTRUCTION & CLOSURE
c.1350-54, then abandoned.

LOCATION (ENDPOINTS OF CANAL) 33°35'N73°00'W? - 38°33'N,77°60'W
Probably from Estes to the mouth of the Hazel

LENGTH
CANAL ? SLACKWATER ca.20 TOTAL 20

LIFT LOCKS	NBR.	DIMENSIONS	AQUEDUCTS	TUNNELS
	?	LOCK CHAMBER ca.74 x 11 OVERALL ____	NBR. 0 SECTION SIZE ____	0

DESCRIPTION: [Type of navigation, features of note (include USGS coordinates where useful); e.g., feeders (navigable & otherwise), locks other than above, type of locks, use of unusual material or methods of construction, present owner, present use & condition, etc.]

When the final rebuilding of the Rappahannock Navigation (q.v.) had been completed in 1349, the Hazel River Navigation Company was organized (1350) to make that tributary of the Rappahannock navigable for 20 miles, probably up to mills near Estes. The type of navigation was the same as that on the Rappahannock, a lock-and-dam navigation without towpaths (except on the short canals), for poled batteaux. By 1354 the work was complete except for some dredging, but the Rappahannock Navigation was by that time already in decline so the Hazel may have been little used. The number of locks and dams is unknown and the Hazel has not yet been searched for navigation remains. The locks were most probably all of wood so have long disappeared except for waterlogged remnants.

NAMES & ADDRESSES OF GROUPS CONCERNED WITH CANAL'S PRESERVATION/RESTORATION:

REPORTER'S NAME & ADDRESS:
W. E. Trout, III 1932 Cinco Robles Drive, Duarte, California 91010

DATE
10 June 1973

HISTORICAL SUMMARY: [Original aims of company, date of incorporation, prominent engineers, cause of closure, significant alterations to structure or route, height of traffic date, transfers of ownership, etc.]

See above.

BIOGRAPHICAL SUMMARY: [Published works relating to Canal]
None.

UNPUBLISHED RECORDS, LOCATION OF PHOTOS, DRAWINGS & IMPORTANT PERIODICAL REFERENCES
Robert A. Hodge, 417 Pelham St., Fredericksburg, Va.22401, knows of references in the early newspapers.

NATIONAL REGISTER & HAER (HISTORIC AMERICAN ENGINEERING RECORD) STATUS:

None.
This river needs to be thoroughly explored.

RETURN TO: CANAL INDEX COMMITTEE, C/O P.H.STOTT, HAINES ROAD, MOUNT KISCO, NEW YORK 10549

USE ADDITIONAL SHEETS AS NECESSARY.
TO MAKE AN INDEX CARD SUITABLE FOR FILING, CUT ALONG THE HEAVY LINES AND FOLD BACK ALONG THE DOTTED LINE.

TABLE 4: VDHR CANAL AND NAVIGATION STRUCTURE SITES ON HAZEL RIVER

DHR ID	DESCRIPTION	TEMPORAL DESIGNATION
44CU0001	Camp, Other	Historic/Unknown, Woodland
44CU0043	Canal lock, Dam	19th Century
44CU0044	Canal lock, Dam	19th Century
44CU0045	Canal lock, Dam	19th Century
44CU0046	Canal lock, Dam	19th Century
44CU0047	Mill	null
44CU0048	Canal lock, Dam	19th Century
44CU0049	Canal lock, Dam	19th Century
44CU0050	Canal lock, Dam	19th Century
44CU0051	Canal lock, Dam	19th Century
44CU0052	Canal lock, Dam	19th Century
44CU0053	Canal lock, Dam	19th Century
44CU0054	Canal lock, Dam	19th Century
44CU0055	Canal lock, Dam	null
44CU0056	Canal lock, Dam	19th Century
44CU0057	Mill	19th Century
44CU0095	Mill	19th Century, 20th Century

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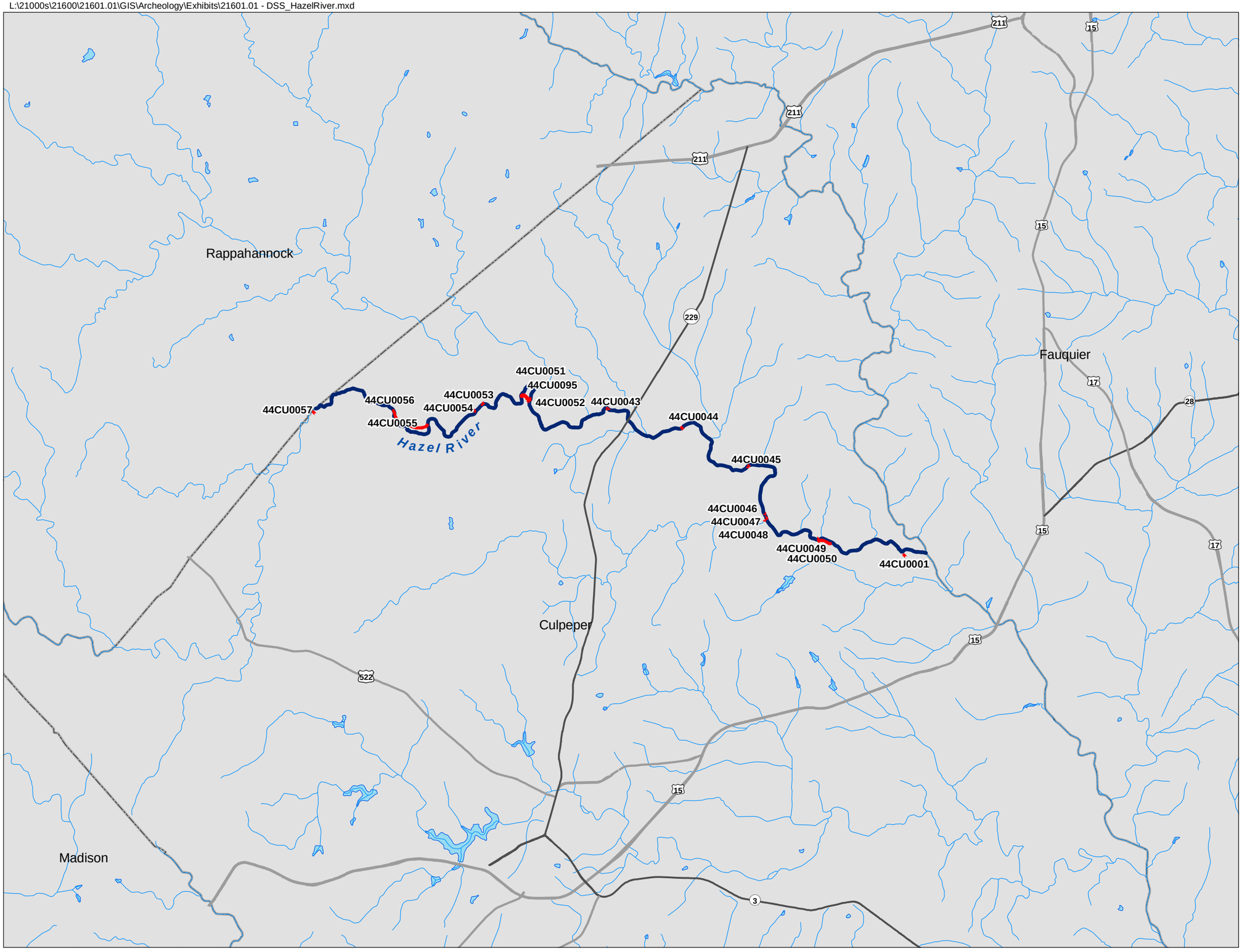

VDHR Canal and Navigation Structure Sites on the Hazel River

Traditional Navigable Waters Project
Scale: 1" = 2 Miles

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Select VDHR Architectural Resources and Archeological Sites

Navigable Hazel River

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Exhibit 6

HAZEL RUN

Prior Determination or Classification: None

Findings: TNW supported by 18th century newspaper advertisement

Limits of traditional navigability are from confluence with Rappahannock mill site (.25 mile)

Source Documents

Virginia Gazette 8 June, 1769 advertisement

For SALE, A SQUARE of four lots of half an acre each on the main street in Fredericksburg, on which are the following improvements, viz. My dwelling-house, consisting of seven good rooms and a large airy passage, six fireplaces, three good cellars, and three large closets; the garden extends from the main street to the back street, and contains about an acre of ground; at the north west end is a high freestone wall; a commodious kitchen and laundry under one roof, with four fireplaces, the rooms being all plaistered; two common kitchens, for servants; dairy, smokehouse, and all other convenient houses and yards for wood, poultry, &c a coach house and stables for above 20 horses, and a cooper's shop, also a large storehouse, warehouse, and cellar, and salt sheds, under one roof, on the main street; all which are but little more than 100 yards from the river side, where small ships may lay close to the shore.

Also my FARM adjoining the town, at the lower end, extending about half a mile down the river, where the channel is close to the shore, and runs near two miles back; the whole is very rich land, and is a complete far, having now on it a flourishing crop of wheat from 103 bushels of wheat sowed, which may be expected to produce 2000 bushels, besides barley, oats, rye, pease, and Indian corn, of which last I generally make 250 barrels a year, and the whole only with eight hands and four horses, from which the value of it may be easily judged. On it are about 30 acres of meadow ground, part in meadow, and the rest cleared; but the most valuable part of it is a level piece of ground next to the town line from the river back, which one day or other must be added to the town, and I doubt not will yield as good a price as the lots I have already sold and added to the town, wich have produced me about 2500£. It is well known that Fredericksburg commands an extensive trade from the back country, and must increase as the back settlements increase, being at the head of navigation.

I have also a valuable little mill, with bolting cloths, within the bounds of the town, the profits of which in the flower manufacture is about 100£ a year; and about 100 yards from it, on the Hazel run, is an extraordinary situation for a complete merchant mill, that may be made to yield a profit of 4 or 500£ a year, and not cost more than 6 or 700£ for everything complete, a good quarry of freestone not being more than 100 yards from the spot, and a battoe may be brought by the tide within a small distance of the mill door, the river, where sea vessels may lie close to the shore, not exceeding a quarter of a mile from the place where the mill must stand. All these advantages render this estate of great value, in the sale of which I will not be my own judge, but leave it to indifferent Gentlemen, whose opinion I will abide by, or forfeit 50£ to the person intending to purchase, provided he will do the same if he does not abide by it also.

Two lots and houses where Mr. James Hume lately lived, in the most pleasant situation on the main street in Fredericksburg; the dwelling-house has six good rooms in it, with brick chimnies, and extraordinary good cellars, convenient outhouses and yards, and an exceeding good well.

Also fifteen unimproved lots, within the bounds of Fredericksburg.

Also a tract of about 3000 acres of land in the county of Albemarle, on the three forks of Pretty's creek, falling into James river, on which is a large body of valuable low grounds above two miles in extent, with houses and improvements sufficient for 15 hands, and produces extraordinary crops and stocks. This estate has about 20 slaves on it, with fine stocks in proportion, which I would choose to sell altogether, at a moderate price, to any Gentleman who wants an estate already stocked and improved to his hands, together with the corn and fodder that may be made there this year.

Also a tract of 1500 acres of very good land, running three miles on the Hedgman river in Culpeper county.

Also a valuable tavern at Culpeper courthouse, in Fairfax town, a large commodious house, with all convenient outhouses, stable, garden, &c. It has vast custom, and rents at present but for 45£ a year, though worth much more.

Also a valuable tract adjoining the said town of Fairfax, belonging to Mr. Roger Coleman, containing 220 acres of rich land; as also 20 lots of ground, of half an acre each, in the said town, one of which is improved with a good dwelling-house with brick chimnies, and other convenient outhouses. On the land is a large quantity of meadow ground, and a good pasture. There cannot be a more profitable place for tradesmen or manufacturers to settle at in Virginia than this spot, being surrounded by a thick neighbourhood and rich lands.

Any person inclinable to purchase either of the above tracts, lots, or houses, will find either of them a good bargain, and worth their while to apply to me at Fredericksburg.

Roger Dixon (Virginia Gazette 8 June, 1769:3)

HOOFF'S RUN

Prior Determination or Classification: None

Findings: TNW supported by archeological evidence

Limits of traditional navigability are assumed to be from confluence with Old Cameron Run channel to Cameron Run

Source Documents and Exhibits

See Cameron Run

LITTLE RIVER

Prior Determination or Classification: None

Findings: TNW supported by historic map and secondary documentation

Limits of traditional navigability are [From confluence with Goose Creek to Mercer's Mill/Aldie Mill site on US 50 in Aldie based on map presented with the petition asking for the establishment of the Goose Creek and Little River Navigation Company] (Trout 1994).

Source Documents and Exhibits

See Goose Creek

NEABSCO CREEK

Prior Determination or Classification: Tidal waterbody

Findings: Navigability supported or extended by TNW

Limits of traditional navigability are [from mouth] to the crossings of Telegraph and Colchester Roads… (United States Government Printing Office 1881:2-3).

Source Document

United States Government Printing Office 1881:2-3

SURVEY OF NEABSCO CREEK, A TRIBUTARY OF THE POTOMAC.

UNITED STATES ENGINEER OFFICE,
Washington, D. C., January 7, 1881.

GENERAL: I have the honor to submit the following report of the survey of Neabsco Creek, made during the month of August, 1880, in accordance with a provision of the act of appropriation for rivers and harbors approved June 14, 1880, and assigned to me by your letter of June 17, 1880.

Neabsco Creek, or Neapseco, as it is spelt on the Coast Survey chart, is about 28 miles below Washington City, and is situated in Prince William County, Virginia, and in the collection district of Alexandria. It is a tributary of the Potomac River and enters it southwest of Occoquan Creek. It widens out at the mouth, extending over a flat 2,500 feet.

The shipments from the landings are now made in long-boats, drawing from 3 to 4 feet water, which take advantage of the tide to run over the flat at the mouth of the creek, and passing upward enter a narrow and tortuous channel, which extends through a marsh of rank vegetation for a distance of 6,470 feet to the head of navigation. The channel through the marsh averages about 40 feet wide at the surface, with a depth of 2.5 feet at the center. The vegetation on each side would greatly increase the cost of dredging a channel of a width greater than its present dimensions.

During the low tides which prevail with winds from the northwest, boats are delayed for several days. The improvement of the creek would benefit about 50 square miles of land.

Four-fifths of this section is well timbered. The yearly exports are 4,000 cords of wood, 10,000 cross-ties, 75,000 hoop-poles, and 2,000,000 feet of lumber from Willis's saw-mill, besides staves and smaller articles. The fisheries of Col. J. W. Fairfax at Freestone Point rent for $1,300 per annum. The fisheries of Mr. J. Neglee on the left bank near the mouth of the stream are of no value at the present time. The soil is well adapted to grazing, and to the growth of grain and fruits, and attention is being given to bringing the land under a better system of cultivation. A good quality of slate is found about 2 miles from the head of tide, but is not quarried owing to the cost of transporting it to market. Iron was at one time smelted in the vicinity.

This section of country was early settled.

Ships were formerly built on the banks of the Neabsco, which were engaged in foreign commerce, and shipment of wheat and other produce was made. Now the Alexandria and Fredericksburg Railroad crosses the stream near its mouth, and has a good station on its right bank. The draw of the railroad bridge is at an angle with the present channel, and when opened gives two clear passage-ways for vessels, one 21 feet wide, the other 18 feet.

CHARACTER OF THE PROPOSED IMPROVEMENT.

The residents who are interested in the proposed improvement desire a channel for light-draught steamers from the 7-foot curve, in the Potomac River, to a point as near as may be practicable to the crossing of the Telegraph and Colchester roads. But in order to reach the cross-roads, it would be necessary to make a solid cut through a marsh for a distance of 2,000 feet. I have therefore limited the length of the estimated channel, by stopping at Atkinson's upper landing, a distance of

4,770 feet from the 7-foot curve in the river. Atkinson's lower landing s 11,650 feet from the same point, and both these landings are upon the orth side of the creek. Willis's Landing, where the proposed channel lso touches, is upon the south side, and is 7,510 feet from the 7-foot urve in the river.

The following estimate gives the cost for dredging a channel 7 feet eep at low-water and 100 feet wide, 20 per cent. being added for the re-ow of soft material from the sides of the cut:

Cost of a channel 7 feet by 100 feet from the 7-foot curve to Willis's Landing, distance 7,510 feet:	
6,800 cubic yards, at 20 cents per yard	$21,360
dd 10 per cent. for contingencies	2,136
Total	23,496
. Cost of a channel of 7 feet by 100 feet from the 7-foot curve to Atkinson's lower landing, including the landing at Willis's Wharf, distance 11,650 feet:	
4,300 cubic yards, at 20 cents per yard	$36,860
dd 10 per cent. for contingencies	3,686
Total	40,546
I. Cost of a channel 7 feet by 100 feet from the 7-foot curve to Atkinson's upper landing, including a channel to Atkinson's lower landing and Willis's Wharf, distance 14,770 feet:	
4,200 cubic yards, at 20 cents per yard	$50,840
ld 10 per cent. for contingencies	5,084
Total	55,924

A channel of smaller dimensions than that given above would, if permanent, answer for the present and prospective need of trade, but as it ould rapidly deteriorate, the channel above estimated would be more onomical and satisfactory.

A cut of the same dimensions as that given above as far as Willis's harf, and continued to Atkinson's upper landing, with the dimensions duced to 6 feet deep and 40 feet wide, would cost, including contin-ncies, $37,000.

A tide-gauge was nailed to the telegraph pole on the east side of the lexandria and Fredericksburg Railroad bridge, the zero of which cor-sponds to the low-water observed during the survey.

The chart accompanying this report was reduced from the field chart the office, constructed on a scale of $\frac{1}{3600}$.

I am indebted to Messrs. W. W. Anderson and W. P. Watson for the ıformation contained in this report.

Very respectfully, your obedient servant,

S. T. ABERT,
United States Civil Engineer.

Brig. Gen. H. G. WRIGHT,
Chief of Engineers, U. S. A.

SURVEY OF POTOMAC RIVER AT THE MOUTH OF POHICK CREEK.

UNITED STATES ENGINEER OFFICE,
Washington, D. C., January 7, 1881.

GENERAL: I have the honor to submit the following report upon a ırvey of the Potomac River near the mouth of Pohick Creek, Virginia, ıade during the month of August, 1880. This survey was provided for

NORTH FORK OF GOOSE CREEK

Prior Determination or Classification: None

Findings: TNW supported by historic map and secondary documentation

Limits of traditional navigability are [From confluence with Goose Creek to Coe's Mill site (approximately 1 mile upstream of confluence) based on map presented with the petition asking for the establishment of the Goose Creek and Little River Navigation Company] (Trout 1994).

Source Documents and Exhibits

See Goose Creek

OCCOQUAN RIVER

Prior Determination or Classification: Tidal waterbody

Findings: Navigability supported or extended by TNW

Limits of traditional navigability are "from its mouth at Sandy Point to the Town of Occoquan (6 miles)…" (United States Government Printing Office 1897:1321).

Source Document

Original document unavailable

OPEQUON CREEK

Prior Determination or Classification: None

Findings: TNW supported by Papers of Geo. Washington,

Local History

Limits of traditional navigability are "twenty-four or twenty-five miles from its mouth" (Kercheval 1850).

Source Documents

Extract from Jackson and Twohig 1978

Extract from Kercheval 1850

"To say nothing then of the smaller Waters, [of the Potomac River], such as Pattersons Creek, Cacapehon [Cacapon River], Opeckon [Opequon Creek] &ca.; which are more or less Navigable; and of the branches on the Maryland side, these two alone (that is the South Branch & Shannondoah) would afford water transportation for all that fertile Country between the blew ridge and the Alligany Mountains; which is immense, but how trifling when viewed upon that immeasurable scale which is inviting our attention [sic]…" (Jackson and Twohig 1978:59).

APPENDIX.

——:o:——

The author of the History of the Valley had intended to postpone the subject of the following pages, and give the subject matter thereof in a second edition; but at the request of a highly respectable subscriber, and on consulting the printer, it is found that this addition to his work will not greatly increase the expense of the present volume. It is therefore deemed expedient to gratify public curiosity by giving the following sketches. If any one should be found incredulous enough to doubt the correctness of his statements, he can only say to such individuals, that they can have occular proof of the truth of each by taking the trouble to examine for themselves.

I.

FACE OF THE COUNTRY.

That portion of the Valley lying between the Blue Ridge and Little North Mountain, is generally about an average of twenty-five miles wide, commencing at the Cohongoruton (Potomac,) and running from thence a southerly course to the commencemcnt of the northern termination of Powell's Fort mountains, a distance of about forty-five miles.

This region, it has already been stated in a preceding chapter, when the country was first known to the white people, was one entire and beautiful prairie, with the exception of narrow fringes of timber immediately bordering on the water courses. The Opequon, (pronounced Opeckon) heads at the eastern base of the Little North Mountain, and thence passing through a fine tract of limestone country seven or eight miles, enters into a region of slate. This tract of slate country commences at the northern termination of Powell's Fort mountains, and is six or eight miles in width east and west, and continues to the Potomac a distance of about forty-five miles. The Opequon continues its serpentine course through the slate region, and empties into the Potomac about fifteen or sixteen miles above Harpers-Ferry. It is thought by some individuals that this water course is susceptible of navigation for small craft, twenty-four or twenty-five miles from its mouth. This slate region of country is comparatively poor, unproductive land; yet in the hands of industrious and skilful farmers, many very valuable and beautiful farms are to be seen in it. About twenty years ago a scientific Frenchman suggested to the author the opinion "that this region of slate country

PIMMIT RUN

Prior Determination or Classification: None

Findings: TNW supported by local history

Limits of traditional navigability are unknown.

Source Document

Text from historic marker erected by Arlington County (VA1730 Mouth of Pimmit Run)

"Thomas Lee patented land in this area in 1719. Here at the head of Navigation of the Potomac River, he established an official tobacco inspection warehouse in 1742. The beginning of Arlington's first industrial complex. After 1794, Philip Richard Fendall and Lewis Hipkins, then owners of 200 acres in the Pimmit Run regiona, built a grist mill, brewery, distillery, cooper and blacksmith shops, and other structures. After 1815 a cloth mill, woolen factory, and paper mill were established along the run. Later to be abandoned. In the 1890's the Columbia Light and Power Company used Pimmit Run to Generate electricity. Stone from nearby quarries was loaded on scows moored to the iron ring that can still be seen embedded in the rocks below" (VA1730 The Mouth of Pimmit Run).

POHICK CREEK

Prior Determination or Classification: Tidal waterbody

Findings: Navigability supported or extended by TNW

Limits of traditional navigability are [from mouth] to the crossings of Telegraph and Colchester Roads… (United States Government Printing Office 1881:2-3). Brick Yard Landing was located upstream (see 1878 Hopkins map).

Source Documents and Exhibits

United States Government Printing Office 1881:2-3

Exhibit 7 (Portion of 1878 Hopkins Map, Mount Vernon District No. 3)

4,770 feet from the 7-foot curve in the river. Atkinson's lower landing s 11,650 feet from the same point, and both these landings are upon the orth side of the creek. Willis's Landing, where the proposed channel lso touches, is upon the south side, and is 7,510 feet from the 7-foot urve in the river.

The following estimate gives the cost for dredging a channel 7 feet eep at low-water and 100 feet wide, 20 per cent. being added for the re-ow of soft material from the sides of the cut:

Cost of a channel 7 feet by 100 feet from the 7-foot curve to Willis's Landing, distance 7,510 feet:	
6,800 cubic yards, at 20 cents per yard	$21,360
dd 10 per cent. for contingencies	2,136
Total	23,496
. Cost of a channel of 7 feet by 100 feet from the 7-foot curve to Atkinson's lower landing, including the landing at Willis's Wharf, distance 11,650 feet:	
4,300 cubic yards, at 20 cents per yard	$36,860
dd 10 per cent. for contingencies	3,686
Total	40,546
I. Cost of a channel 7 feet by 100 feet from the 7-foot curve to Atkinson's upper landing, including a channel to Atkinson's lower landing and Willis's Wharf, distance 14,770 feet:	
4,200 cubic yards, at 20 cents per yard	$50,840
ld 10 per cent. for contingencies	5,084
Total	55,924

A channel of smaller dimensions than that given above would, if permanent, answer for the present and prospective need of trade, but as it ould rapidly deteriorate, the channel above estimated would be more onomical and satisfactory.

A cut of the same dimensions as that given above as far as Willis's harf, and continued to Atkinson's upper landing, with the dimensions duced to 6 feet deep and 40 feet wide, would cost, including contin-ncies, $37,000.

A tide-gauge was nailed to the telegraph pole on the east side of the lexandria and Fredericksburg Railroad bridge, the zero of which cor-sponds to the low-water observed during the survey.

The chart accompanying this report was reduced from the field chart the office, constructed on a scale of $\frac{1}{3600}$.

I am indebted to Messrs. W. W. Anderson and W. P. Watson for the ıformation contained in this report.

Very respectfully, your obedient servant,

S. T. ABERT,
United States Civil Engineer.

Brig. Gen. H. G. WRIGHT,
Chief of Engineers, U. S. A.

SURVEY OF POTOMAC RIVER AT THE MOUTH OF POHICK CREEK.

UNITED STATES ENGINEER OFFICE,
Washington, D. C., January 7, 1881.

GENERAL: I have the honor to submit the following report upon a ırvey of the Potomac River near the mouth of Pohick Creek, Virginia, ıade during the month of August, 1880. This survey was provided for

in the act of appropriations for rivers and harbors approved June 14, 1880, and assigned to me by your letter of June 17, 1880.

Pohick Creek unites with Accotinck Creek in forming Gunstun's Cove, an estuary of the Potomac River, about 18 miles below Washington City. The residents desire an improvement of the channel from the Potomac River to Gunstun's Wharf, a distance of 3,400 feet.

The petitioners for this improvement are residents of a tract of country known as Mason's Neck, comprising about 14,000 acres of land, one-half of which is well timbered and possesses a productive soil. It is situated in Fairfax County, Virginia, and in the collection district of Alexandria. Gunstun Hall, the old seat of the Mason family, is in fair preservation, and is now used as a dwelling and post-office. The soil is well cultivated and the crops of cereals and fruit are abundant. Products are shipped and freights are received by the steamer W. W. Corcoran, which carries the daily mail, but owing to the low tides caused by the winds difficulty is experienced in reaching the landing at Gunstun's Wharf. The steamer approaches the landing over flats which have a uniform depth of 5½ feet at mean low-tide.

An improved channel of from 8 to 9 feet deep and 150 feet wide would meet the requirements of trade and satisfy the wishes of those interested. A channel of less dimensions would add to the facility of reaching the wharf, but would fill so soon after completion that economy would be best subserved by adopting the dimensions mentioned above.

An estimate of the cost of dredging such a channel is given below, and its position is indicated by dotted lines upon the accompanying map. The material to be excavated is soft mud.

Much of the wood and lumber of this section is shipped by means of long-boats which take advantage of the tide to go up Pohick Bay for a distance of about 2 miles.

No appropriation is asked for the improvement of the bay above Gunstun's Wharf, but the following information which may be useful at some future day is submitted:

Value of land near Pohick Bay varies from $5 to $10 per acre; upon Accotinck Creek the value of land varies from $10 to $50 per acre; 400,000 to 500,000 feet of lumber is rafted from Pohick to Troth's Mills, on the Accotinck, and is then sawed and shipped.

From 1,000 to 2,000 cords of wood are shipped from Pohick annually by means of long-boats, besides an unknown quantity of hoops and staves. Judge Edmond's fisheries upon the banks of Pohick formerly rented for $500 per annum, but now rent for $20; Otterbach's fisheries are not now rented or used.

ESTIMATE OF THE COST OF DREDGING A CHANNEL FROM THE POTOMAC RIVER TO GUNSTUN'S WHARF WITH A DEPTH OF 8 TO 9 FEET AND A WIDTH OF 150 FEET, AND INCLUDING 20 PER CENT. FOR THE REFLOW OF THE SOFT MATERIAL FROM THE SIDES OF THE CUT.

93,400 cubic yards, at 20 cents per yard	$18,680
Add 10 per cent. for contingencies	1,868
Total	20,548

TRADE, SHIPMENTS, AND RECEIPTS.

Number of passengers to and from Gunstun's Wharf for the year	2,000
Value of grain and fruit exports	$20,000
Fertilizers received	15,000

Tide-gauges were left at Gunstun's Wharf and at Brick-yard Wharf, the zero of which corresponds with mean low-water as determined by

the survey, which was probably too short a period for the proper determination of the mean low-water for the year. Maximum velocity of tide observed was 0.13 mile per hour.

I am greatly indebted to Mr. W. W. Anderson and Mr. W. P. Watson, assistant engineers, for the information contained in this report and for the field maps.

A reduced chart of Pohick Bay accompanies this report, based on a chart of $\frac{1}{3600}$ which is in this office. A letter of Mr. S. W. Smith, relating to the trade and productions of the land on Pohick Bay, is appended.

Very respectfully, your obedient servant,

S. T. ABERT,
United States Civil Engineer.

Brig. Gen. H. G. WRIGHT,
Chief of Engineers, U. S. A.

COMMERCIAL STATISTICS.

GUNSTUN, *November* 2, 1880.

DEAR SIR: Your communication was received in due time, but I have been quite sick for two weeks, which accounts in part for my delay. In answering your questions I shall have to make rough estimates, as I have no means at hand to give accurate figures from.

The land tributary to Pohick Creek and Gunstun Wharf comprises about 7,000 acres; the grain, stock, fruit, garden-stuff, wood, and other things are probably worth $20,000. Manufactures consist in lumber and flour, which is done at Accotinck, the head of navigation. These mills have a large trade from Maryland, across the river, and they too are interested in the improvement of Pohick Creek.

The wood alone shipped on the creek must amount to at least $3,000 annually. Besides this there is a large fishing interest on the shore.

Potatoes and fruit are large items in this estimate; there are at least 15,000 fruit trees of different kinds. A business so large as the above of course must be met with a corresponding increasing trade in the way of supplies, and among them is a large item in the shape of commercial fertilizers, from 30 to 40 tons a year; then lumber, lime, &c., are large items as well. I think it safe to estimate what is brought to us at $15,000.

The owners and occupants of the 7,000 acres are all interested in the improvement of the creek and the entrance to Gunstun Wharf as well.

The mail for Gunstun post-office is delivered at the wharf. Many times in the course of the year the mail and passengers are sent in with the life-boat, the water being too low for the steamer to touch the wharf; and after being obliged many times to take passengers from the boat with a carriage, the people united in a petition to Congress for an appropriation to dredge a channel that would permit the steamer to reach the wharf at any stage of the water.

I am entirely sure that I express the wishes of the entire population who depend on water communication to ship the products of their industries and receive their supplies, that some adequate improvement be make at the wharf and in the creek.

Respectfully yours,

S. W. SMITH.

S. T. ABERT, Esq.

SURVEY OF MOUTH OF CURRIOMAN BAY, VIRGINIA.

UNITED STATES ENGINEER OFFICE,
Washington, D. C., January 7, 1881.

GENERAL: I have the honor to submit the following report of a survey of Currioman Bay, made during the month of September, 1880, in accordance with a provision in the act of appropriation for rivers and harbors, approved June 14, 1880, and assigned to me by your letter of June 17, 1880.

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1878 Hopkins Map
Mount Vernon District No. 3
Fairfax County, Virginia
Traditional Navigable Waters
WSSI# 21601.01
Scale: 1" = 2000'

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Map Source: "Mount Vernon, District No. 3, Fairfax County. By G.M. Hopkins in the Office of the Librarian of Congress at Washington". Library of Congress Geography and Map Division Washington D.C. Original Scale: 1½ inches = 1 mile.

Thunderbird Archeology
A division of Wetland Studies and Solutions, Inc.

Exhibit 7

POTOMAC CREEK

Prior Determination or Classification: Tidal waterbody

Findings: Navigability supported or extended by TNW

Limits of traditional navigability are unknown.

Source Document

See Accokeek Creek, (Virginia Herald Nov. 1, 1820 advertisement transcription)

POTOMAC RIVER

Prior Determination or Classification: Assumed Navigable (no official determination), Entire Virginia portion

Findings: Navigability supported by TNW

Limits of traditional navigability include entire Virginia portion

Source Document

Armroyd 1830:209-224

It was proposed by Mr. Ballendine, to effect these works of improvement on each river, by means of locks and otherwise, and to carry them up to the highest points practicable, so as to communicate, by a short and easy wagon road, each, the Potomac with the Monongahela, and James river with the great Kanhaway. The locks and canals along each line, always to have at least 4 feet water, and the barges to be used in the trade, it was proposed should be, at first, of 60 feet keel, 15 feet width, and 3 feet depth, so as to draw 2 feet of water, but might, in process of time, be replaced by barges of 150 or 200 tons, differently constructed.

The commerce of the Atlantic ports, with the then contemplated *new colony on the Ohio river*, through these two avenues, it was believed, would soon grow into great importance; and calculations were stated, whereby large profits were assigned to the boats and barges to be employed in the transportation.

Of the success that would have attended, however, a prosecution of Mr. Ballendine's bold and spirited projects at that epoch, there exists not, perhaps, any difference in opinion now, considering all that has since taken place, in the way of improvement along both of the Atlantic rivers in question, and how the case stands at the present moment with these interesting matters.

COPY OF ORIGINAL DOCUMENTS, VIZ.—

"Proposals for opening the navigation of the River Potomac —printed in London, in 1773, *by John Ballendine.*

"Whereas the removing the obstructions in the rivers James and Potomac, in the colony of Virginia, in North America, and thereby making a more easy and *cheap* communication, than there is at present between the several seaport towns on these rivers, and the numerous and populous settlements upon the upper parts thereof; and also between the said seaport towns, and the rivers Monongahela and Great Kanhaway, *in the proposed new colony, upon the back of Virginia and Maryland,* will greatly increase the yearly demand for, and consumption of, British manufactures, and promote the culture and importation of hemp, tobacco, flax, &c., into this kingdom: And whereas John Ballendine, of the county of Fairfax, in the said colony of Virginia, gentleman, being well acquainted with the said rivers, and having skill and judgment in water works, and having already made several useful improvements on and in the said River Potomac, did, in the beginning of the year 1772, represent to the respective governors and councils, and general assemblies of the colonies of Virginia and Maryland, and to the other principal inhabitants thereof, that if they, by their several donations

and otherwise, would countenance and encourage his undertak ing, he would engage to remove the obstructions in, and rende more navigable by locks, &c., than are at present [for *large* boats and barges] the said rivers James and Potomac, from the tide waters of the same to the heads thereof. And to the end that he, the said Ballendine, might receive every necessary information for the perfect completion of the business aforesaid, he did undertake to embark for the kingdom of Great Britain, and examine the canal in Scotland, from Carron to Clyde, and the canals, locks, &c., of the Duke of Bridgewater, &c. And whereas his Excellency the Earl of Dunmore, Governor of the colony of Virginia, his Excellency Robert Eden, Esq. Governor of Maryland, the Right Honourable Lord Fairfax, and most of the principal gentlemen of the said provinces, were so fully convinced of the knowledge and integrity of the said Ballendine, and of the facility and great utility of rendering the said rivers Potomac and James more extensively navigable than they are at present, *did*, therefore, on the 9th day of May, 1772, promise and oblige themselves, and their heirs, &c., by a certain instrument of writing, bearing date the same day, to pay to the said Ballendine, and his assigns, the respective sums of money therein written, opposite to their several names, as upon reference being had to a copy of the said instrument (authenticated under the seal of the county of Prince William, in the said colony of Virginia) will more fully and at large appear. And whereas the said Ballendine, in conformity to his engagement as aforesaid did embark for this kingdom, and has, since his arrival therein examined the great canal in Scotland, and several others in England, and has obtained plans and models of many necessary machines and works, and has engaged several ingenious mechanics to go with him to North America, for the purpose of opening and rendering more easily and extensively navigable, the said rivers James and Potomac. And whereas we, the subscribers being willing and desirous to co-operate with our fellow-subjects in Virginia and Maryland in so beneficial and public-spirited undertaking, do promise and oblige ourselves, and our executors and administrators, (each for himself, and not one for another) to pay to the said John Ballendine, his heirs and assigns, the following respective sums, written opposite to each of our names and at the times, and under the conditions and limitations hereafter mentioned; that is to say :—

"First, That the sums of money hereunto subscribed, and such farther and other sums as have been or shall be subscribed either in North America or elsewhere, shall be faithfully and solely applied to, and disposed of, for removing the obstructions in, and rendering more open and extensively navigable, than are at present (as aforesaid) the said rivers Potomac and James, from

the tide waters of the same, (or as far as sea vessels do *now* sail *up* these rivers) to such parts of the *heads* of the said rivers; as from *thence*, the shortest and most convenient wagon roads can be made, to the rivers Great Kanhaway and Monongahela, in the intended new colony aforesaid.

"Secondly, That the said rivers, from the tide waters thereof to such parts of the *heads* of the same, as aforesaid, shall be *so* opened, and rendered more easily and extensively navigable, as that the intended locks and canals shall *always* have 4 feet water in them [that being the general depth of the said rivers James and Potomac]—and barges, of at least 50 tons burthen, may also, when laden, be employed on the said rivers, from the tide waters thereof, to the heads of the same, as aforesaid.

"Thirdly, That inasmuch as it is intended that the said rivers shall be *so* rendered more open and extensively navigable, by the voluntary subscriptions of gentlemen both in North America and in Great Britain, it is, therefore, expressly covenanted and conditioned by the subscribers, to and with the said John Ballendine, that no other tax, duty, or impost, shall, at any time hereafter, be laid or levied upon any articles or commodities going up, or being sent down, the said rivers Potomac and James as aforesaid, except such only as the respective legislatures of the colony of Virginia, and province of Maryland, shall, by concurrent acts of Assembly, charge the said commodities with, for the sole purpose of paying the expenses attendant on the said locks and works, and keeping the said rivers, and the channels thereof, *free* from logs or other obstructions, which may occasionally be brought down the same, in the time of freshets.

"Fourthly, That the said John Ballendine shall keep a fair and just account of all the particular costs and expenses, which shall arise and be incurred in the removing of the obstructions, erecting locks, &c. in the rivers Potomac and James, (as aforesaid) until the same is finished.

"Fifthly, That all the said accounts of the costs, expenditures, and charges, as aforesaid, with their several and respective vouchers, shall be submitted to the examination and final adjustment of six gentlemen, to be nominated and appointed as follows:—Two thereof to be nominated and appointed by and under the hand and seal of the governor of the colony of Virginia for the time being; two to be nominated and appointed by and under the hand and seal of the governor of the province of Maryland for the time being; and the remaining two to be nominated and appointed under the hand and seal of the honourable Thomas Walpole, of the county of Middlesex, in the kingdom of Great Britain; any four of which said commissioners, from time to time, meeting, adjusting and settling the said accounts, and delivering a copy thereof, when so settled, signed by each and every of them,

to the governors, severally, of the provinces aforesaid, to be lodged and deposited by them, in the respective Rolls Office, or Office of Registry in the said colonies, shall be deemed final and conclusive; and in and by such accounts, and no other, the said Ballendine shall be credited for the costs, expenditures, and charges, as aforesaid, (and also for his expenses to and from this kingdom, and a compensation for his services, &c. as mentioned under the sixth head,) and therein likewise shall the said Ballendine be debited for such sum or sums of money, as he shall have received or may receive, in and by virtue of subscription made, or to be made, in Great Britain, or North America, for the purposes aforesaid.

"Sixthly, That the said John Ballendine shall be paid out of and from the money so subscribed as aforesaid, such reimbursement for his expenses to and from this kingdom; and also such compensation and reward for his skill, judgment, and industry, in directing, managing, and completing the business of rendering the said rivers James and Potomac more easily and extensively navigable, as aforesaid, as they, the said commissioners, or any four of them, shall certify under their hands, to the respective governors of Virginia and Maryland, for the time being, that the services of the said John Ballendine do merit and are entitled to.

"Seventhly, That so soon as it shall appear, by a certificate signed and sealed by the governors of the colonies of Virginia and Maryland, respectively, and by two of the council of each of the said colonies, that the said John Ballendine has rendered complete and sufficient, by locks and otherwise, as aforesaid, one half of the whole intended navigation of the said rivers James and Potomac, and that barges, of at least fifty tons burden, can pass loaded up and down the said rivers, from the tide waters thereof, to the end of the said finished and completed navigation; that then, we, the subscribers, do oblige ourselves, severally, and not jointly, and our several executors and administrators, to pay to the said John Ballendine, his executors, administrators, and assigns, the one moiety or half part of the several following sums of money, written by us opposite to each of our names; and, so soon as the whole of the said intended navigation, on the said rivers James and Potomac, shall be fully made and completed, by locks and otherwise, as that barges of at least fifty tons burden shall, when loaded as aforesaid, pass up and down the said rivers, from the tide waters thereof, to the heads thereof, as is specified and particularly mentioned under the first head; and so soon, likewise, as the same shall be certified to us under the hands and seals of the governors of the colonies of Virginia and Maryland, respectively, and of two of the council of each of the said colonies; that then, we, the subscribers, do, as aforesaid, oblige our-

selves, and each and every of our executors and administrators, (severally, and not jointly,) to pay to the said John Ballendine, his executors, administrators, and assigns, so much, and *no more*, of the remaining moiety of our following respective subscriptions, as shall, (together with the money that may be collected in North America, for the purpose aforesaid,) be sufficient to pay the amount of the liquidated and settled accounts of the said Ballendine, as mentioned and described under the fifth head.

"In testimony whereof, we have hereunto set our hands and seals, in Great Britain, this —— day of ——, one thousand seven hundred and seventy-three."

"*Transcript from an original contract between Thomas Walpole, W. Pownall, B. Franklin, and Samuel Wharton, relative to the colony here alluded to.*

'We the committee of the purchasers of a tract of country for a new province, on the Ohio, in America, do hereby admit the Ohio company as a co-purchaser with us, for two shares of the said purchase, in consideration of their agent, Col. * * * * * * to withdraw the application of the said company, for a separate grant within the limits of the said purchase.

'Witness our hands, this 7th day of May, 1770.

'THOMAS WALPOLE,
'W. POWNALL,
'B. FRANKLIN,
'SAMUEL WHARTON.

'The whole being divided into seventy-two equal shares; by the words 'two shares' above, is understood, two seventy-second parts of the tract, so as above purchased.

'THOMAS WALPOLE,
'W. POWNALL,
'B. FRANKLIN,
'SAML. WHARTON.'"

"*In a printed advertisement, dated 'London, February 25, 1773,' of the 'cost of carriage from the seaports of Georgetown, in Maryland, and Richmond and Alexandria in Virginia, to the proposed new colony on the Ohio, in North America, by John Ballendine, of Virginia,' the following particulars are narrated:—*

"It is proposed by Mr. Ballendine that the locks intended to be erected in the rivers James and Potomac, shall *always* have

four feet water in them, as that is the general depth of these rivers, except in the spring and autumn, (which are the great periods of exportation and importation from and into Maryland and Virginia,) when these rivers usually have from 6 to 8 feet water in them.

"Mr. Ballendine is thoroughly convinced, from an experience of fifteen years, in transporting merchandise up and down the River Potomac, that all kinds of British goods can be carried from Georgetown (which is a seaport on that river, at least twelve miles above Alexandria, where General Braddock landed his troops,) to the head of the north branch of the navigable waters of Potomac, at 6*d.* sterling per hundred weight; and at the same price, also, goods can be carried from Richmond, (a seaport town,) on James river, to the head of that river. He proposes, at first, to employ barges of only 60 feet keel, 15 feet wide, and 3 feet in depth, which will not draw more than 2 feet water. But when the country on the Ohio is thickly settled, barges of 150 and 200 tons can (as is now done on the Thames) be properly made use of on the rivers James and Potomac.

"It requires but 3 days for the barges to go down the stream, from the head of the north branch of the navigable waters of Potomac, to the seaports of Georgetown and Alexandria; and only the same space of time, from the head of James river, down stream, to the seaport of Richmond, in Virginia; and from thence back again, up stream, to the head of James river, only 8 days; and the same time from Georgetown, or Alexandria, up stream, to the head of the navigable waters of the north branch of Potomac."

A.—From tide water of the Potomac river, above Georgetown, by canal, along the meandering course of the river, up to Wills' creek at Cumberland, and still upward as far as the mouth of Savage river; whence, by the course of this and Crabtree creek, to the dividing ridge; across which, and taking the valley of Deep creek to the falls, pass, by the ravine of the Youghioghany river, through Smithfield, and Connelsville, to the Monongahela river, at 15 miles above Pittsburg. Distance as follows;— *Miles*, 360

Eastern Section.

From head of tide water to Great falls,		9
Great falls to Harper's ferry, - -		96
Harper's ferry to Conococheague, -		39
Thence, to Cumberland, - -		38
Thence, to mouth of Savage river, -		33
Savage river, to summit level, - -		13
	Miles,	228

Western Section.

From the dividing ridge, to the Narrows, - - - -	6	
Thence, to falls of Deep creek,	9	
Thence, to Smithfield, - -	24	
Smithfield to Connelsville, -	38	
Thence, to Monongahela river,	40	
Down to Pittsburg, - -	15	——132
	Miles	360

No. 92.

CHESAPEAKE AND OHIO CANAL.

Final surveys of the ground, for this proposed communication with the west, in a line passing through the seat of the general government, are now making by the United States engineers, and commissioners of the states of Virginia and Maryland, appointed thereto; and a report upon all matters in relation to the subject, it is hoped may be made at the next session of congress.

Congress, on the 30th April, 1824, made an appropriation for the object; and directed that a detachment from the United States corps of engineers should examine and survey between the tide water of the Potomac and the head of steam-boat navigation on the Ohio river; and between the Ohio river and Lake Erie; for the purpose of determining as to the practicability of a communication, by canal, between those points; of designating the most suitable route; and of forming plans and estimates for its execution.

To carry which act of congress, in reference to the present

and other suggested objects, into the more complete effect, a board of internal improvement was instituted by the executive; and three brigades of the United States engineers have been, since then, and still are, engaged on this ground. They are expected to report after the close of the present season, 1825.

The partial examinations and inquiries, hitherto made, give expectation that this grand and highly interesting project can be carried through; and possibly, in this case, it may be done, with no very great variation from the line of route here designated, although the ridge to be passed across, or through, which is called the Little Backbone, or Little Savage mountain, is 2486 feet above tide water, and 1730 feet above the level of the Ohio river at Pittsburg.

The crown of the ridge has 116 feet of elevation from the bed of Deep creek, at the Narrows; from whence it has been proposed to commence the cutting. Now, this cutting is, in five and a half, or six miles, to reach the east side of the mountain; and having received the water of Deep creek, will convey it to the eastern descent, conducting to the Potomac waters.

A summit level, therefore, is here proposed, of five and a half or six miles long, at a depth of 116 feet, where it subtends the highest part of the ridge; and it may be formed, either by an open cut through the whole, or else by an open cut in part, and a tunnel of about a mile and a half, immediately under the crown, which last will probably have the preference.

It is supposed that a good summit level can be obtained at this place, to be amply supplied with water from Deep creek; which is fed chiefly from glades, or mountain meadows of great extent; and these, it is said, send forth water throughout the year.

Estimates of expense, predicated on what is here laid down, have been formed, and submitted, as follow:—

The eastern section, 228 miles, comprising 2400 feet of lockage, - - - - - - -	$3,342,250
Summit level, for tunnel and excavation, -	343,750
The western section, 132 miles, comprising 1600 feet of lockage, - - - - - - -	1,880,560
Total,	$5,566,560

The preparatory examinations are stated thus;—

From tide water in the Potomac, to Cumberland—Moore and Briggs' survey, - - - - - - - Miles	182
From Cumberland to mouth of Savage river—Abert's survey, - - - - - - - - - - - -	27½
Amount carried forward,	209½

Amount brought forward,	209½
From mouth of Savage river to mouth of Bear creek, by the Deep creek route—surveys of M'Neill and Shriver,	41
From mouth of Bear creek, to Pittsburg—Schriver's computation,	100
Distance, Miles	350½

Rise to Cumberland,	Feet 537	
to Savage river,	327½	
to base mark on Deep creek,	1432	
Ascent,		2296½
Fall to mouth of Bear creek,	956	
to the Ohio at Pittsburg,	584½	
Descent,		1540½
Lockage, feet,		3837

But, with regard to this calculation, as the more elaborate surveys of the ground, which are now on foot, may bring new facts and circumstances to light, so there may be occasion to make many alterations in the details of construction, if not in the general plan, or line of route; and to modify accordingly the estimate.

For the execution of the work, a charter, dated 27th January, 1824, was granted by the state of Virginia, to the "Chesapeake and Ohio canal company," upon conditions of confirmation on the parts of Maryland and Pennsylvania, and of congress in behalf of Columbia district, as also of the concurrence of the old "Potomac company," in the provisions of the act of incorporation.

In conformity to which, the legislature of Maryland passed an act in January, and congress one in February, 1825; also, the old Potomac company, by a resolution of the stockholders, have, for as much as they are concerned, given in their concurrence. At a general meeting, 16th May, 1825, it was resolved to surrender up the charter, and make a conveyance to the Chesapeake and Ohio canal company; which is accordingly to be done. The Pennsylvania legislature have a bill of assent before them, and it most likely will pass.

The capital stock proposed, and authorized by the charter to be subscribed, is 6,000,000 dollars, with power to augment, should the work eventually be found by the company to require it.

A convention of delegates from the states of Virginia, Maryland, Ohio, Pennsylvania, and district of Columbia, have empowered a committee to open books and receive subscriptions.

The corporate powers are perpetual; and the canal, and all its appurtenances, are, for ever, exempted from taxation.

It is also, and every part thereof, to be for ever esteemed and taken as a public navigable highway, free for general transportation, on payment of such tolls only, as are stipulated by the act; nor is any additional toll or tax, for the use of the canal or works belonging, ever to be imposed, without the consent of the states through which the canal passes, and of congress of the United States.

The act provides, that the right to the waters of the river Potomac, for the purpose of any lateral canal or canals, which the state of Virginia, or of Maryland, may authorize to be made in connexion with this canal, is reserved to the said states respectively, and a similar right reserved to the state of Pennsylvania in relation to the rivers and streams within the territory of that state, the waters of which may be used in supplying the western section of this canal: also provides, that the government of the United States shall retain the power to extend this canal, in and through the district of Columbia, on either side, or both sides, of the River Potomac.

The house of delegates of the state of Maryland, have passed a vote, appropriating 500,000 dollars, as the state's subscription to the stock, if the work goes into effect.

NOTE.

On the present article, a remark occurs, that is not without interest in canal history. At the tumultuous, and, for this country, (then colonial,) critical period of 1769, the celebrated Richard Henry Lee, brought a bill into the Virginia house of burgesses, for the purpose of *opening and improving the navigation of the river Potomac, from tide water up to Fort Cumberland.* The details of which bill have been considered as no less remarkable for a display of statistical knowledge, and economical views in regard to the country, at that early day, than for exemplifying the indefatigable industry, and versatility of a mind, known to be incessantly intent upon furthering the political objects of his country, at the momentous epoch in question. It is, besides, a striking instance, in addition to one already noticed, of the rapidity with which comprehensive ideas, touching a new class of important improvements, adopted in the mother country, could travel across the Atlantic, to be received and adopted here. Ballendine's project followed on the heels of this legislative proceeding.

JANUARY, 1827.

The board of United States engineers for internal improvement, have reported upon this article.

Truly, they have taken a magnificent view of their subject, and treated it on a scale accordingly. Their report, dated 23d October, 1826, is now before congress. It states, that the objects of the survey, now gone through with, were;—

"To determine the route to be recommended; and, to obtain the data necessary to frame a general plan of the work, and a preparatory estimate of the expense."

And the result is, that the route selected, as having appeared to be the most eligible one, and the estimates of cost, for a canal of the character described, are given in as here follows;—

Eastern Section.

From Cumberland to Georgetown, along the valley of the Potomac, on the Maryland side; the minima resources of water on this line, being from, viz.

The south branch;—

Great Cucapon,
The Shenandoah,
Evitt's creek, Licking creek,
Great Conococheague,
The Antictam, Monococy, Seneca,

} together, affording at the rate of 457 cubic feet per second.

Distance, 185⅝ miles. Descent, 578 feet, by 74 locks. Estimate 8,177,081 dollars.

Middle Section, 70 *miles* 1010 *yards.*

From Cumberland, or west end of the eastern section, to the mouth of Casselman's river, on the Youghioghany, keeping on the right side of the valley, which gives to the canal a southern exposure.

This section includes the summit level, where a tunnel of 4 miles 80 yards long, passing under a ridge of the Alleghany of 856 feet elevation, is needful, with a deep cut of 1060 yards long at the western end, and another deep cut of 140 yards at the eastern end, each of these cuts opening into a basin of 880 yards in length, 64 in width.

The tunnel, deep cuts, and 2 basins, form together the summit level, the length of which, therefore, is 5 miles 1280 yards. At the termination of each basin is a lock.

The stream of the Casselman is chiefly relied on, to supply the summit and the portions of canal contiguous; and, by computation, deduced from a series of observations, it appears, the minimum supply, during the expected 8 months of navigation, will be at the rate of

2,750,000 cubic yards from reservoirs,
1,728,000 do. from the river stream,

4,478,000 cubic yards per month,

Which is supposed to be more than sufficient, grounded upon calculations detailed in the report.

Estimate for the Summit Level.

Tunnel shafts, - - -	$ 233,033	
Heading, - - - -	383,535	
Side heading, - - -	7,704	
Tunnel, - - - -	2,495,243	
Draining, - - - -	159,469	
For the tunnel, 4 miles 80 yards in length,		$3,278,984
The eastern basin, - - - - -		26,741
The eastern deep cut, - - - - -		18,733
The western do. - - - - -		141,841
The western basin, - - - - -		5,668
Total for summit level,		$3,471,967

On this same section, the canal proceeds from the summit;—

1. Eastward to the mouth of Little Wills' creek, and thence to where the eastern section terminates, a little below Cumberland. Distance, 29 miles 240 yards. Descent, 1325 feet, by 166 locks. Estimate for this portion, including a feeder from the Potomac, and aqueduct and guard lock thereto, also a capacious basin and levees around, - - - $3,856,624

2. Westward, from summit at a basin in Flaherty's creek valley, the termination of a feeder from the reservoir in the Casselman's valley; to the mouth of Middle Fork creek, and thence to that of the Casselman on the Youghioghany river. Distance, 35 miles 1250 yards. Descent, 636 feet, by 80 locks. Estimate, - - - - - - - - $2,699,532

Middle section, total Distance, 70 miles 1010 yards. Lockage, 1961 feet. Estimate, $10,028,123

Western Section.

From the Youghioghany river, at 440 yards below the mouth of the Casselman, along the right of the valley, to the Monongahela river, and thence, by the right bank of this stream, down to Pittsburg; the resources of water on this section, being,

From the Casselman river, Laurel Hill run, Youghioghany river, } giving, at their minima, at the rate of 70 cubic feet per second.

To which running water, is to be added the water of the reservoirs; viz.

	Cubic yards.
From Indian creek, - - - - - - -	210,370
Mountz creek, - - - - - - -	323,889
Jacob's creek, - - - - - - -	356,357
Big Sewickly creek, - - - - -	1,750,580
Dunbar, - - - - - - - -	214,464
Reservoirs, cubic yards,	2,855,660

The means exist also of forming other reservoirs, should occasion require an addition of them to these. Distance, on this section, 85 miles 348 yards. Descent, 619 feet, by 48 locks. Estimate, - - - - - - $4,170,223

For the whole canal, therefore, as follows;—
Distance, 341 miles 676 yards.
Lockage, 3158 feet, by 398 locks.
Estimate of cost, $22,375,427

(See engraved profile.)

The dimensions adopted in this statement, are these;—
Width at bottom, 33 feet.
Width at water surface, 48 feet.
Depth of water, 5 feet.
Towing path, 9 feet wide.
Guard locks, 5 feet at the top.
Surf beams, kept on a level with the water, 5 feet wide, each.
Towing path and top of the guard bank, 2 feet above the canal surface.

These dimensions, however, to be modified, in carrying on the construction, where local circumstances so require; but the depth of 5 feet water to be preserved throughout. The locks to be 102 feet between the hollow quoins, and 14 feet wide in the clear, adapted to boats of 60 tons.

Taking various data, more or less plausible, as a ground, the board of engineers compute that the annual revenue of the canal, when its trade, by virtue of the increase of population and the action of the canal combined, shall have reached their maximum, will amount to the enormous sum of 5,570,791 dollars, or about one fourth of the aggregate construction at the estimates here specified.

This, truly, is a flattering perspective of things; but, when the happy period of a maximum trade shall have arrived, it may well be expected, that the opportunities for the conveyance of commodities to and fro, will have multiplied, and the vastly

augmented amount of receipts for transit through every considerable district or section of the country, will not then remain to one establishment alone, but have to be distributed amongst a plurality, whether of the canal or the rail road description.

The appearance of so large a sum in the engineers' report, as the estimated cost of this great canal, has caused surprise; and not a little regret has been expressed, that so able scientific a report should not have been framed upon better local information, in regard to the *prices* of *labour* and *materials* along the tract of country surveyed, than those gentlemen appear to have obtained. A thorough acquaintance with these particulars, it has been shown, would have afforded a basis for the otherwise valuable calculations of the report, so different from the one assumed, that it would have resulted in an estimate of total cost, not approaching within several millions the sum above transcribed from the report.

Difference in the statement of prices considered, and all things else the same, it has been affirmed, that this canal, between Georgetown and Pittsburg, can be constructed for less than one half, perhaps for *one third* of the above sum of 22,375,427 dollars.

An adjourned meeting of the convention of delegates on this projected work, took place at Washington on the 6th of December. Delegates from the states of Virginia, Maryland, Pennsylvania, Ohio, and the district of Columbia, all present; at which a committee was appointed to prepare, and the committee appointed did prepare, an estimate of cost, founded upon data in their possession, deemed good, although hastily collected together; and which estimate of the committee was to the effect above signified. Whereupon the convention passed resolutions as here follows:—

Resolved, That an extension of the Chesapeake and Ohio canal to lake Erie, at such points and by such route, either in Pennsylvania or Ohio state, as shall be considered most advantageous to the company, or to intersect the Ohio state canal, if deemed more expedient;—is within the view and contemplation of the friends of internal improvement, and therefore entitled to the favourable consideration of this convention.

Resolved, That the president of the United States be, and he is hereby requested to cause, under the act of congress, 30th of April, 1824, surveys and estimates to be made on the several routes embraced within the foregoing resolve.

Resolved, That the president of the United States be requested to cause a survey to be made from the mouth of Kiskimenetas river to the harbour of Presqu' Isle, on Lake Erie, by way of the Alleghany river and French creek, with a view to ascertain as to the practicability of a canal between those points; and also of a route from the Ohio, at the mouth of Beaver river, by the

way of Little Beaver, to intersect the Ohio state canal near the mouth of Sandy creek.

Resolved, That it will be expedient to obtain such amendment of the charter of the Chesapeake and Ohio canal company, as shall authorize the company to terminate, if they deem proper, the eastern section of the said canal, at or near the town of Cumberland; and to extend, by any route therefrom, the western section, across the Alleghany mountain to Pittsburg; or to substitute therefor a rail way, or a turnpike road, along that portion of the route, or any part thereof, designated in the report of the board of internal improvement, dated 23d of October, 1826, as the "Middle Section;" or on that part of the route by Savage river, which corresponds therewith; and in the event that such a change shall be deemed expedient in the route now prescribed by the charter, to defer the extension of a canal along the Potomac, from Cumberland to the mouth of Savage river; or to reduce the dimensions thereof, and give it a breadth less than that now prescribed.

Resolved, That a committee be appointed to memorialize the congress of the United States for a subscription to the stock of the said canal, and to present like memorials to the legislatures of Virginia, Maryland, and Pennsylvania, and that application be made to the cities of Washington, Georgetown, Alexandria, and Baltimore, to aid by their subscriptions the stock of the company.

Which resolutions being passed, and an acting committee appointed, the convention adjourned, on the 9th of December, *sine die*.

It remains, therefore, yet to be ascertained, whether it be most advisable to adopt the route last surveyed, for as much of it as lies between Cumberland and the Youghioghany river, at the mouth of the Casselman, or to adhere to the original plan of continuing along the margin of the Potomac, as far as the mouth of the Savage, at the base of the Alleghany mountain, and thence by way of Deep creek to the Youghioghany. This latter, passing through an extensive body of coal land, has, in consequence, much importance attached to it.

But a survey has been additionally made by the United States engineers, along the Potomac valley, between Cumberland and the mouth of Savage river, with a view to this being constructed as a branch canal to the main one. Estimate for this adjunct, $1,794,903.

SPECIFICATION:—

A.—From Cumberland, or west end of the eastern section of the article as above, by canal, up the Poto-

mac valley, to the mouth of Savage river, at the base of the Alleghany mountain.

Distance, *Miles*, 30

No. 93.

SAVAGE RIVER BRANCH CANAL.

Should the Casselman summit be adopted into the route of the Chesapeake and Ohio canal, as above inserted, then it is probable, for reasons stated, that this branch will be added. Lockage 312 feet, by 39 locks. Estimate of cost, by the United States board of engineers, as above.

The coal trade is relied on as a source of income to the company in no inconsiderable proportion. An expectation grounded on the well known excellent quality of the Potomac coal; on the extraordinary facility there will be of reaching the *elevated* banks which supply it, by the proposed canal boats; (for it will be found along those very banks, in parallel strata, with but a small horizontal dip;) on the moderate charge, consequently, of toll and freight, at which it will thence be quarried, taken on board, and conveyed to market; and, finally, on the various multiplied uses to which this kind of coal is applicable. When the boats of this proposed canal shall arrive at these coal-beds, it is believed the article will be delivered on board at something less than the rate of one cent per bushel.

From the enlarged dimensions of the Chesapeake and Ohio canal, designed, as has been seen in a former note, to give to the boats the advantage of floating on an indefinite expanse of water, the freight cannot be computed at more than four, or, at most, five cents the bushel. The tolls charged on this commodity, in the early operations of the canal, will be required to be large, in order to yield a sufficient income upon the stock of the canal: they will, of course, be reduced, when the resources of the country through which the canal passes, and the territories which it is designed to unite, shall be fully developed. If the toll for the first years be computed at 6¼ cents the bushel, then the price of the commodity in the district of Columbia will be 12½ cents, exclusive of the mercantile profit of the dealer, which may make it fourteen cents.

On various parts of the line of the canal, it will be much lower. At Pittsburg, coal is delivered into the cellars of the houses of the inhabitants, after transportation from the neighbouring mines, distant from one to five miles, at three cents the bushel.

If the district of Columbia, the states of Maryland and Virginia, the river Potomac, or the shores of the Chesapeake, shall,

QUANTICO CREEK

Prior Determination or Classification: Tidal waterbody

Findings: Navigability supported or extended by TNW

Limits of traditional navigability are to the original Dumfries wharf in the town of Dumfries (Karnes 1998: 13).

Source Document

Extract from Karnes 1998

"The cultivation of tobacco was very hard on the land. It traditionally was planted near the waterfront. However, rainfall caused the topsoil to wash off steep slopes into the water. Over time, the soil was depleted, and the waterways were clogged with silt. By the early eighteenth century, the siltation was causing changes in the waterfront throughout the County. As the harbor filled with silt, the navigable waterways shifted further out and away from the existing towns.

After the Revolutionary War, the Dumfries economy collapsed. Because of siltation, ocean-going vessels could no longer enter its harbor. Instead, ships were forced to anchor in the river, and have smaller boats ferry the goods from shore. The original Dumfries wharf is now almost three miles upstream from waters navigable to ocean-going ships". (Karnes 1998:13).

RAPIDAN RIVER

Prior Determination or Classification: Assumed Non-Navigable (Entire)

Findings: TNW supported by Local History

Limits of traditional navigability are 55 [river] miles from its confluence with the Rappahannock River as planned by the Rappahannock Company, organized in 1816 (Trout 2004).

Source Documents

Extracts from Trout 2004

"In 1826 the legislature revived the act of 1816 [to improve for navigation the waters of the Rappahannock River and its improvable branches]. The Assembly [changed the act] shortening the navigation [on the Rappahannock] by some nine miles; and eliminated the 55 miles of [planned] navigation on the Rappahannock" (Trout 2004:24).

"…former James River boatman Nathaniel A. Forrester successfully made a 75-mile bateau voyage down the Rapidan and Rappahannock, delivering two symbolic barrels of flour, one to Fredericksburg and the other to…Falmouth" (Trout 2004:24 citing *Herald*, February 6, 1828).

RAPPAHANNOCK RIVER

Prior Determination or Classification: Navigable from mouth to Blackwell's River Warehouse (53.9 mi. above Fredericksburg)

Findings: Navigability supported by TNW

Limits of traditional navigability include entire Virginia portion

Source Documents and Exhibits

ACS Rappahannock River Form

Table 5 (VDHR Canal and River Navigation Sites on the Rappahannock River)

Exhibit 8 (VDHR Canal and River Navigation Sites on the Rappahannock River)

CANAL Rappahannock Navigation, Virginia

(FOR ACS USE)

STATUS Abandoned. Threatened by C of E Salem Church Dam

DATES OF CONSTRUCTION & CLOSURE c.1816-34;1346-49. Ab. 1360's

LOCATION (ENDPOINTS OF CANAL) 38°42'N,77°57'W - 38°18'N,77°29'W Waterloo to Fredericksburg

LENGTH CANAL 15 SLACKWATER 35 TOTAL 50

LIFT LOCKS	NBR.	DIMENSIONS	AQUEDUCTS	TUNNELS
	55 wood 25 stone	LOCK CHAMBER 74 x 11' OVERALL 107'	NBR. 0 SECTION SIZE	0

DESCRIPTION: [Type of navigation, features of note (include USGS coordinates where useful); e.g., feeders (navigable & otherwise), locks other than above, type of locks, use of unusual material or methods of construction, present owner, present use & condition, etc.]

The Rappahannock Company was organized in 1316 to construct a batteau navigation from Carter's Run, near U.S. 211 and Waterloo, to Fredericksburg, a distance of 50 miles, and a branch navigation on the Rapidan, a major tributary. By 1334 the navigation was almost complete to Deep Run, 10 miles above Fredericksburg, and much work had been done on the canal around the falls at Kellys Ford, all this involving some 20 wooden locks, at least 7 dams, about 10 miles of canals, and a basin in Fredericksburg. The system was entirely rebuilt in 1346-49, this time successfully reaching Carter's Run, and involving 25 stone locks, 55 wooden locks, 15 miles of canals and 20 dams. The lower half of the navigation, below Kellys Ford, was constructed first and received the most money. This half contains almost all of the stone locks and the best preserved and most ambitious canal embankments. The engineer was John Couty. The upper half is not well preserved and had primarily wooden locks, which have disappeared. All of the dams, which were of crib, are gone. The lower half of the navigation - the best remaining*

NAMES & ADDRESSES OF GROUPS CONCERNED WITH CANAL'S PRESERVATION/RESTORATION:

Rappahannock Defense Committee, P.O. Box 1146, Fredericksburg, Va. 22401, George Newman, Chairman. Newsletter.

History: Donald S. Callaham, 6414 Lakeview Drive, Falls Church, Va. 22041.

REPORTER'S NAME & ADDRESS:

W. E. Trout, III 1932 Cinco Robles Drive, Duarte, California 91010

DATE 10 June 1973

HISTORICAL SUMMARY: [Original aims of company, date of incorporation, prominent engineers, cause of closure, significant alterations to structure or use, height of traffic date, transfers of ownership, etc.]

part of the best preserved complete batteau navigation in the U.S. - is seriously threatened by the C of E Salem Church Dam, which will inundate everything up to Kellys Ford. The Bureau of Outdoor Recreation and the NPS have recommended a scenic river park instead. The Rappahannock Defense Committee is fighting the dam.

Although the Company records do not mention any work completed on the Rapidan, there are supposed to be locks there. Another branch, the Hazel River, was made navigable by the Hazel River Navigation Company (q.v.) in 1350-54.

The Rappahannock Navigation was never financially successful and was offically abandoned by 1355, although it was probably used into the 1360's. The canal into Fredericksburg was long used for water power and still has water.

BIOGRAPHICAL SUMMARY: [Published works relating to Canal]

"The Rappahannock Canal" by Donald S. Callaham. M.A. Thesis, The American University, 1967. Mimeographed by Robert A. Hodge, 417 Pelham Street, Fredericksburg, Va. 22401, at $2 ppd.; 49pp., map.

UNPUBLISHED RECORDS, LOCATION OF PHOTOS, DRAWINGS & IMPORTANT PERIODICAL REFERENCES

Reports of the Rappahannock Company to the Virginia Board of Public Works, Va. State Library, Richmond, Va. 23219.

NATIONAL REGISTER & HAER (HISTORIC AMERICAN ENGINEERING RECORD) STATUS:

One of the canals on the navigation (Rapidan Dam Canal) is on the Register.

RETURN TO: CANAL INDEX COMMITTEE, C/O P.H.STOTT, HAINES ROAD, MOUNT KISCO, NEW YORK 10549

USE ADDITIONAL SHEETS AS NECESSARY.

TO MAKE AN INDEX CARD SUITABLE FOR FILING, CUT ALONG THE HEAVY LINES AND FOLD BACK ALONG THE DOTTED LINE.

TABLE 5: VDHR CANAL AND NAVIGATION STRUCTURE SITES ON THE RAPPAHANNOCK RIVER

DHR ID	DESCRIPTION	TEMPORAL DESIGNATION
44FQ0042	Canal lock, Dam, Ford	19th Century
44SP0189	Wharf	18th Century, 19th Century
44SP0078	Canal	19th Century
44SP0064	Canal	Historic/Unknown
44SP0077	Canal lock	19th Century
44SP0076	Canal lock	19th Century
44SP0075	Canal lock	19th Century
44SP0074	Canal lock	19th Century
44SP0079	Canal	19th Century
44SP0080	Canal lock	19th Century
44CU0036	Canal lock	19th Century
44CU0035	Canal lock	19th Century
44CU0034	Canal lock	19th Century
44FQ0020	Canal lock	Historic/Unknown
44FQ0058	Canal lock, Dam	19th Century
44FQ0057	Dam	19th Century
44FQ0055	Canal lock	19th Century
44FQ0052	Canal lock, Dam	19th Century
44FQ0054	Canal lock	19th Century
44FQ0051	Canal lock, Dam	19th Century
44FQ0050	Canal lock, Dam, Ford	19th Century
44EX0184	Wharf	Historic/Unknown
44CU0042	Canal lock	19th Century
44CU0038	Canal lock	19th Century
44CU0087	Canal lock	19th Century: 2nd quarter
44RD0046	Dam	Historic/Unknown
44CU0058	Canal lock, Dam	19th Century
44FQ0043	Canal lock	19th Century
44FQ0039	Dam	Historic/Unknown
44CU0077	Canal	Historic/Unknown
44FQ0039	Dam	Historic/Unknown
44FQ0047	Canal lock	19th Century
44FQ0046	Canal lock	19th Century
44FQ0037	Canal, Canal lock, Ford	Historic/Unknown
44FQ0045	Canal lock	19th Century
44FQ0044	Canal lock	null

TABLE 5 continued

DHR ID	DESCRIPTION	TEMPORAL DESIGNATION
44FQ0036	Canal lock, Dam	Historic/Unknown
44FQ0036	Canal lock, Dam	Historic/Unknown
44ST0072	Canal	19th Century
44ST0077	Canal lock	19th Century
44ST0074	Canal, Dam	19th Century
44ST0076	Canal lock	19th Century
44ST0064	Canal, Canal lock, Dam	Indeterminate
44ST0075	Canal lock	19th Century
44ST0073	Canal lock	19th Century
44ST0065	Canal, Canal lock, Dam	Indeterminate
44ST0068	Canal lock	null
44ST0069	Canal lock	19th Century
44ST0071	Canal, Dam	19th Century
44CU0041	Canal lock	19th Century
44FQ0019	Canal lock	Historic/Unknown
44EX0139	Dam	Historic/Unknown
44ST0133	Dam	19th Century: 3rd quarter
44FQ0049	Canal lock	19th Century
44ST0072	Canal	19th Century
44ST0072	Canal	19th Century
44FQ0018	Canal lock	Historic/Unknown
44ST0066	Canal	Historic/Unknown
44ST0780	Dam	Historic/Unknown
088-0137	Rapidan Dam Canal - Rappahannock	
089-0005	Falmouth Canal Archeological Site	
111-0134	Rappahannock Navigation System (Canal)	

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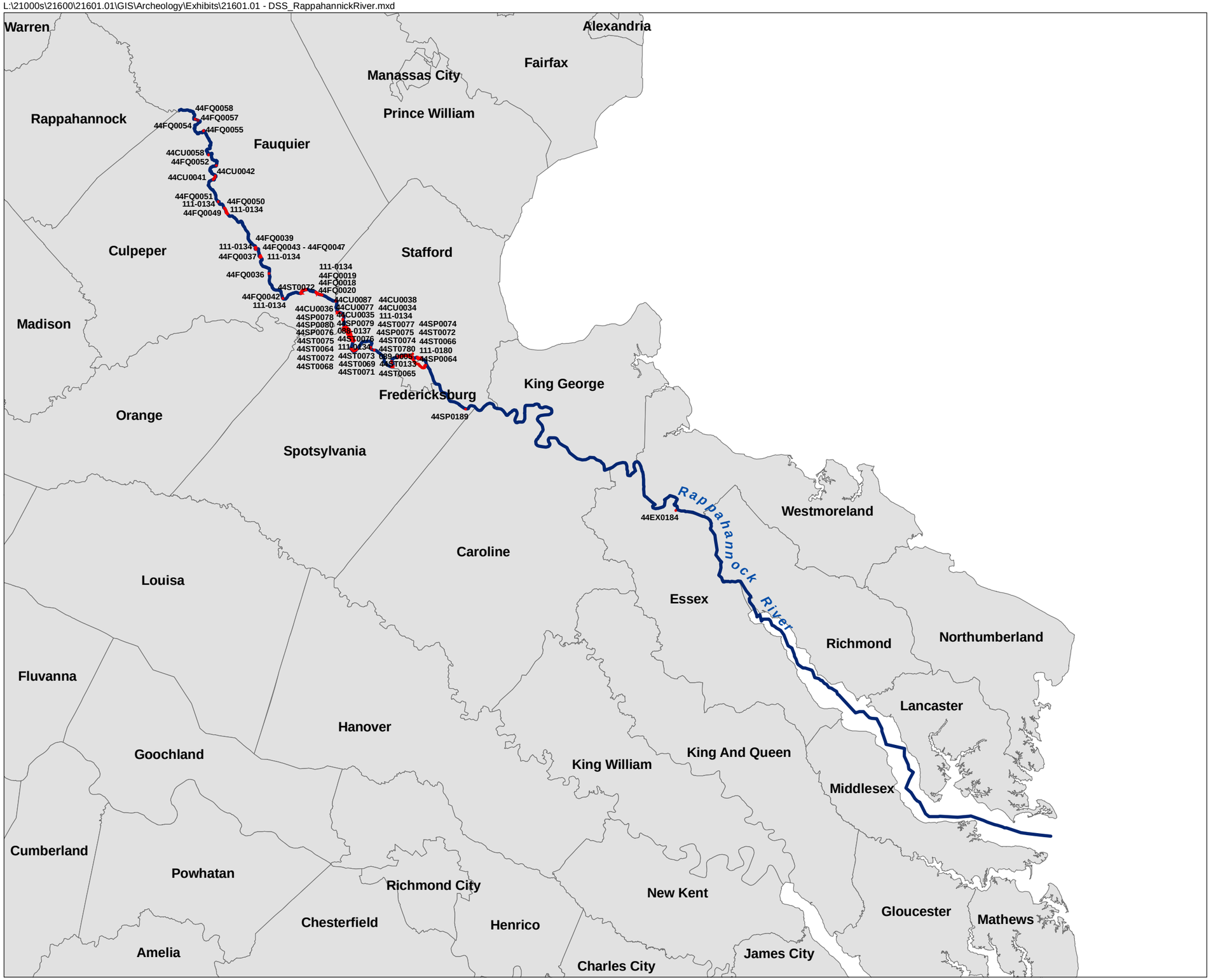

VDHR Canal and Navigation Structure Sites and Resources on the Rappahannock River

Traditional Navigable Waters
WSSI# 21601.01
Scale: 1" = 10 Mile

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Select VDHR Architectural Resources and Archeological Sites

Navigable Rappahannock River

Thunderbird Archeology
A division of Wetland Studies and Solutions, Inc.

Exhibit 8

SHENANDOAH RIVER

Prior Determination or Classification: Assumed Navigable (no official determination), Entire Virginia portion

Findings: Navigability supported by TNW

Limits of traditional navigability include entire Virginia portion

Source Document

Armroyd 1830:309-310

For the Kanhaway river works, - - -	$ 76,503
The turnpike road, - - - - -	125,692
Bridge over Ganley river, - - - -	18,400
Bridge over the Greenbriar, - - - -	19,000
Salary and contingencies, - - - -	2,381
Total,	$241,976

The quantity of salt now manufactured at the Kanhaway salt works, above Charlestown, is computed at upwards of a million of bushels annually.

It is remarked of the turnpike, which has opened to a certain degree the communication sought after with the beautiful valley watered by the Kanhaway, and of the river navigation set of improvements, that both together have already given a great impulse to business; the valley exhibiting an activity not known before, partly in the lively trains of wagons now engaged in transporting salt to Lewisburg. The principal part, however, of the salt manufactured, descends the river as yet to Point Pleasant, in flat boats, which load from 400 to 500 barrels of 360 *lbs.* each. Horse boats also navigate the river, and it is quite probable that light steam-boats will, ere long, be introduced.

NOTE.

Additional disbursements, to the 1st of January, 1828, including part rebuilding of Ganley river bridge, make the Kanhaway river and turnpike works of this article amount to $253,414.

M.—From a point on the Potomac river, in Berkeley, or Jefferson county, along the Shenandoah valley, through the counties of Frederick, Shenandoah, Rockingham, and Augusta, by canal and river improvements, to the Lexington branch of James river, in Rockbridge county; or by way of the Lexington or North river valley, to form a junction with the Blue ridge canal, at the mouth of North river.

Distance, *Miles*, 250

No. 108.

THE SHENANDOAH CANALS.

Should the Chesapeake and Ohio canal communication, by the Potomac, be realized, as it is hoped; there will, at some period

not very remote, be another efficient communication attempted, through the central counties of Virginia, from the Potomac to the waters of James river. It is the one here specified, through the Shenandoah valley, by which the most fertile district of all the state will be immeasurably benefited, in the facility of transporting its produce. The river has long since been made navigable for boats up to Port Republic, in Augusta; near which place, a fall of 50 feet was overcome by six short canals with stone locks.

A.—From the mouth of the Rivanna river at Columbia on James river, by canal, or by the stream of the Rivanna, improved after the lock and dam method, up to Moore's ford, opposite Charlottesville, Albemarle county. Distance, *Miles*, 37

No. 109.

THE RIVANNA RIVER CANALS.

The recent survey of the course of this tributary of James river, flowing through a limited but very important tract of country, has been made by the state chief engineer, with a view to improve the navigation thereof. It is proposed to adapt it to the passing of light steam boats; and to effect this improvement by means of a series of locks and dams; together with a canal or two round the principal falls, as the falls at Milton, and at the Palmyra mill.

The engineer's estimate for this object is,—

For lockage, by locks of 14 feet width, 127 feet, at 500 dollars per foot, - - - - -	$63,500
For dams and various particulars, - - -	51,700
Superintendence and contingencies, 15 per cent., -	17,300
Total probable cost,	$132,500

NOTE.

A survey is directed to be made of the Meherrin river, with a view to the improvement thereof from Murfreesboro' upwards; also a survey of the country between the waters of the Roanoke river and the New river branch of the Great Kanhaway. It is thought that a junction of the Eastern and Western waters, by this route, may be not impossible, but rather proba-

SOUTH FORK SHENANDOAH RIVER

Prior Determination or Classification: Assumed Navigable (no official determination), Entire Virginia portion

Findings: Navigability supported by TNW

Limits of traditional navigability are from confluence with the North Fork -

"the river has long since been made navigable for boats up to Port Republic in Augusta" (Armroyd 1830: 309-310; see also Jackson and Twohig 1978:54)

Source Document

See Shenandoah River