



DROMGOOLE HOUSE HISTORIC STRUCTURE REPORT

Old Brunswick Circuit Foundation
Valentines, Virginia

Report by Glavé & Holmes Architecture

March 25, 2022

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1. EXECUTIVE SUMMARY

Executive Summary

The Dromgoole House, located in Brunswick County, Virginia, just north of the North Carolina border, is an outstanding example of late 18th-century domestic architecture. The two-story frame house, built ca. 1799, retains a significant amount of historic fabric despite years of neglect. The house takes the double-pile form, popular in the eighteenth century, in which a house has its rooms arranged in two rows. In this case, the two main rooms in front are backed by a narrow range of unheated rooms on both floors. These two small rooms at the rear are separated by a small stair passage. The off-center partition divides the front section into two large rooms, each with a door onto the original front porch. Surviving original features include the molded-edge weatherboard, the door and window frames, and the molded box cornice. Brick chimneys at each end are offset in opposite directions and built of brick of unusually large dimensions. Although there is evidence of changes at the west chimney, both chimneys feature random glazed headers, tiled shoulders, and decorative diaper work picked out in glazed headers. A one-story, one-room wing on a Flemish-bond brick foundation was relocated from somewhere else, presumably on the property, to the east end of the house with about ten years from the construction date.

The foundation of the house is made of schist stone and has been much reworked. The interior of the house is well preserved, with the floor plan intact, as well as original flooring, wainscot, mantels, trim, and some doors, many with early decorative paint finishes. The house retains little original plaster, but brick nogging is visible between the lower third of the first-floor framing members.

The Dromgoole House has not been in good repair for well over 100 years. After acquisition by the Old Brunswick Circuit Foundation in 2008, it required immediate attention to keep the building from collapsing and to arrest damage to the interior and exterior materials. The Foundation set a goal of eventually opening the house to visitation as part of a larger interpretation of the notable activities of Methodists in the area from the 18th century to the present. Damage from Hurricane Florence in September of 2018 reversed some of the work that had been done by opening the interior and by subjecting vulnerable portions of the masonry to damage from water infiltration.

This project is funded through an Emergency Supplemental Historic Preservation Fund (ESHPPF) grant administered by Virginia Department of Historic Resources. The activity that is the subject of this report has been financed entirely with Federal funds from the National Park Service, U.S. Department of the Interior. However, the contents and opinions do not necessarily reflect the views or policies of the Department of the Interior, nor does the mention of trade names or commercial products constitute endorsement or recommendation by the Department of the Interior.

The Foundation recognized the poor overall condition of the building and moved quickly to protect the exterior by sheathing it with OSB panels covered with house wrap. They also worked with skilled contractor Tom King of Historic House Preservation to stabilize the house as fund-raising was undertaken for the larger project of its restoration. He shored up the framing, stabilized the east chimney, and installed French drains to remove standing water that had long compromised the foundation. A number of issues continue to threaten the longterm survival of the building, in particular the deteriorated condition of the foundation. This accessible guide in the form of a concise historic structure report will facilitate decision-making for the immediate future. It also serves to assure donors that the building's complex history and fabric are being considered as a whole whenever incremental projects are undertaken.

The Historic Structure Report includes a definitive documentation of the history of the complex building, a comprehensive description of its fabric at the start of this project, an overview of material deficiencies involving safety and structural stability, and a list of proposed interventions. Our list of proposed repairs and improvements will not only provide a road map for the Foundation, but meet the requirements of the Virginia Department of Historic Resources Department's rehabilitation standards and grant requirements

At the start of the current project, several principal recommendations were identified:

Exterior:

- *Secure the exterior from further damage.*
- *Repair the masonry foundation and stabilize both chimneys and flashing on the exterior.*

Interior:

- *Evaluate the structural capacity of the floor joists and reinforce as recommended by the structural engineer;*
- *Review the capacity of the masonry walls to support any added framing.*

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2. HISTORICAL NARRATIVE



Dromgoole House at Canaan, view from the southeast, 2006. A portion of the former porch roof of the east wing porch is visible attached to the chimney.

Historical Narrative

Sligo

Edward Dromgoole (1751-1835) was born in Sligo, Ireland, where he apprenticed as a linen weaver. After his arrival in the colonies in 1772 he moved to Baltimore, where he worked as a tailor for a Methodist convert, which seems to have confirmed his interest in Methodism. In his role as itinerant preacher, he traveled to Virginia and North Carolina, where he met and married Rebecca Walton. He and his wife originally settled on 200-acre tract of land gifted by her father in 1778. He seems to have named that property “Sligo,” after his original hometown. He traveled widely as a circuit rider, preaching to Methodist congregations throughout the Mid-Atlantic region from 1774 to 1785, presumably using the Brunswick County property as his home base. After that date, he settled permanently in Brunswick and ministered to local churches.

Dromgoole was challenged by the outspoken opposition to slavery among his fellow Methodists. His decision to end his career as a traveling preacher may have been connected to his inability to fully divest himself of all of his human property, particularly after the church took a hard line on ownership of people by ministers in 1784. It was in the following year that he settled down and opened his mercantile business at Sligo. He made attempts towards emancipation in 1791, but he was unable to set up an alternative business arrangement without leaving the slave-based economy of Brunswick County. In 1812, he purchased 7,843.33 acres of military bounty lands in Ohio. He never moved to these lands, although he is said to have wished to do so, like some of his neighbors, in order to end his relationship to slavery. As he said in a letter to Francis Asbury in 1805, living in “a state where none of the human race are in captivity, would afford my mind more rest” [Letter to Francis Asbury, 1805, quoted in E.T. Malone, “Edward Dromgoole,” NC Encyclopedia]. Later, his son George C. Dromgoole released a substantial number of enslaved people to Logan County, Ohio [<https://www.arcgis.com/apps/MapJournal/index.html?appid=3ca47f61737c4b7c938b5f84d383c6e0>]. These may have been some of the remaining people he inherited from his father in 1835.

Dromgoole also developed a successful business as a merchant and planter and served for 45 years as a justice on the county court. According to research by William B. Bynum, Dromgoole family business records at the Library of Virginia name five stores operated in partnership with his son Edward Jr., although “no more than four seem to have been active at one time.” It appears

that the store at “Sligoe” closed at the end of September 1797 and the store at “Canaan,” opened for business a year later in October of 1798. The store at Canaan is shown located in front of the house on the Virginia Mutual Assurance Society policies beginning in 1803.

Canaan

In 1796, Edward made a move to consolidate his operations on a new site about ten miles to the southwest which he would call “Canaan” [see the property name on the 1803 Virginia Mutual insurance policy on page 13]. He purchased 330 acres from Benjamin King along Beddingfield Creek. He sold the original 200-acre tract to Ira Ellis in 1799. Dromgoole added to the property over the following years, including 200 acres from Miles Alley in 1806, with the family eventually accumulating as much as 1,750 acres. He partnered with his son in the mercantile business and his son appears later to have operated a steam-powered sawmill, as well.

Edward Dromgoole built his house in 1799-1800, with the timber used in its frame being cut in the summer of 1796 through the winter of 1798/1799 [Worthington, M. J. and Seiter, J. I., Oxford Dendrochronology Group, 2018, “The Tree-Ring Dating of Edward Dromgoole House, Brunswick Co., Virginia,” unpublished laboratory archive report 2018/08]. The main house was built in one campaign.

The house form is unusual among structures built in the period and region. Houses in eighteenth-century Virginia tended to take one of several forms, sometimes known as the one-room, hall-parlor, three-room, and central-passage plans. The hall-parlor or hall-chamber form became widespread in the seventeenth and eighteenth centuries as wealthy farmers were able to move beyond the ubiquitous one-room form. The central passage form, which provided more internal privacy for occupants at the upper end of the economic hierarchy, appeared in the early eighteenth century. The Dromgoole House partakes of each of these building types. The builder and owner selected elements that suited the family’s requirements for accommodation, privacy, and circulation within the “grammar” embodying building regional traditions in the late eighteenth-century. This selection was done with more invention and flexibility than that expressed by many surviving houses of similar age in the region.



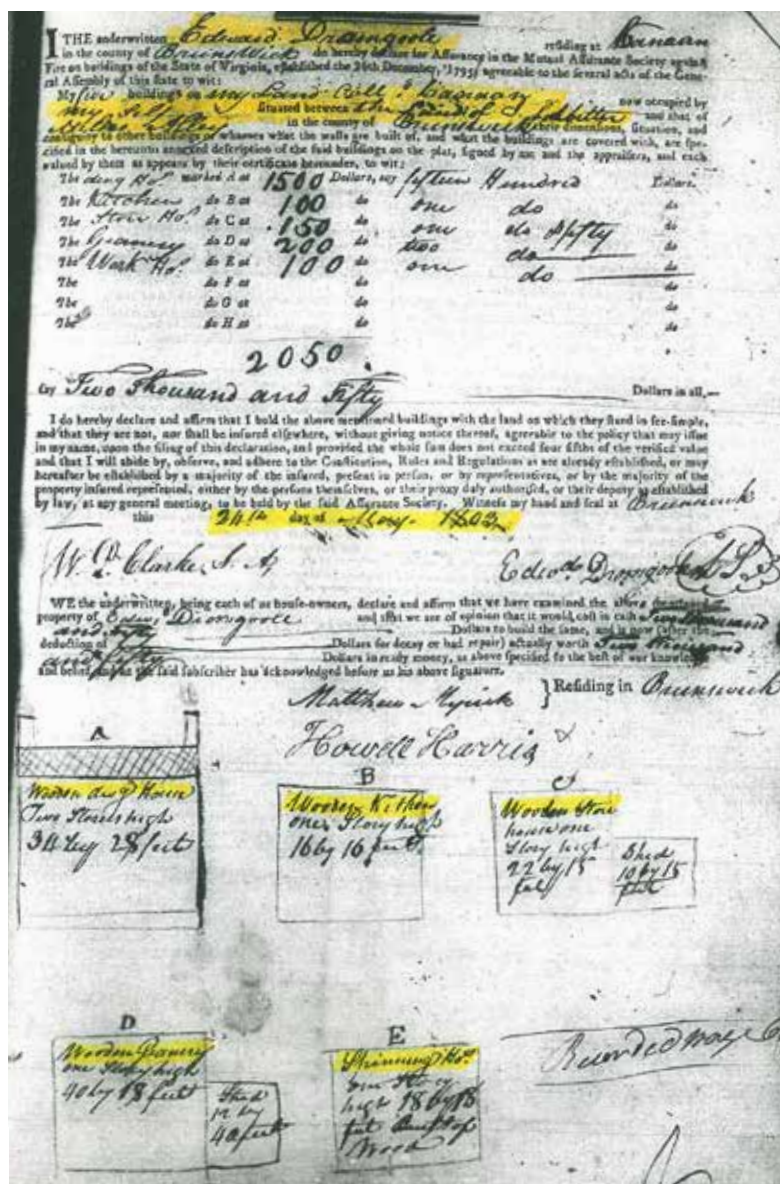
Mason-Tillet House, Valentines, VA, 2003 [VDHR].

Mason-Tillet House

It is telling that a very similar house still stands within a few miles of the Dromgoole House. The Mason-Tillet House is said to have been built by William Mason in the 1780s. The form and detail of the house, which are all remarkably similar to the Dromgoole House, suggests that it may have been built at about the same time and by the same builder. Based on this similarity, the house was probably built at about the same time for Nathaniel Mason, Jr., whose father, William Mason had been in the area by the 1770s. William Mason founded Mason’s Chapel, a Methodist congregation, in the fourth quarter of the eighteenth century, but had already died by the 1780s. Like Edward Dromgoole, he was a close associate of Methodist leader Francis Asbury, who visited at the homes of both men. Like the Dromgoole House, the house features a hall-parlor plan, two front doors, and chimneys with related decorative motifs in glazed-header brick. Unlike the Dromgoole House this structure has a total of five bays in the main front and a two-story porch at the entries. It did not have a rear range of rooms to begin with, but an ell containing a

Edward Dromgoole appears to have made some changes to the house early in the nineteenth century. He added a one-room frame addition to the east end of the rear range of rooms, opening into the chamber in the northeast corner. The room was set down one step below the main house floor level and was equipped with an exterior brick chimney. It had a door to the south. Due to its separate entrance, it may have been used as an office or other subsidiary function requiring independent access. The large brick used in the foundation of the added wing is similar in size and color to the bricks in the chimneys.

Possibly at about the same time (the bricks are similar), the crawl space below the main house was excavated to form a usable cellar storage area divided into four rooms similar in size to the floor above. At the perimeter, excavation stopped short of the stone foundation walls and an interior brick wall was built to retain the soil supporting the foundation walls. Brick crossing walls were added in both directions aligned with the original stone supporting pier.



1803 Virginia Mutual Assurance Society policy showing five wooden buildings: Dwelling 34' x 28' with no porches shown (likely an oversight) and no East Wing, Kitchen to east 16' x 16', Store House 22' x 15' with 10' x 15' shed, Granary 40' x 18' with 12' x 40 shed, and Spinning House 18' x 18'. The plan does not show the buildings accurately in relation to each other.

County Evaluation as per declaration No. 2072

I the underwritten Edward Dromgoole residing at Canaan in the county of Brunswick do hereby declare for Assurance in the Mutual Assurance Society against Fire on Buildings of the State of Virginia.

five Buildings on my plantation now occupied by myself situated between The land of Isaac Ledbetter and Hubert Alley in the county of Brunswick dimensions, situation and contiguity to other Buildings or Wharves, what the walls are built of, and what the Buildings are covered with, are specified in the hereunto annexed description of the said Buildings on the plat, signed by me and the appraisers, and are valued by them, as appears by their certificate hereunder, to wit:

	marked	Dollars.		Dollars.
The Dwelling House	A at	1500	Say	fifteen Hundred
The Kitchen	B do	100		One Hundred
The Store House	C at	150		One Hundred Fifty
The Granary	D at	200		Two Hundred
The Work House	E at	100		One Hundred
The	F at			
The	G at			
The	H at			

2050

Say five Thousand Fifty Dollars in all.

do hereby declare, and affirm, that I hold the above-mentioned Building with the land on which they stand in fee-simple, and that they are not, nor shall be insured elsewhere, and that I will abide by, observe and adhere to the Constitution, Rules, and Regulations, which are already established, or may hereafter be established by a majority of the Insured, present in person, or by representatives, or by the majority of the property Insured, represented either by the persons themselves, or their proxy duly authorized, or their Deputy, as established by law, at any General Meeting to be held by the said Assurance Society; or which are or hereafter may be established by the President and Directors of the Society. Witnesses, my hand and seal at Canaan this 20th day of July 1850. Edward Dromgoole Special Agent.

WE the underwritten, being each of us Freeholders, declare and affirm, that we have examined the above-mentioned Building of Edward Dromgoole and that we are of opinion that they would cost in cash five Thousand Fifty Dollars, to build the same, and that now (after the deduction of two Thousand Dollars) they are actually worth three Thousand Dollars in ready money, as above specified to the best of our knowledge and belief, and that the said subscriber has acknowledged before us his above signature.

I the undersigned do hereby certify that I verily believe the Building herein described are not over-valued.

Appraiser Spencer Edwards Residing in Brunswick
Montez Kyrick

A
a wooden Dwelling house
Two stories high 34 by 28
2 porches
40 feet

B
a wooden Kitchen
one story high
16 by 16 feet
15 yards

C
a wooden Store house 22 by 22
one story high
16 by 15 feet
30 feet

D
a wooden Granary
40 by 18 feet with a
shed 40 by 12 feet
one story high

E
a wooden Work House one story
high 18 by 18 feet

1805 Virginia Mutual Assurance Society policy showing five wooden buildings: Dwelling 34' x 28' with two porches (mentioned but not drawn), Kitchen to west 16' x 16', Store House 22' x 15' with 16' x 15' shed, Granary 40' x 18' with 12' x 40' shed, and Work House 18' x 18'. The plan shows the distances between the buildings, but not in relation to each other. The distances between buildings, needed for the purposes of fire insurance, is radically different than in 1816. One explanation might be that some secondary buildings were rebuilt or relocated.

No. 2688. { Revaluation of five Buildings formerly declared for Assurance by
Edward Thompson
the underwritten Edward Thompson

residing at Barnes in the county of Brunswick do hereby declare for
assurance in the 1816 Virginia Mutual Assurance Society against fire on buildings of the State of Virginia, now occupied by myself buildings on
situated between the roads of John Fletcher North & the road of the State of Virginia South

in the County of Brunswick Dimensions, Situation and Contiguity to other Buildings or Wharves, what
the walls are built on, and what the Buildings are covered with, are specified in the hereunto annexed description of
the said Buildings on the Plat signed by me and the Appraisers, and so valued by them, as appears by their Cer-
tificate hereunder, to wit:

	MARKED.	DOLLARS.	
The Dwelling house	A at	\$570	Say
The Kitchen	B at	100	Dollars.
The Store house	C at	150	do.
The Granary	D at	200	do.
The Work House	E at	100	do.
The	F at		do.
The	G at		do.
The	H at		do.

Say Twelve hundred fifty Dollars in all.

do hereby declare and affirm, that I hold the above-mentioned building, with the land on which they stand
nor shall be insured elsewhere, and that I and my heirs and assigns will abide by, observe and adhere to the con-
stitution, rules and regulations, which are already established, or may hereafter be established by a majority of the in-
sured, present in person, or by representatives, or by a majority of the property insured, represented either by the persons
themselves, or their proxy duly authorized, or their deputy, as established by law, at any general meeting to be held
by the said Assurance Society; or which are or hereafter may be established by the Standing Committee of the Socie-
ty. Witness my hand and seal this Eight day of August 1810.

Teste,
William Dickson Special Agent.

WE the underwritten, being each of us Freeholders, declare and affirm, that we have examined the above-mentioned
building of Edward Thompson and we are of opinion
that they would cost in cash Twelve hundred fifty dollars
to build the same, and that now (after the deduction of repairs) they are actually worth Twelve hundred fifty dollars for decay or bad
as above specified to the best of our knowledge and belief. As witness our hands.

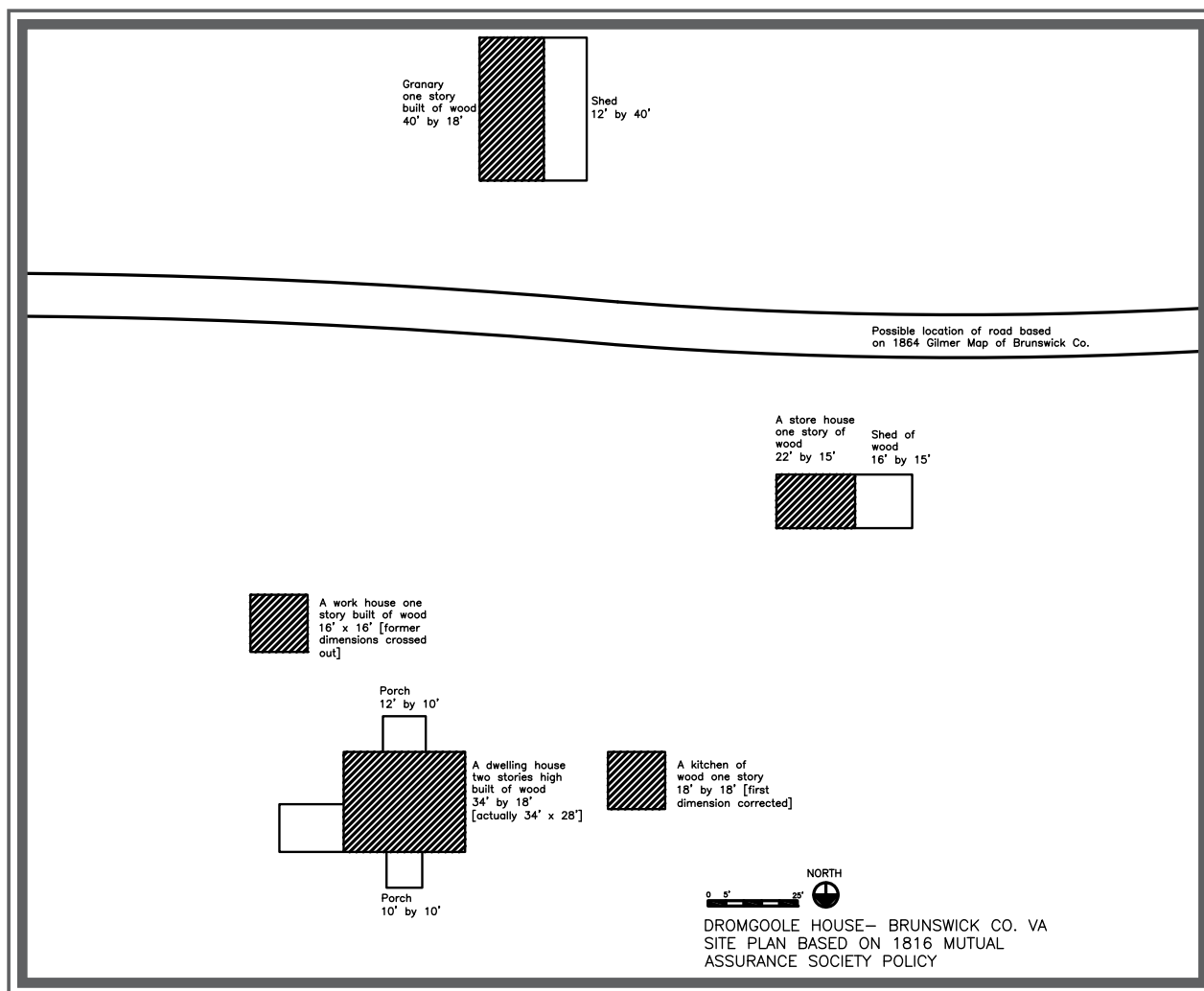
I the undersigned do hereby certify that I
verily believe the building herein de-
scribed as not over-valued.

Thomas Thompson Brunswick
William Dickson Special Agent.

These houses A & E are within 30 feet of each other. The kitchen B is within 30 feet of each other. The granary D is within 30 feet of each other. The work house E is within 30 feet of each other.

Edward Thompson
Thomas Thompson

1816 Virginia Mutual Assurance Society policy showing five wooden buildings: Dwelling 34' x 28' with 2 porches, Kitchen 18' (number is partly blotted) x 18', Granary 40' x 18' with 40' x 12' shed, Store House 22' x 15' with 10' x 15' shed, and Work House 16' x 16'. The buildings are shown in relation to each other with realistic dimensions. The Kitchen location corresponds to the current depression to the west of the house. The surviving outbuilding is not in the location of the work house shown on the plan, but is instead on axis with the east end of the house.



Redrawn version of the Site Plan reconstructed from the dimensions shown on the 1816 Virginia Mutual Assurance Society policy.

Site Plan

The five buildings at Cannan were documented in a series of three insurance policies from the Virginia Mutual Assurance Society, in 1803, 1805, and 1816, dates when Edward Dromgoole paid for insurance against destruction by fire against his valuable property. There is little evidence that the buildings changed much over that time, although the name of the Spinning House/Work House changed from the former to the latter name in 1805. The main difference in the case of the Main House is that no porches or wings are shown in 1803. The North Porch and East Wing are mentioned in 1805, but not shown and dimensioned until 1816. Other than the East Wing, which was clearly added to the Main House at an early date, it is difficult to say whether the changes in the site plan from 1803 to 1816 show actual changes or just increased levels of detail.

The site plan attached to the final policy in 1816 shows the buildings in the correct relation to each other and the approximate distances between them. The building that is still standing matches more closely the description of the Kitchen described in the policies. The outbuilding that is still standing, which measures approximately 18' x 18' matched most closely the description of the kitchen described in that policy year. The Work/Spinning House shown in 1816 is not in the same relation to the Main House as is the current outbuilding, but stands well to the south of it. It seems entirely possible that the original Kitchen was moved to the current location from west of the Main House some time in the 1830s or 40s in order to refit it as the office of George Coke Dromgoole. The Store House shown on this policy is undoubtedly the store operated at Canaan after 1798 by Edward Dromgoole, Sr. and his son Edward Dromgoole, Jr.

Room Use

It is possible to combine the will of Edward Dromgoole, Sr. with his estate inventory in order to identify the way the house functioned during his lifetime. Although the names and functions for each room is not known, the will and the inventory do identify one room as the Hall; it seems likely that this was the larger of the two main rooms. This designation was used in eighteenth-century Anglo-America for the principal public or social room in the house, where the family entertained and socialized. While the inventory does not list the contents of the house by room, it is possible to discern movement through the house and some sense of patterns of usage. The smaller of the two main rooms was not named. It was not directly connected to the stairway, but the fact that it has an exterior door on the main front suggests that it had a function as a public room and not a bed chamber. This might have been referred to as a Parlor or Dining Room. The name “dining room” appeared in the mid-eighteenth century and referred to rooms that were used not only for dining, but also storage and sleeping. For purposes of this report, we will refer to this room as the Parlor.

The first objects listed includes all the beds in the house, followed by chests of drawers, a family medicine chest, a dressing glass and shaving glass, as well as an easy sitting chair and large clothes trunk, a pine table with religious books, and a small hand-bell. This list implies the practical furnishings of a master bed chamber inhabited by the recently deceased Edward Dromgoole (they are not included in the second-floor items near the end). The will identified a small bedstead, “my iron chest, the trunk in which I keep my clothes,” “the chest of drawers standing in my room,” and “the looking glass I use for shaving.” He mentions other items as being upstairs.

The next set of items comprises more formal items, some of which might have been in either of the two main rooms. They include a sideboard, a buffet, a settee, four dining tables (the will indicates that dining tables were “standing in the hall” and one “in the passage”), a side table, a china press, and a desk and book case. These following items are clearly ornaments for the larger room, “frames and pictures hanging in the hall, flower pots and ornaments on the mantel piece, and 2 large looking glasses in the hall.” The rest of the items may be from the upper floor, including two large walnut chests “upstairs”, two dressing table and looking glasses, two washstands with bowls and pitchers, a dressing table, two looking glasses and frames and pictures upstairs. The list of furnishings ends with groups of “1 doz. black walnut sitting chairs”, six rush chairs, two smaller sets of Windsor chairs, and miscellaneous items. The pictures in the house included three of hieroglyphics and a set of twelve illustrations from the Pilgrims Progress.

Householders in the region in the later eighteenth century moved to increase privacy and limit social interaction by incorporating more private rooms, as well as passages, porches, and doors that could control access between family members, visitors, and slaves. In this and other similar houses, the use of two adjacent entries provides the possibility of increased privacy on the interior, as it permits movement into both rooms without the need to go through the other. At the same time the Passage at the rear is accessible only from the Hall, but does give separate access to five chambers including the small chamber (Room 2) in the northeast corner. The small “back room” (Room 1) off the “Parlor” was only accessible from the Parlor (the door into the East Wing is added, probably in the place of a window). The house served a large family and the more unusual aspects of the floor plan undoubtedly responded to the particular conditions and requirements of the household.



The hall-parlor form was widespread in late eighteenth century Virginia and North Carolina. For example, two such houses are found in Franklin County NC: the McLemore-Cannady House (to the left) has two doors on the primary façade for entry into each of two front rooms. [Megan Funk, Comprehensive Survey of Franklin County, 2018]



Detail of the 1864 Gilmer Map of Brunswick County showing the north-south road that ran to the west of the house and the slave quarter to the west where enslaved workers were housed away from the house. It also shows a steam saw mill north of the house which appears to have supplemented the family's income during this period. The east-west road is labeled Avents Road.

On the 1864 Confederate Engineers Map of Brunswick County, the Dromgoole House is located close to Avents Road, which corresponds to today's Rt. 600, which runs from east to west on the north side of the house. Tamlin Avents was a merchant in neighboring Greenville County and his community was the source of the name. Houses and stores were not usually located far from the main road for ease of access and maintenance. The Dromgoole House was originally located on a road that ran south from Avents Road directly to the west of the house. The current north-south route of Rt. 46, the Christanna Highway, runs about 1,000 yards to the west. "Dromgoole's Qrs [Quarters]" is shown to the west of the house, comprised of two structures that may have been barns and/or slave housing. Not far to the north of the house stood a steam powered sawmill.

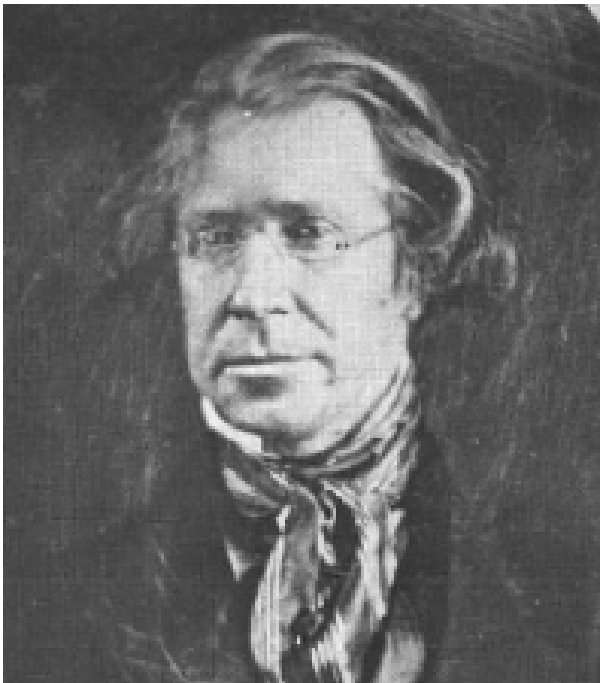
Edward Dromgoole and Slavery

The Dromgoole farm was operated within the economy of the southern plantation system. Dromgoole held a substantial number of people in bondage, but struggled with the moral implications of the institution. He eventually manumitted 10 persons in 1791, to be actuated over a period of time. At his death in 1835 he was still enmeshed in the institution of slavery. In the words of the National Register form:

"Edward Dromgoole was opposed to slavery but owned enslaved African Americans and struggled with the issue. For several years, he considered moving to Ohio with a number of family and neighbors who had relocated to the new state where slavery was not legal. He told Asbury in 1805, "a state where none of the human race are in captivity, would afford my mind more rest." He manumitted a number (10 plus future increase) of enslaved persons in 1791. These were to be set free over a period of time- from 1792 to 1818. The Federal Census indicates some of the freed people may have stayed on at Canaan: in 1810 there were three free persons of color along with 11 enslaved people living on the plantation. Apparently Dromgoole could never completely break away from the institution because receipts have been found for the purchase of two men in 1797 and 1799. Additionally when he died in 1835, he owned 16 people whom he bequeathed to his children, with George C. Dromgoole, who inherited the plantation, receiving the majority."

George C. Dromgoole

Edward and Rebecca Dromgoole had five children who survived to adulthood, including Rebecca (1779-1847, who married Richard Sims), Mary (known as Polly, d.1833), Thomas (c1779-1817, a Methodist minister), Edward Jr., (1788-1840, also a Methodist minister, planter, and physician who inherited the store and its business), and George Coke (1797-1847, a lawyer and a United States congressman who inherited the farm and house). George C. Dromgoole became a leader in the Virginia state government and in the United States Congress, where he was first elected in 1835 and served from 1835-1840 and 1843-1847. It seems that during the 12 years he owned the home-place, he made little attempt to update or elaborate the house or its outbuildings, other than improving the outbuilding to the east of the house to serve as his office. He seems to have been content to maintain the place as he found it, spending much time away from home. He probably concentrated on timber sales and raising flue-cured tobacco.



George Coke Dromgoole, United States House of Representatives, 1835-1841, 1843-1847.



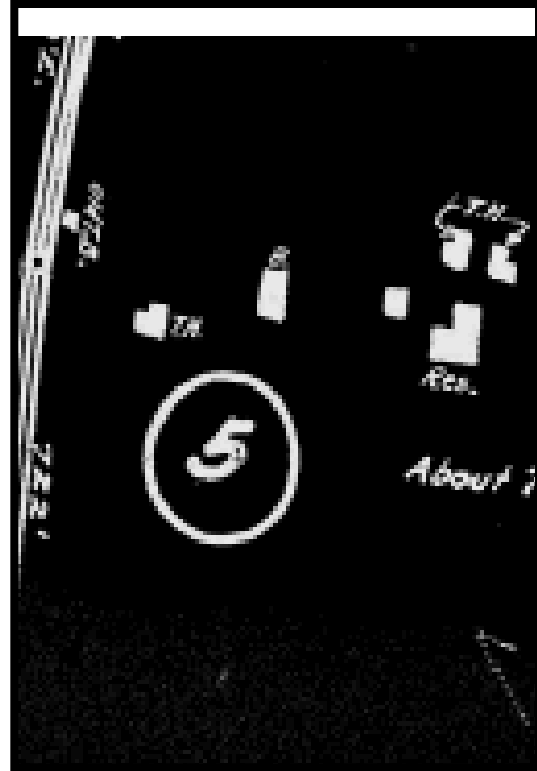
1920 USGS Map, Valentines Quad. Detail, Shows the railroad and Dromgoole House (orange) and R. J. Clary's Store.

Edward Dromgoole III and Later Owners

The farm was passed to George Dromgoole's nephew, Edward III (1825-1895), son of Thomas. His son Edward IV (died 1920) inherited and managed the store and farm. He served as a lawyer in Gaston North Carolina, about 15 miles to the southwest. His widow, Mary Virginia Bradley, married a second time W. B. Holt. At this time, a number of key Dromgoole family papers were discovered in the outbuilding, identified at the time as the former office of George C. Dromgoole, and transferred to Duke University and UNC-Chapel Hill. The Holts decided to sell the property and divided the 1,424 acres of Canaan into 29 tracts for sale. Tract No. 5, seen on the next page) contained the home-place.

The Roanoke Railway, a small (6.5 mi) railroad that ran from Brunswick to Northampton and Halifax Counties, North Carolina, was run along Beddingfield Creek on its way through the lumber camps located in the immediate area. It was built in 1909-1911 and abandoned in 1925, after the timber was depleted. It carried timber products almost exclusively and never any passengers. The railroad ran through the Dromgoole Farm to the immediate east of the house [Interstate Commerce Commission Reports: Decisions of the Interstate Commerce Commission of the United States, United States. Interstate Commerce Commission, United States Government Printing Office, 1926]. The region around the Dromgoole House was heavily timbered.

In addition to its timber, the region became known for its flue-cured bright leaf tobacco, prepared for market in tall log barns. The Dromgoole Farm was no exception, and the plat of the 1924 division of the farm (see map below) shows a number of tobacco barns around the property, including two directly to the north of the house. It and other tracts totaling 230.79 acres were sold to R.J. Clary, Jr. in 1924. Clary sold the acreage to Madeleine Hutcheson in 1947. She sold it to William Grady Pearson, a local storekeeper, in 1949. The Pearson family occupied the house at mid-century [*Lake Life*, 2018]. It was last occupied in the mid-1960s. Of this property, 16 acres including the house, were sold to the Old Brunswick Circuit Foundation in 2008. Under the ownership of Pearson, repairs seem to have been done to the house. Comparison of the house today with a historic photo from the 1960s (see page 29) seems to show extensive stone repairs at the south west corner.



A detail of a 1924 plat of the division of the property (enlarged detail on the right). The Dromgoole House is shown with a group of surrounding outbuildings, including a cluster of four tobacco houses (labeled T.H.). Other than a barn (B), the house and outbuilding are not shown correctly. The old road to the west of the house is the original road through the area. An "old stable", crib and tobacco barn are shown to the north side of Beddingfield Creek and the railroad tracks. The two sections of open land correspond closely to the cultivated or pasture land shown on the 1864 Gilmer map above.

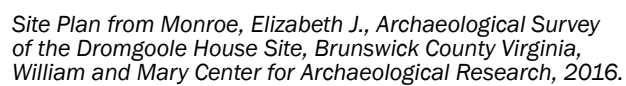


This historic photograph from 1929 shows the porch with protective placement of two side benches to prevent people from falling off the sides of the porch.

3. DESCRIPTIVE NARRATIVE



North Front, Dromgoole House, Dromgoole and Lou Allie Heath, 1971 [Collection, Old Brunswick Circuit Foundation].



Descriptive Narrative

Site

The house is sited on a rolling section of rural land near the crossroads hamlet of Valentines. The house is located close to the head of Beddingfield Creek, a tributary of Fountain Creek and the Meherrin River. Today the house stands on a small 16-acre tract and is surrounded by forest, but the tract on which it stands had grown from an original 330 acres at the time of first purchase in 1796 to 1,740 in the mid-nineteenth century. The bed of a historic road runs to the west of the house, but the property is now accessed by a long drive from Rt. 46 (Christanna Highway). The route of the early twentieth-century Roanoke Railway runs to the immediate east along the east side of Beddingfield Creek.

Few traces of historic outbuildings remain. An early, one-story, frame outbuilding measuring about 18' by 18' is located to the east of the house. The remains of a stone foundation are located to the west of the house and a chimney is located northeast of the house. Two other mounds to the north of the house may represent fallen chimneys. The family cemetery is located to the southeast of the house. An allee of boxwoods lines the front walk axially aligned with the south porch. The site was much disturbed by clearing with a bulldozer in advance of a 1972 ceremony to place Edward Dromgoole's burial monument. At that time, a path was cut to get to the house, the north porch was removed, and the grade was lowered around the boxwood allee [Personal communication, Tom King].



Historic photo labeled "Part of the original Dromgoole House where Bishop Asbury was entertained. Grandmother of Miss Simms was married in this house" [J.M. Rowland, "On Historic Spots in Brunswick County," Richmond Christian Advocate, Fall 1929]. This seems to be the existing outbuilding, but the negative was reversed (here is shown flipped). It shows the south front with the door and weatherboard intact. Edward Dromgoole's granddaughter expressed family tradition that this was part of the original house the preceded the present one and that the larger house present today was built "before 1800".

Secondary Structures

The surviving outbuilding is referred to today as the Spinning House or Work House, after the descriptions on the Virginia Mutual Assurance Society insurance policies of 1803, 1805 and 1816. The 18' x 18' square, one-room structure features characteristics related to eighteenth- and nineteenth-century domestic architecture, including a mortise-and-tenon pitsawn frame. Evidence shows that it was more likely a kitchen and that it may have been relocated from a position to the west of the main house, where a kitchen of identical proportions was shown on the 1816 Virginia Mutual Assurance Society policy (the spinning/work house was shown at a different location as well). The dimensions and locations of some of the buildings differed on the two older policies. The building features plain square siding attached with cut nails (probably added in the mid-nineteenth century), original pine flooring, 4" x 12" corner posts with a down brace to each side, 10" deep x 12" tall sills, and a rough stone foundation. The framing is joined with mortise-and-tenon joints and wrought nails. Each corner was originally strengthened by two tall downbraces. An interior finish of lath and plaster partially survives.

The outbuilding has a single window centered in the north wall and a central door in the south wall, both of which are flanked by original door or window posts. The six-over-six window on the north, notched into the window posts, is assembled with cut nails indicating that it was likely added. A historic photograph of the building published in 1929 shows a door with a nine-pane light

in the center of the south elevation. The door post alone remain from the door on the south, which now contains a twentieth-century batten door. The off-center stone chimney on the east side is placed to one side of a much wider original chimney location centered on the wall. The current chimney, probably dating from the mid-nineteenth century, was clearly added, since the two chimney posts which survive are symmetrically located eight feet apart on the south wall and the down braces are placed at especially acute angles in order to accommodate the original fireplace, which was suitable in size for use in cooking. The scale of this fireplace is further attested to by the original 8'-6" wide hearth opening infilled with added boards.

The building was altered in the mid-to-late nineteenth century, possibly at the same time that the cooking function was moved into the main house in the East Wing. The framing, by its form and joining, suggests that the building could have been used as a kitchen, as does the evidence of the large original chimney. The size of the building correlates with the dimensions of the Kitchen shown in the insurance documents of 1816. The plain weatherboard and sash window, attached with cut nails, appear to have been added well after the building was constructed. Similarly, the hand split lath and lime plaster that finished the interior is attached with cut nails. The lath may have been added after the initial construction, because scraps of reused lumber can be seen that were used augment the corner posts in order for provide a nailing surface for the lath.

The hipped, nearly pyramidal roof, with a plain square cornice, is a mid-to-late nineteenth-century replacement of the original roof, which probably took the form of a gable. It is now covered with 5-V metal roofing. The original ceiling joists have up-and-down saw marks. The rafters of the original roof may have been recycled to form the pyramidal one, since they carry collar beam lap joints in odd positions. The addition of the pyramidal roof involved the addition of outriggers on the east and west sides to carry the cornice, a fairly laborious procedure. A wooden shingle was found in the outbuilding, similar to but smaller than the shingles found in the main house. The building has a six-over-six sash window in the center of the north wall. The west wall is blind and has a center post, indicating that it never had any fenestration. The south wall has been heavily altered and is badly deteriorated. The western end of the framing has been removed and the door replaced between the two door posts.



Kitchen, known today as the "Weaving House" or "Spinning House" from the east (left). Note the cut in siding, chimney posts and down braces indicating the location of larger original chimney. Stone chimney at secondary house site to east of the main house seen from northwest (right).

A depression in the ground is located to the west of the house corresponding to the location of the kitchen in the Virginia Mutual Assurance Society policies of 1803-1816. In addition, a stone chimney with a brick stack stands in the woods to the northeast of the house. This may have served a secondary domestic building such as a dwelling for an overseer or a slave house. No foundation is visible. A mound in the woods due north of the house and another small mound may represent fallen chimneys for other structures [Elizabeth J. Monroe, *Archaeological Survey of the Dromgoole House Site, Brunswick County VA*, William and Mary Center for Archaeological Research, 2016].

The archaeological report of 2016 indicated that the north-central section and the western edge of the site have low potential for artifact recovery. The vicinity of the standing chimney and the mounds to the north of the house should be avoided until more archaeological study can be undertaken. The report indicates that the area around the house and kitchen foundation should also be avoided due to the likely presence of important archaeological information. The archaeological potential of the site was compromised by the bulldozing of the site in the 1970s in preparation for a homecoming celebration. In addition, any subsurface remains in the construction trenches around the house and kitchen foundation were likely lost during the addition of the foundation drainage system.



Dromgoole House, north elevation from southeast.

Main House Summary

The Dromgoole House is a two-story, frame house that incorporates a hybrid vernacular form. It is organized in a double-pile plan with two rooms (Hall and Chamber) arranged in a hall-parlor format on the south front and a shallow central-passageway format on the north. The house is underpinned by a partially dismantled stone foundation. It is clad in weatherboard with a molded lower edge. A one-room frame wing was added at an early date at the north end of the east wing. It first shows up in the Virginia Mutual Assurance Society policy of 1810. The gable roof is clad with 5-V surface nailed metal panels probably dating from the second quarter of the twentieth century. The entire house, including the porch was wrapped with OSB sheathing and house wrap in 2010 to protect it from further damage from the weather. The following description relies in part on site visits and in part on photographs taken in 2008.



Dromgoole House, north facade and porch looking southeast, c1971.



Dromgoole House, west end looking east, 2006.



Dromgoole House, south facade and east end from the southeast, 2006.



Southwest corner from southwest showing missing section of foundation, 1960s. A earlier basement entry is visible beside the chimney [Collection Old Brunswick Circuit Foundation].

Exterior

The asymmetrical south front incorporates four openings on the first floors, including two doors in the central bay giving access to the two rooms on the interior. An original six-over-six panel door survives at the eastern doorway. The Second Floor has three window bays. The north front has a single off-center six-panel door in the middle bay giving access to the Passage and stair. It is flanked by windows to each side lighting the two small rooms that flank the Passage. The north and south fronts incorporated nine-over-nine sash windows on the First Floor and six-over-nine sash windows on the Second. The two-part architrave trim with an outer cyma, an intermediate cyma, and an inner bead is identical on the interior and exterior of the doors on the south and north walls. The window trim on the exterior consists of a square surround and a molded sill. The molding appears from historic photographs to have consisted of a bullnose supported by a cyma. The windows appear to have had cast iron hinges installed in the late nineteenth century for louvered blinds, one of which is visible in a historic photograph from the 1960s seen above.

A one-story, one-bay porch protects the two doors in the center of the south front. The porch is supported on two original, built-up square columns with beaded corners at the front and similar half columns or pilasters against the south wall and a foundation of schist stone. The columns are equipped with molded capitals and no bases. The half columns are attached to the framing of the south wall with original pegs. Modern wood steps rise to the porch. The frieze is paneled on the inner and lower faces. The exterior features a bed and crown related to form of the main cornice. The porch's hipped roof is covered with 5-V metal panels. The house originally had a central 10' x 12' porch with a shed roof and square posts which appears to have survived until the 1970s [Historic photographs of front and rear, Dromgoole and Lou Allie Heath, 1971]. The box cornice incorporates a molded crown and bed and is closed at the ends with closer trim that follow the same profile.



Southwest corner from the southwest showing repaired foundation, 1970s [Corker, Collection Old Brunswick Circuit Foundation].

The end walls were equipped with smaller four-over-four sash windows, except the window lighting the Hall in the south end of the west end, which matches the windows on the front and provides consistency in the interior of this more formal room. The rake boards do not appear to have been tapered, as is sometimes the case.

House Frame

The house is framed in traditional heavy-timber fashion, with pit sawn and hewn members, mortice-and-tenon joints, and massive L-shaped posts at the corners trenched to align with the plaster on the interior. Tall down braces are placed at each corner and at each end of the east-west and north south dividing partitions on the first floor. Studs are $4\frac{1}{4}$ " thick. The framing is filled with brick nogging to a point about half-way up the walls of the first floor. Window and door frames are integral with the frame and each is morticed into a pair of flanking posts. Joints are marked by Roman numerals to aid in assembly. The joists on each floor span from the front and rear walls to the dividing partition and lapped over it. The deep common-rafter roof is lapped and pegged at the apex. There are no collars, but the rafters are stabilized by slightly angled verticals posts along the sides. Wood shingles were found during work on cleaning out the house.

Chimneys

The west end features a chimney offset to the south to heat the Hall in the southwest corner. The east end has a similar brick chimney offset even more to the south. The different locations of the chimneys is not fully explained by the floor plan, except that the builder may have tried to minimize the double depth of the house by shifting the chimneys as near to the roof ridge as possible. Both chimneys are mostly built with very large $3\frac{1}{2}$ " x 8" brick units laid in Flemish bond, originally tiled shoulders and decorative glazed header ornament at the top, including a diamond shaped pattern on the west and an angled double row of headers on the east. The base of both chimneys are stone and the brick is stepped inward to the brick shaft in the same way in both chimneys, but the upper two-thirds of the west chimney is built of a smaller brick of a different color and shape.



Dromgoole House, west chimney base (left) and western angle of front porch (right).



Central Second Floor window on north elevation (left) and East Wing from the northeast (right), Harvey Moseley, 2006 [Collection Old Brunswick Circuit Foundation].

East Wing

The approximately 14' x 14' one-room wing, likely added between 1805 and 1810, is aligned with the north wall of the house. The traditional frame is filled with brick nogging and clad with weatherboards. It incorporates an off-center six-over-nine sash window on the north wall. Today only one sash is intact and in place (the others are in storage). The south front of the wing holds a six-panel door flanked on the east by a six-over-nine sash window. These have narrow square exterior trim. A porch, now demolished, was apparently added across the south front of the wing, since it did not penetrate the siding. The gabled east end shows a ghost of the former slope-shouldered brick chimney in the weatherboard and framing and the infilled location of a 5'-1" wide hearth. The wing has a common rafter gable roof much steeper than the main house. It is covered with unusual 2-V metal panels.

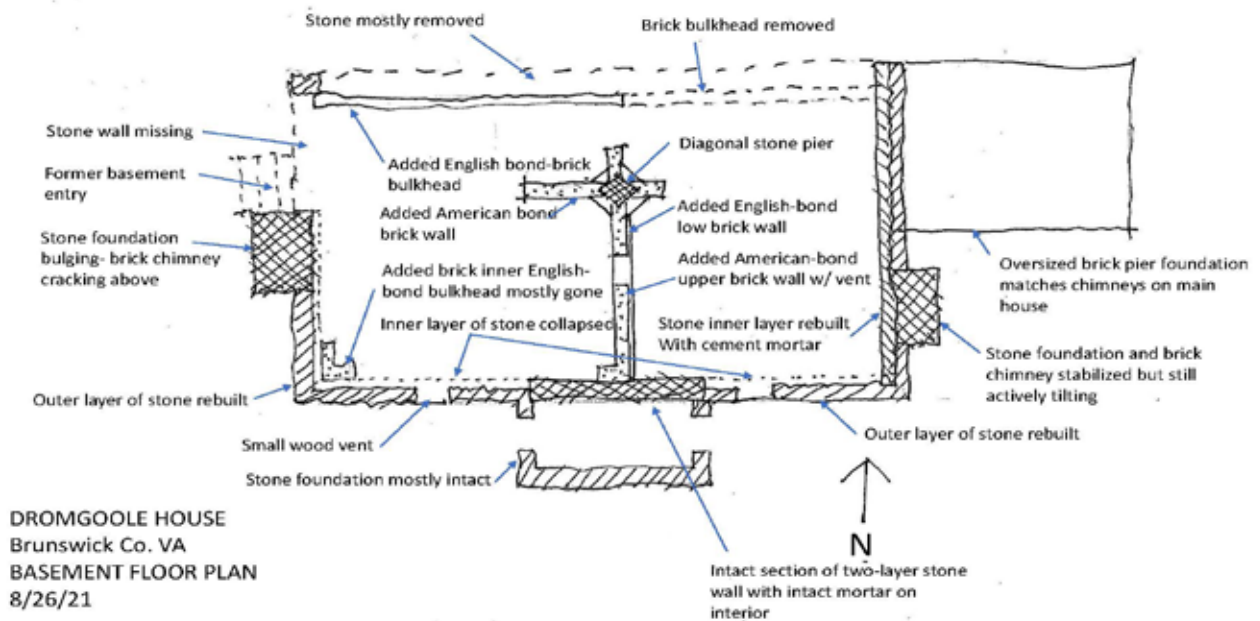
There is no cellar or usable garret. Speculation that the wing may have been moved from elsewhere on the property is possible, but seems contraindicated by the lack of a surviving west wall for the wing. The wing was probably converted to use as a kitchen when the exterior Kitchen was retired from service. The chimney was removed and a stove flue substituted, of which traces remain in the ceiling and which is visible in historic photographs. The flue was supported on top of the ceiling joists. The chimney was removed and its former location became a door when a further addition was made in the twentieth century to the east.



Porch from the southeast ((left), east end from the southeast, 1970s (center), and East Wing with additional extension to the east, 1970 (Corker, right) [Old Brunswick Circuit Foundation].

Interior

The house contains most of its original trim, including mantels, wainscot, chair rail, base, and door and window trim. Exterior window trim is missing on the two first-floor front rooms, except for the window in the east wall of the Parlor. The flooring is made of tongue-and-groove pine that has been gauged to fit the pit sawn joists. The original raised-panel doors were hung on HL hinges that were attached behind the architrave trim. The only doors that survive are one of the six-panel front doors, the six-panel rear door, the six-panel door between the Parlor and the adjoining Room 1, the two-panel door to the Closet under that stair, and the four-panel door to Room 2 in the northwest corner. Decorative painted trim survives, particularly graining on the one remaining front door and on the first-floor Closet door and the adjacent door to the Room 1.



Basement, West Room, looking southeast showing central brick cross partition (left). Added brick bulkhead on the right.

Basement

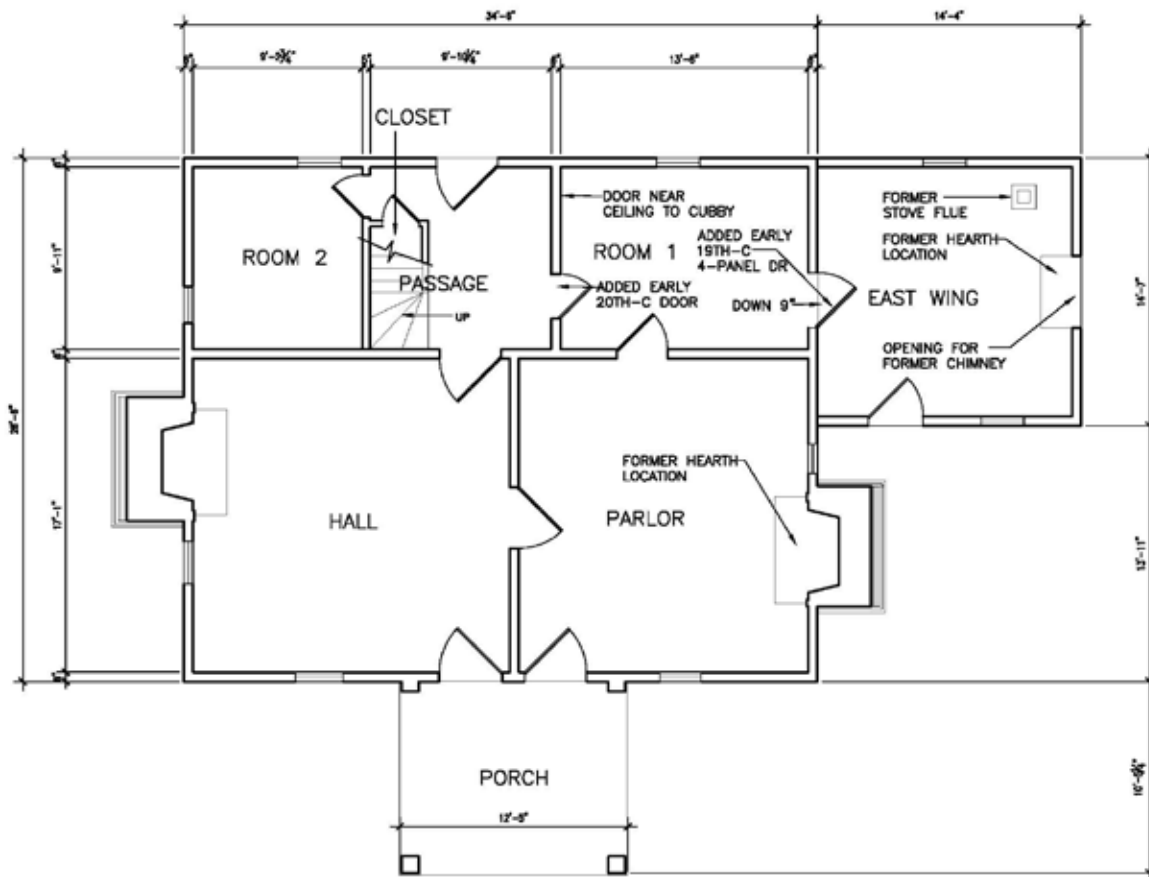
The schist stone foundation of the main house originally concealed only a crawl space. The stone was laid in a low-lime or no-lime mortar with some evidence of lime pointing at the outer face. On the interior a diagonal stone pier supported the main partition between the front and back range of rooms. At some point in the early nineteenth century the foundation was excavated for use as a cellar (see references in Edward Dromgoole's 1836 will and inventory to the "cellars" and the "new" and "old" cellars). The foundation and the internal diagonal pier were shored up by low bulkheads made of fully fired reused brick similar to the chimneys, but laid in English bond. A related internal English bond three-wythe wall runs back to front under the main internal partition. That wall was raised to the ceiling by an additional two-wythe section of wall made of salmon bricks laid in American bond.

First Floor

The First Floor contains two rooms of unequal size: the Hall (named in the 1835 inventory) to the southwest, measures about 17 feet square and the Southeast Room, which measures about 17 by 15 1/2 feet. The floor-to-floor height, at 10'-8" is unusually generous. The two rooms are treated identically in their trim, with flat-paneled wainscot with a bullnose cap supported on a shallow cavetto, two-part door and window trim with an outer and intermediate Roman ogee moldings. The plain shelf-and-architrave mantels have a single architrave with base blocks surrounding the fireplace, a paneled frieze flanked by fluted end blocks, and are surmounted by a Neoclassical molded shelf that breaks out over the end blocks. The two rooms are connected by a central door in the dividing partition. HL hinges remain from a now-missing six-panel door. The plaster and lath in the two front rooms was removed in the mid-twentieth century and replaced with gypsum wallboard walls and a dropped ceiling. The dropped ceiling required that most of the window trim be removed. The flooring is of Longleaf Yellow Pine.

The rear range of rooms are entirely unheated. They consist of the Passage (named in the 1835 will), a small room opening out of the Hall and containing a closed-stringer stair, flanked by a small chamber of the same size on the west (Room 2), which opens beneath the stair, and Room 1, of the same width as the adjacent Parlor, which opens out of it. The winder stair rises along the west wall of the Passage to a wide landing over the north exterior door. It is formed around the newel posts on which the winders converge. The newels are capped with shallow cavetto moldings matching the wainscot. They are linked by a sturdy molded rail above and a panel of diagonal boards forming a skirt to conceal the stringers and closet below. The balusters are missing. A small cubby located under the stair landing opens near the ceiling into Room 1.

First Floor Plan





First Floor, Hall looking southwest.



First Floor, Parlor looking southeast.



First Floor, Passage looking north (left) and First Floor, Room 1 looking east (right).



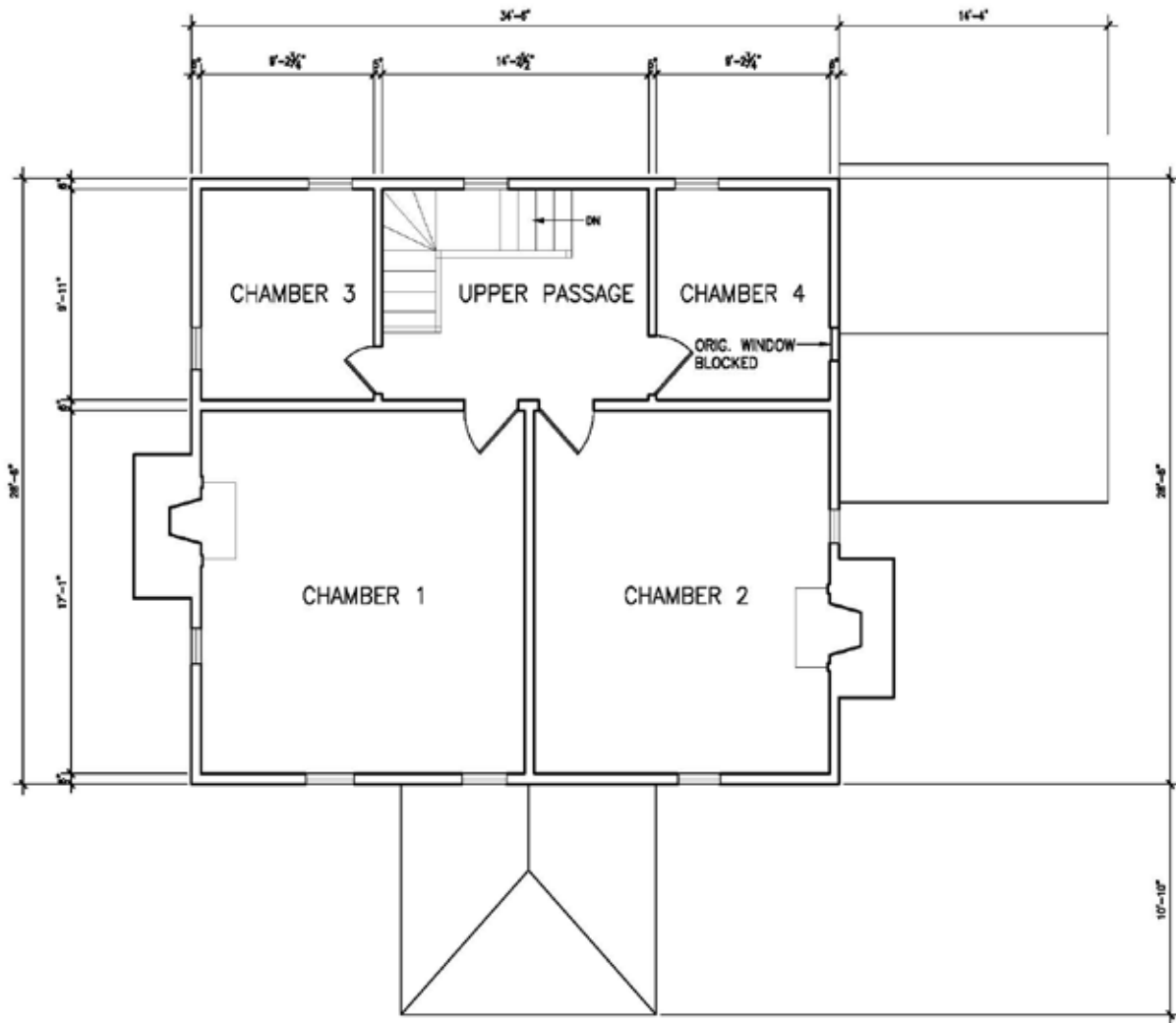
Detail of mantel in First Floor, Hall (left), First Floor, Room 2 looking southwest (center), and cubby door in Room 1 looking northwest (right).

The openings in the rear range of rooms are equipped with single architrave trim, except the two north-facing windows, that use two-part trim on both the interior and exterior. The interior of the rear range of rooms was not treated to the addition of gypsum wallboard and so retains much of its original plaster. Rooms 1 and 2 incorporate picture slips, narrow strips of wood for hanging pictures, only on the interior walls. In the Passage, only the stairway wall is free of a picture slip. The flat-paneled wainscot from the Hall extends into the Passage, but the two rooms have flat chair rails with beaded upper and lower edges. A small batten door was added, probably in the early twentieth century, to connect Room 1 with the Passage.

Second Floor

The second-floor plan is very similar to that of the First Floor. The ceiling height, at 8'-1", is lower than the First Floor. The room sizes are the same, except for the Upper Passage and Chamber 4. Chamber 4 is 4'-4" narrower than the room below in order to make room for a landing at the top of the stair. There is no evidence of any major changes to the plan or details since the house's construction. All of the openings are given single architrave trim with an ogee outer edge and a beaded inner edge. Each room has a beaded base and a flat beaded chair rail that is intersected by the window sills. The Hall and Parlor have identical fireplaces which consist of a plain shelf-and-architrave mantel with a small segmentally arched firebox. The mantels originally had no shelves. Flanking boards support an added shelf at each mantel. A section of picture slip was placed above the east mantel. The only surviving door is the four-panel door to Room 2.

Second Floor Plan





The Upper Passage looking southwest from the stair (left) and Chamber 2 looking southeast (right).



Second Floor, Chamber 1 looking southwest.



Second Floor, Chamber 4 looking northeast, showing window blocked by the addition of the East Wing (left) and door from Upper Passage to Chamber 3 looking west (right).



Second Floor, Chambers 1 and 2 seen from Upper Passage looking south.

Attic

The attic of the Dromgoole House was not intended for regular use. There is no access stair or gable windows or vents. The attic is framed conventionally, with pairs of long common rafters lapped and pegged at the apex. There are no collar beams running between the rafters, but the rafters are braced at midpoint by angled vertical members.



Attic, showing typical common rafters and sheathing (2022, left) and joists (Corker, right).

East Wing

The interior of the wing features a low wainscot that forms the sills of the two windows. The wainscot is made up of $\frac{3}{4}$ " horizontal boards. The molded top remains only at the windows, since it was planed off to make room for added gypsum wallboard in the twentieth century along with a baseboard, of which only a ghost remains. The $\frac{1}{2}$ " thick plain boards covering the upper walls and ceiling were likely added at that time. A ghost on the boards shows the location a missing mantel that corresponded to the 5'-1" wide hearth. The mantel appears to have been removed along with the chimney to add an additional wing to the east, no longer standing, in the twentieth century. The original random-width floor boards survive with the hearth infilled. The window sashes were in poor repair and some were missing in 2009. Some of these windows have been carefully restored by Tom King and others await restoration in storage. The single architrave trim, consisting of an outer ogee and an inner bead, survives at the doors and windows.



East Wing, interior looking east (left) and East Wing, interior looking west (right).

Building Systems

The Dromgoole House has been minimally supplied with electrical service, plumbing, and heating equipment. An addition to the east end of the East Wing very likely contained the house's only bathroom. The East Wing appears to have been adapted to serve as a kitchen in the twentieth century by the addition of a stove flue on the north roof slope, but there is no evidence that the wing had piped-in water or an electric stove. The house had minimal wiring and lighting fixtures. Heating of the house was apparently provided by coal or wood-fired heating stoves after the use of wood-burning fireplaces was discontinued.

4. EXISTING CONDITIONS & RECOMMENDATIONS

Existing Conditions and Recommendations



Rebuilt post at the north end of the first-floor partition between the Hall and the Parlor (left) and termite damage at the north end of a beam where it ends at the replaced sill under the north wall (right).

House Frame

Condition

The frame is largely intact. There has been extensive termite damage, particularly along the north wall. The offset post at the intersection of the main dividing partitions (see above) was completely compromised, but has been reinforced with new wood. The sill under the east-west partition and some adjoining joists exhibit termite damage. The rear sill and the joists connected to it had partially collapsed into the Basement, but they have been replaced and repaired in the past decade.

House Frame Recommendations

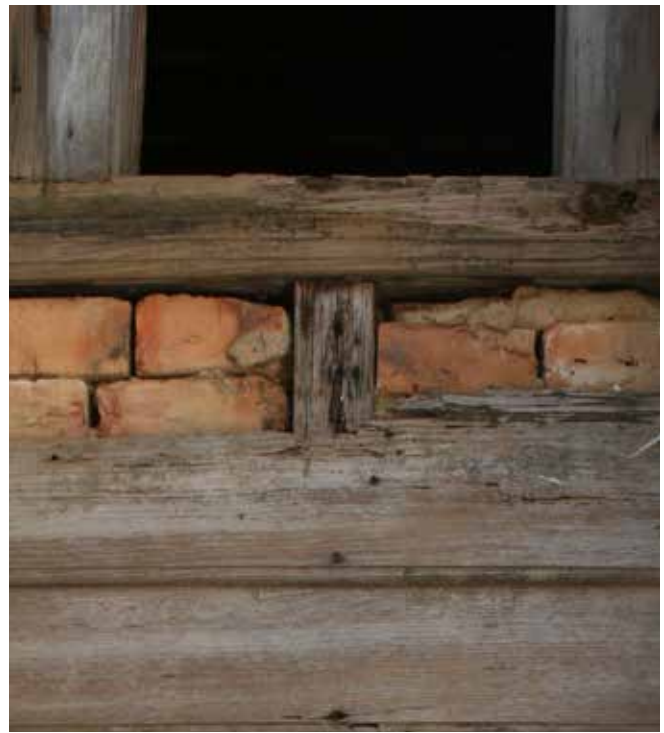
- Damaged portions of the house framing should be repaired using the most sensitive techniques to avoid damaging original materials.
- Repair rather than replace wherever possible.
- Follow recommendations of structural engineer to assure the long-term safety and stability of the structure.
- Preserve the brick nogging in place to the greatest degree possible.
- There is significant deterioration of first-floor wood framing despite recent repair efforts. This will require a more comprehensive structural effort, both at the perimeter as part of an initial foundation reconstruction and at damaged locations on the interior.
- Masonry stack used for jacking appears to be crushing at base. Unclear if this element is still supporting load or was only used for jacking with load now transferred at other locations (according to Tom King, this never carried much weight).

Exterior

Condition

Soon after acquiring the house, the Foundation arranged for it be covered with OSB sheathing and protected from moisture by house wrap. This work was headed up by Bobby Clary using local labor in 2010. The house is still mostly obscured by the house wrap, but enough can be seen to realize that the weatherboard is in severely fragmentary and eroded condition. The window frames, sills, and trim are similarly degraded by years of neglect, but much of it is concealed by the OSB sheathing. Many window sashes are either missing or in need of repair. The cornice is missing much of the top member. Rake boards are missing. The roofing is keeping out water, but is not a long-term solution to the building's needs.

The porch needs a great deal of repair to make it safe for use by visitors. The foundation is fragmentary, the flooring is loose and unreliable, and the stairs are not usable by visitors. There are no porch railings, which is a hazard, even though the project probably doesn't need to meet code as an existing historic building. The historic photograph from 1929 on page 21 shows the porch with protective placement of two side benches to prevent people from falling off the sides of the porch.



Damage to the sill on the north elevation (left) and typical brick nogging and weatherboards on the north elevation (right).

Exterior Recommendations

- The exterior weatherboards and trim should be repaired and replaced. Any intact sections should be maintained in situ.
- Window frames and sills should be repaired in place wherever possible.
- Window sashes should be repaired as possible or replaced with identical units.
- A new roof with adequate flashing should be installed, using either wood shingles to match physical evidence, including shingles found in the attic, or a replacement 5-V metal roof.
- Repair the porch trim, repair deteriorated portions of the porch ceiling, and replace the porch floor.
- After foundation work is complete, regrade the exterior to original levels.



South porch interior looking northeast (left) and south porch interior looking towards northwest towards ceiling (right).



East chimney base during repair in 2013 (left) and west chimney during foundation drain installation (right).



West chimney shaft looking north (left) and east chimney shaft looking north (right).

Foundation and Chimneys

Condition

The foundation is in very poor condition. At some point after the crawl space floor was lowered, the exterior foundation wall, which was made up of an inner and outer layer separated by a rubble or mud-filled core, began to fail and was rebuilt, probably in phases over many years, as an uncoursed veneer reusing the original stones. A photograph from 1960s (page 29) shows a missing section of stone at the southwest corner before it was repaired. The only original section of properly coursed stone survives under the front porch. The rest of the foundation appears to have been rebuilt over several years using original materials. The inner layer of the foundation also failed. The inner layer of stone at the east end was rebuilt in the twentieth century, and most of the rest of the inner layer and about half of the outer layer has fallen. Thanks to local experts, the building has been shored up and the east chimney partially stabilized. The west chimney exhibits serious cracking and evidence of bulging subsidence, indicating a pressing need for stabilization and repair. The interior foundation wall at the west chimney has entirely collapsed. The building has very little lateral system at the base especially on the north side and its gravity supports are patched together. Foundation repairs should move ahead as soon as possible to minimize risk of losing the building or a more thorough and professional shoring system should be put in place.

In 2011-13, Tom King, a locally based contractor with historic reconstruction experience, addressed the building's most pressing problems, which, in addition to potential collapse of the chimneys, included ponded water in the Basement, collapsing foundation walls, and a resulting failure of the sill and joists at the rear. He followed up by adding a foundation waterproofing system, removing the failed foundation wall along the rear, replacing the sill at the rear, and repairing the joists and floor that rested on the sill. King described the foundation waterproofing of the project:

“ . . .the first thing I suggested that be done was to eliminate that water, and the possibility of any future water entering. They agreed, and with money out of their own pockets, allowed me to design, and have installed that system. . . . Excavation started 5 feet deep, 6 feet out from the East end of the brick foundation of the added on single room. It goes down a minimum of 1” per 8’, until it is about 7’ deep at the West end of the house. It leaves a slope of dirt under the waterproofing membranes of less than 45 degrees. Perforated PVC drain pipe is at the bottom, on top of fabric, and a layer of 88 stone graded to a nice, straight slope. Outside the West end of the house, the perforated pipe is connected to solid pipe, that continues all the way down the hill, exiting to daylight at the tree line.”

The foundation waterproofing was successful in preventing water from damaging the foundation any further. The Basement is now dry. The work was suspended with the rear wall and adjacent flooring supported by treated wood posts. At the same time King repaired some of the window sashes.

The chimney at the east end was moving and collapsing at the base, as the outer layer of stone was forced to carry most of the weight of the brick chimney shaft above. Tom King repaired the base of the chimney and filled the void at the interior with concrete grout. The west chimney has similar problems that have not been addressed. Cracking and bulging at the base indicate that the stone outer face does not have capacity to carry the weight of the brick above. At both chimneys, the tile that originally shed water is missing from the shoulders and the upper shaft has lost integrity.

Foundation and Chimney Recommendations

- East Chimney
 - * Rebuild East Chimney from shoulder up (significant gap in brickwork and inward lean). Document and salvage the decorative diapering pattern and put back to match existing.
 - * Previous repairs have poured concrete into interior to tie together. While not ideal as far as reversibility, this may have been determined necessary in earlier years to stabilize the brick above. Now that it is presumed to be solidly adhered with the concrete, consider underpinning to mitigate future movement.
- West Chimney
 - * Rebuild from shoulder up (cracks and outward shift/lean). Document and salvage the decorative diapering pattern and put back to match existing.
 - * Base appears to have been an outer wythe of mortared masonry with inner rubble fill which has become loose. Rebuild base in sections with clay bricks at interior, exterior wythe of stone masonry to match original. Similar to construction of main walls. Add new concrete footing installed in segments after repairing structural crack with stainless steel helical ties.
- Remove and rebuild the entire foundation, except for intact portions of the south porch foundation and the central section of the south wall under the south porch, which appear to be structurally competent.
- Sections of foundation should be underpinned, repaired, and repointed using appropriately formulated lime-based mortar to permit moisture movement and evaporation.
 - * Top of footing = bottom of original stone walls
 - * Bottom of footing = minimum of 18" below lowest adjacent (exterior or interior) grade.
- Consider the unknown depth and adjacency of drainage trench and deepen footing accordingly. Once that is established, it may be preferable to consider helicals or alternate deep foundations instead of dropping bottom of footing.
- A new stone-faced foundation to match the appearance of the south porch should be added under the reconstructed north porch.
- Proposed rebuilding concept is a composite wall using an 8-inch brick backing behind reused existing schist stones as a 8"-12" exterior facing with concealed stainless-steel ties. The entire foundation should be built using appropriately formulated lime-based mortar for moisture management. The space between the inner and outer faces will be filled with lime-based grout. Provide periodic stone header units tying back to brick along with stainless steel ties for further cohesion between brick and stone.
- Provide a crawl space entry to the north side of the west chimney. Recreate the likely form of a historic basement bulkhead at that location.
- The section of brick cross wall on the interior should be preserved in place and the Basement filled with gravel to the level of the original crawl space.



Basement- view of the north half of the Basement looking east showing the diagonal pier and added brick partition to the right. The door frame, no longer in place after the repairs of 2013, connected the room on the east side of the Basement with the room(s) on the west.



Details of the East Wing, window (left) and south front (right).

East Wing

Condition

The exterior of the wing is in poor condition. Some of the weatherboards and trim elements are possibly reusable in place, particularly on the south, where they were protected for many years by the porch. The window sashes are missing. The floor framing is partially collapsed and the floor damaged. The north foundation wall is intact, although damaged by cracking. The east end and south foundation walls are in poor condition or missing entirely. The roof is sheathed with an unusual 2-V surface-nailed metal roof.

East Wing Recommendations

- The foundation, exterior trim, and weatherboard should be repaired or reproduced to restore the exterior to its c1810 appearance.
- Significant wood framing repairs / replacement required. Access should be closed until the flooring is sound. The floor structure should be repaired as recommended by structural engineer.
- If the east wing is not repaired at the same time as the main house, it should be protected from ongoing damage and made off limits to visitors on the interior and exterior
- The missing east wing chimney should probably be rebuilt, in order to make interpretive sense of the exterior of the building.
- Repair the exterior door.
- Repair surviving window sashes and reproduce missing window sashes and other elements as needed.
- Access should be provided to the door.
- Unless the porch can be shown to be an early feature of the wing, it should not be restored. This should become clear after the OSB sheathing is removed.
- Intact sections of the brick foundation (particularly under the north wall) should be repaired in place. Other damaged and missing sections of the brick foundation should be rebuilt on new footings using brick salvaged from the site.
- Underpinning of foundation is required due to deep trench adjacent (see previous discussion).
- Coordinate repair work with a new foundation for stoop or porch for access to east wing.
- Install a new wood shingle roof or a 2-V metal roof and new flashing against the two-story section.



First Floor, Room 1) showing appearance before the floor was repaired c. 2013. The floor had dropped with the collapse of the rotted joists below (left). First Floor, Parlor, chimney breast showing damage to hearth, floor and fireplace interior (right).

Interior

Condition

Plaster surfaces throughout the house at the start of this project are in very poor condition. Water damage and structural deformation has resulted in the loss of extensive sections of plaster. The plaster in the two major first-floor rooms has been removed. Painted wood surfaces are badly degraded, although substantial areas of historic paint and decorative finishes, including grained surfaces, remain in place.

The first- and second-floor fireplaces and hearths are in need of repair and repointing. The flooring is loose or damaged in a number of areas. Flooring, particularly in the southwest corner of Chamber 2 and in the East Wing, is in need of partial replacement where damaged by leaks. The stair balusters are entirely missing.

Twentieth-century features, particularly the narrow door between the first-floor Passage and Room 1, intrude into the historic appearance of the house, and may not meet desirable access standards.

Interior Recommendations

- Painted finishes should be conserved or restored where practical and possible. Otherwise surfaces should be repainted using the services of a qualified historic paint analyst to determine the most appropriate colors, paint formulas, and techniques. New doors should be grained or treated to match existing doors.
- Plaster should be conserved in place wherever practical or possible using original lath.
- Conserve any historically significant graffiti.
- Secure loose plaster keying with modern plaster washers.
- Use plaster skim coating sparingly.
- If traditional lath and plaster is not possible in areas where plaster is missing from entire walls and ceilings or too damaged to repair, use modern gypsum plaster on gypsum or wire lath to achieve a long-lasting finish system.
- Do not remove or replace any building elements unless it is impossible to repair in place.
- Missing sections of trim and wainscot should be restored using adjacent materials as models. Decide whether to remove the shelves at the second-floor mantels.
- Missing doors, door panels, thresholds, and hardware should be reproduced from appropriate existing elements.
- Flooring should be repaired and replaced to match early materials and techniques. Clean floor carefully using rotating pads, not sanding, in order to conserve original texture as much as possible. Do not sand, seal, or otherwise finish unless paint analyst indicates that course of action is appropriate.
- Do not apply insulation to the walls. This has the potential to damage the framing and the interior and exterior finishes as it can cause unanticipated moisture and condensation problems.
- Insulate between the attic joists and first-floor joists using appropriate vapor/moisture barriers.
- Open bricked-up fireplaces. Repair fireboxes and hearths using lime-based mortars and reattach mantels as appropriate.
- Remove and repair twentieth-century features, particularly the narrow door between the first-floor Passage and Room 1.
- Using conjectural design, replace missing balusters at stair.
- Ensure that the building is supplied with sufficient ventilation in the attic and crawl space.

5. PRIORITIZED LIST OF RECOMMENDATIONS



Prioritized List of Recommendations

A. PRELIMINARY FRAMING REPAIR

1. If the foundation work is not underway soon after this report is complete, put in place a thorough professional shoring system. There is little lateral structural integrity under the building, especially on the north side.
2. There is significant deterioration of ground floor wood framing despite previous repair efforts. Begin with a comprehensive structural effort, particularly at the perimeter as part of the initial foundation reconstruction. Walls, upper floor, and roof are generally in reasonably good condition and can be part of a later phase.

C. MASONRY REPAIR

1. Rebuild and underpin chimneys. Seal their tops to limit access to moisture and birds.
 - East chimney: Rebuild from shoulder up (significant hole and inward lean). Consider underpinning to mitigate the possibility of future movement.
 - West chimney: Rebuild from shoulder up (cracks and outward shift/lean). Rebuild base in sections with clay bricks at interior, exterior wythe of stone masonry to match original. Add new concrete footing, installed in segments.
2. Rebuild and underpin foundation, retaining the section intact behind the south porch.
 - New concrete footings with top of footing even with the bottom of original stone walls and bottom of footing at a minimum of 18" below lowest adjacent (exterior or interior) grade.
 - Note that a small segment of original masonry wall appears to be present and structurally competent under the front porch; repair in place as much as possible.
 - Repair south porch foundation.
3. Infill cellar space, keep existing internal masonry elements where feasible.
4. Reconstruct cellar entry with restored bulkhead next to west chimney.
5. Reconstruct north porch foundation.
6. Regrade exterior to fit original grades.

C. EXTERIOR REPAIR

4. Repair and replace weatherboards and corner boards, retaining as many in place as possible.
5. Repair window frames and sash.
6. Repair south porch.
7. Repair and replace as needed south and north cornice and rake boards.

D. ROOF REPLACEMENT

5. Replace main house roof with prefinished 5-V metal panels or wood shingles.
6. Replace East Wing roof with prefinished 2-V metal panels or wood shingles.
7. Add new flashing.

E. INTERIOR REPAIRS

6. Repair framing that was not addressed in the Preliminary Framing Repair Phase.
7. Repair interior woodwork. Duplicate original elements where missing.
8. Repair and replace plaster, using original lath wherever possible. Use traditional three-coat lime plaster.
9. Repair flooring. Determine most appropriate finish. Do not sand.
4. Replace missing stair railing balusters.
5. Replace missing hearths and repair damaged hearths to match original.
6. Frame in kitchen and bath.

F. ADDITIONAL FEATURES

7. Rebuild East wing chimney.
8. Reconstruct north porch.
9. Add handicapped ramp.

G. MECHANICAL, ELECTRICAL, AND PLUMBING

8. Add wiring, lighting, security, communications, and fire protection systems throughout house.
9. Add plumbing unobtrusively to provide a kitchen and bath so that the house will be as flexible as possible for use in the future.
10. Add concealed heating (and ventilating) systems.

H. OUTBUILDING RESTORATION

9. Add new foundation.
10. Restore framing.
11. Repair weatherboards and exterior trim.
12. Add new 5-V metal roof panels.
13. Repair window frame and sashes.
14. Rebuild west door.
15. Repair chimney.
16. Add new floor.
17. Repair and replace interior trim as needed.
18. Add drywall or plaster.
19. Add underground electrical service as well as wiring and lighting fixtures as needed.

6. SOURCES



Decorative painting and graining at closet door under stair (left) and stair rail with missing balusters (right).

Building Systems

Conditions

The building has no mechanical, electrical or ventilation systems in place as the restoration project begins.

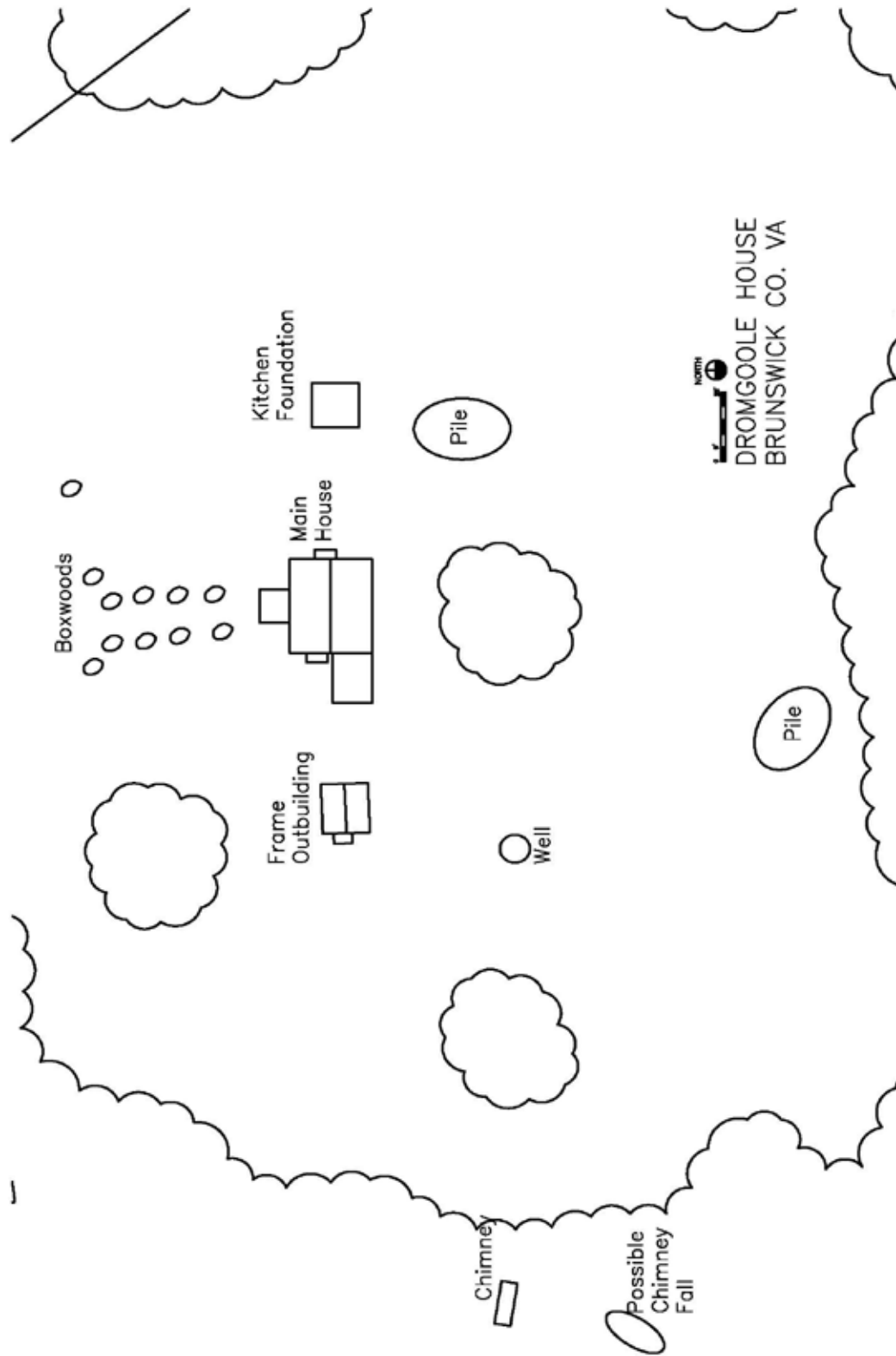
Building Systems Recommendations

- Add full electrical, fire protection, communications, and security systems. Minimize the number of outlets and fixtures to maintain historic integrity. Place outlets in baseboards where necessary.
- Add heating (and ventilating) systems that are concealed to avoid physical and visual damage to the house's historic integrity.
- Consider not adding overall air conditioning in order to avoid moisture-related stresses to the building.
- Add plumbing unobtrusively to provide a kitchen and bath so that the house will be as flexible as possible for use in the future. Consider locating these facilities in the East Wing, which has been altered more than other parts of the house. If so, the floor level in all or part of the wing may need to be raised in order to accommodate handicapped access.

Sources

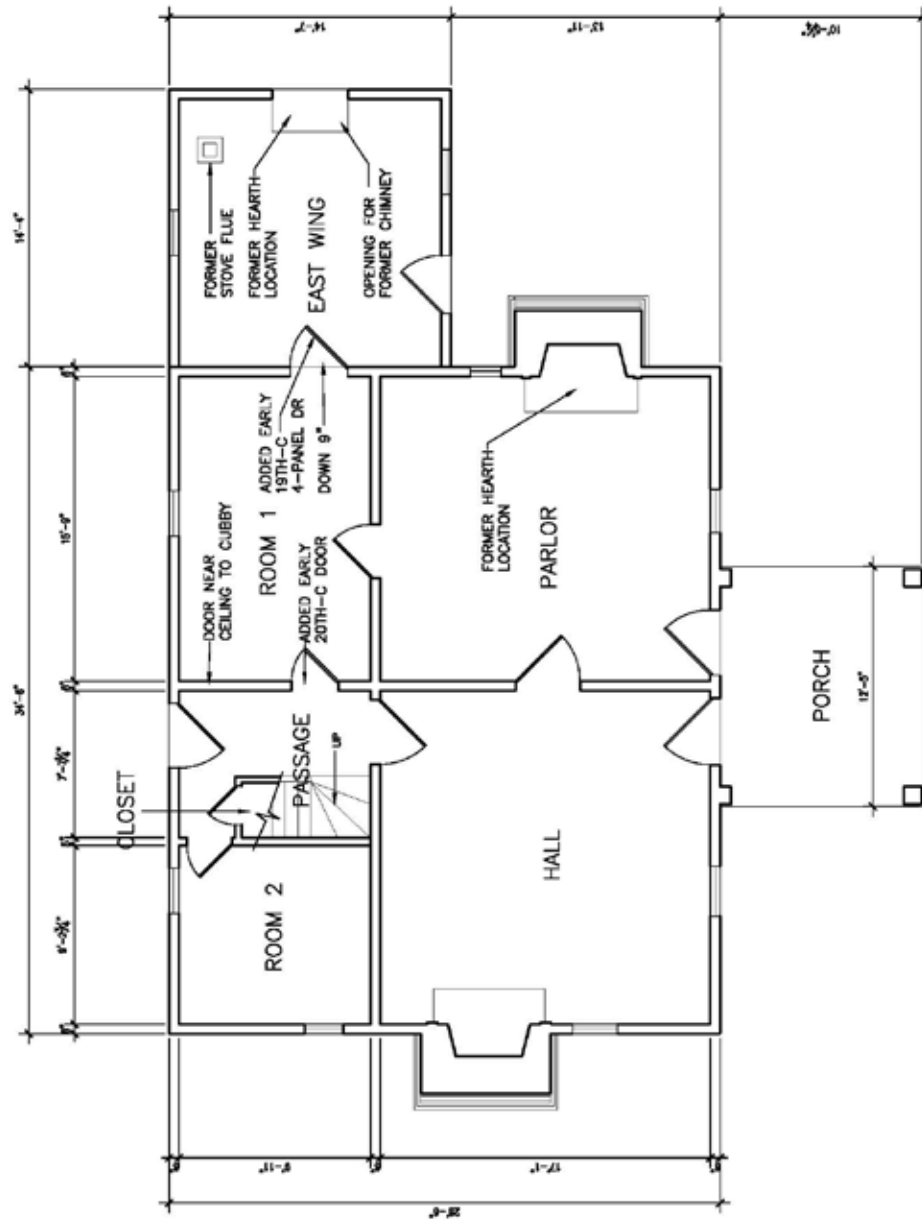
- Beazley, Lia, "Historic Gem in Valentines, VA," *Lake Life*, Fall 2018, 25-29.
- Bradley, Stephen E., Jr., Edward Dromgoole's "Canaan," *Virginia United Methodist Heritage*, (XXX:1) Spring 2004.
- Bynum, William B, "Dromgoole, Edward," *Dictionary of Virginia Biography*, Library of Virginia, 2020.
- Bynum, William B., "The Rev. Edward Dromgoole, Sr., Emancipator and Enslaver." Typescript of a presentation for the Old Brunswick Circuit Foundation, 13 November 2021.
- Clark, Elmer T. et al, ed. *The Journal and Letters of Francis Asbury*, Volumes I, II, III, London: Epworth Press, 1958
- Dromgoole House Conceptual Plan, Old Brunswick Circuit Foundation, 2016
- Dromgoole Plantation Chronology, Old Brunswick Circuit Foundation.
- Edward Dromgoole Papers, Series 3, 1791-1792, Wilson Library, UNC
- Heath, Dromgoole and Lou Allie, *Canaan, Home of the Edward Dromgoole Family*, Dromgoole and Lou Allie Heath, July 1, 1971, Virginia Museum of History and Culture.
- Heath, Lou Allie and Mary Heath-Walter Dromgoole-Heath *Descendants of California (The Clan Book)*, 1990.
- Inventory and Appraisement of the Estate of Edward Dromgoole, Sr. deceased made in the month of June 1835. Brunswick County Court, 1836.
- King, Tom, Historic House Preservation, email communications, 2/28/2022, 3/1/2022, and 3/6/2022, personal communication and tour, 8/12/2021
- "Map of The Edw. Dromgoole Farm, Feb. 1924", Brunswick County Clerk's Office.
- Monroe, Elizabeth J., *Archaeological Survey of the Dromgoole House Site, Brunswick County VA*, William and Mary Center for Archaeological Research, 2016.
- Mutual Assurance Society, VSL, County: Brunswick, Reel #2, Vol. 24, Policy 2072; 1803, Edward Dromgoole, Insured; Accessed 2015. (Original Policy)
- Mutual Assurance Society, VSL, County: Brunswick, Reel #4, Vol. 36, Policy 350; 1805, Edward Dromgoole, Insured; Accessed 2015.
- Mutual Assurance Society, VSL, County: Brunswick, Reel #5, Vol. 45, Policy 2188; 1805, Edward Dromgoole, Insured; Accessed 2015.
- Mutual Assurance Society, Insurance Policy, 1816.
- Neale, Gay. Brunswick County, Virginia 1720-1975, 1975.
- Old Brunswick Circuit Foundation, Annual meeting minutes, 2016 and 2017.
- Olson, William, Carol Corker Tom King, and Rev. John T. Martin. White Paper for the Dromgoole House Project, Old Brunswick Circuit Foundation, 1 Feb 2012.
- Record of Deeds, Deed Book #13, pp. 191-192. Brunswick County, Virginia.
- Rowland, J.M., "On Historic Spots in Brunswick County, Va.," *Christian Advocate* XXXVII:33 (15 Aug. 1929) (includes historic photographs of the house).
- US Census, 1810, 1820. 1830.
- Will of Edward Dromgoole Sr, Brunswick County, Virginia, 1835.
- Wright, William R., Edward Dromgoole, "A Pioneer Virginia Preacher", *Virginia United Methodist Heritage*, Spring 1981.

APPENDIX I DRAWINGS



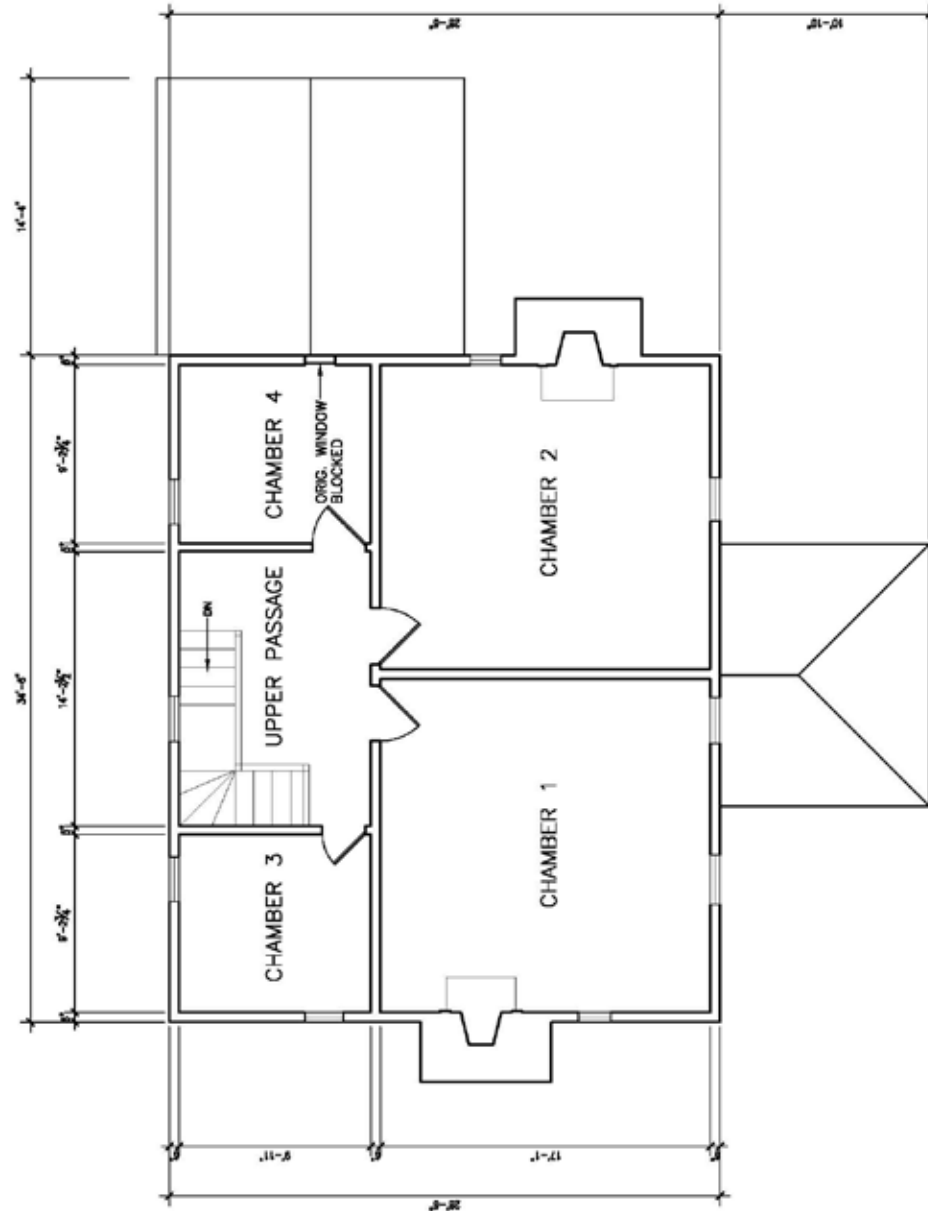
DROMGOOLE HOUSE VALENTINES, BRUNSWICK COUNTY, VIRGINIA

WEST ELEVATION- Existing
NOVEMBER 16, 2021 3/16"=1'-0"



FIRST FLOOR PLAN- EXISTING
February 25, 2022 3/16"= 1'-0"

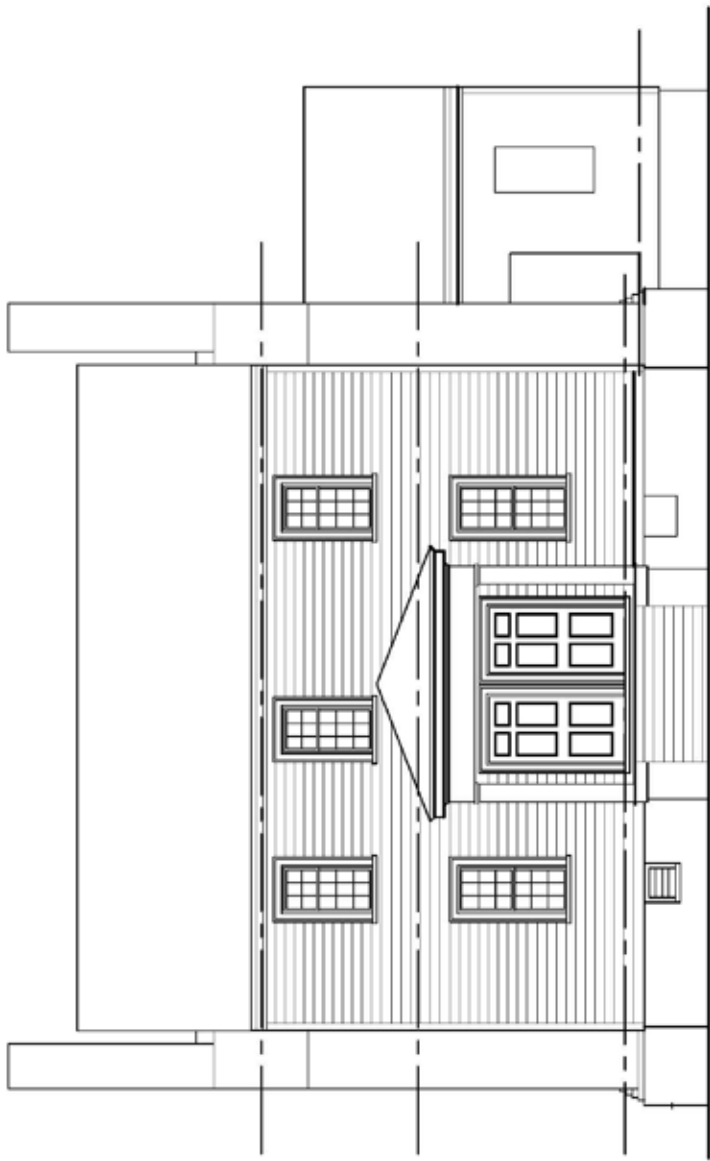
DROMGOOLE HOUSE
VALENTINES, BRUNSWICK COUNTY, VIRGINIA



SECOND FLOOR PLAN - EXISTING
February 25, 2022 3/16"= 1'-0"

DROMGOOLE HOUSE
Valentines, Brunswick County, Virginia

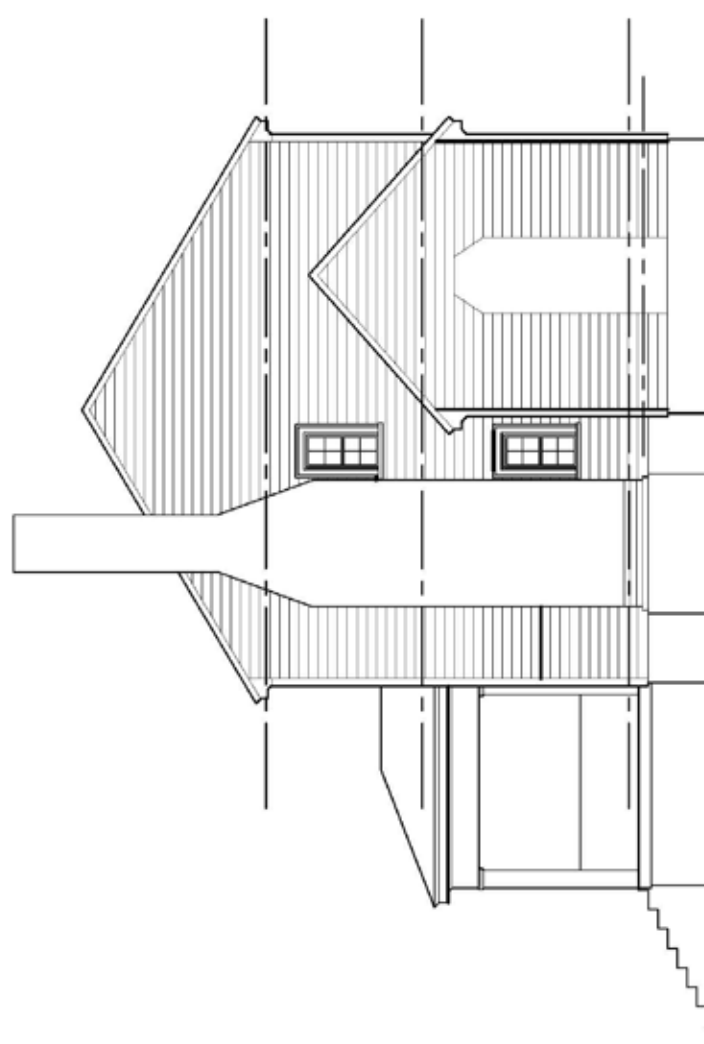




SOUTH ELEVATION- Existing
NOVEMBER 16, 2021 3/16"-1'-0"

DROMGOOLE HOUSE
VALENTINES, BRUNSWICK COUNTY, VIRGINIA

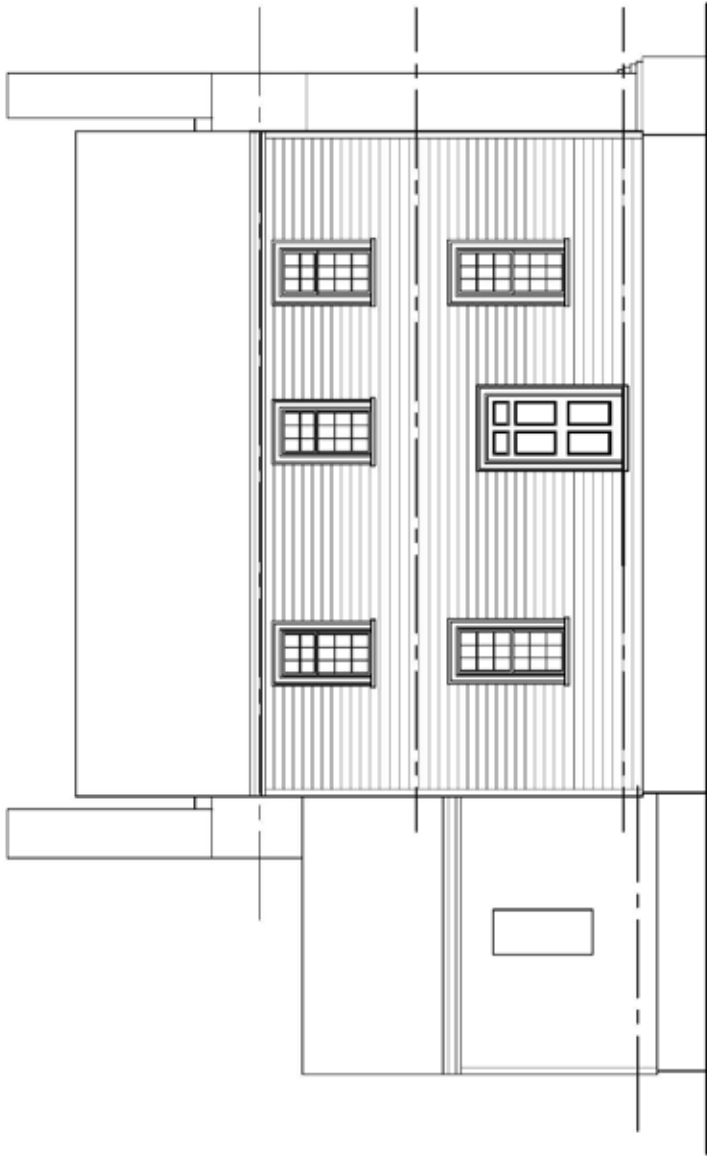




EAST ELEVATION- Existing
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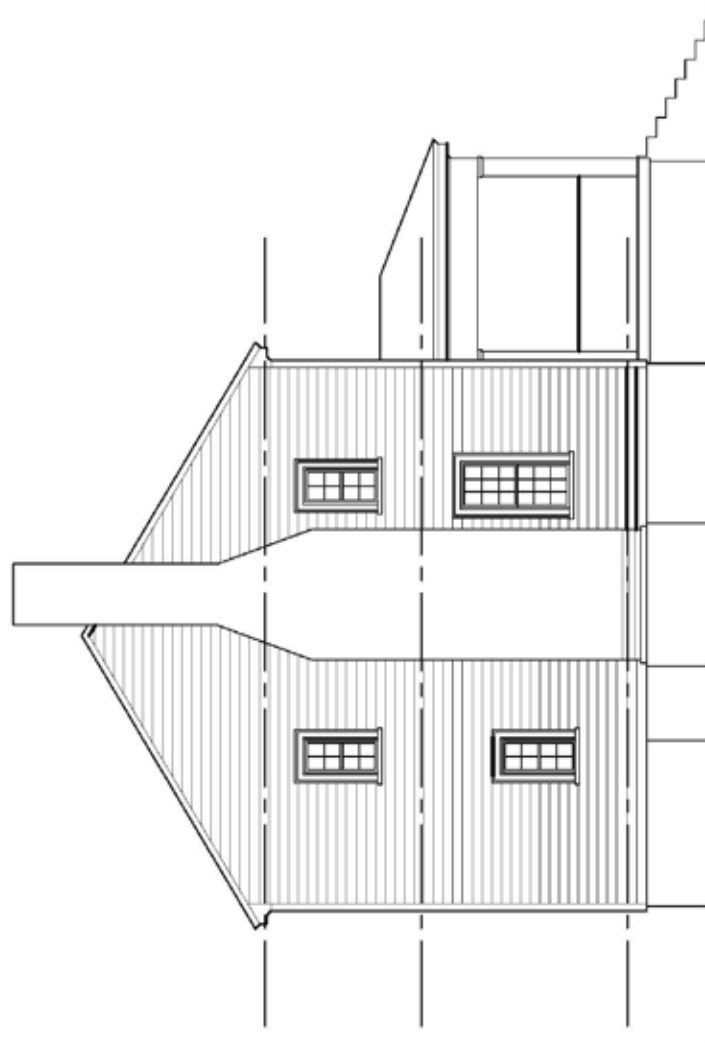
DROMGOOLE HOUSE
VALENTINES, BRUNSWICK COUNTY, VIRGINIA





DROMGOOLE HOUSE
VALENTINES, BRUNSWICK COUNTY, VIRGINIA

NORTH ELEVATION- Existing
NOVEMBER 16, 2021 3/16"=1'-0"



WEST ELEVATION- Existing
NOVEMBER 16, 2021 3/16"-1'-0"

DROMGOOLE HOUSE
VALENTINES, BRUNSWICK COUNTY, VIRGINIA



APPENDIX II PHOTOGRAPHS



South elevation (above) and west end elevation (below), 2021.





North elevation (above) and east end (below), 2021.





Foundation, west end, south elevation (above) and west end of porch (below), 2021.





Base of east chimney (above) and East Wing foundation from the southeast (below), 2021.





Foundation, north elevation, East Wing (above) and junction between East wing and main house foundation (below), 2021.





North elevation looking southeast (above) and shoulders and diaper ornament, west chimney (below), 2021.





East Chimney looking south at shoulder level showing damage (above) and east chimney base looking east (below), 2021.





East elevation showing decorative treatment in east chimney, 2021.



North wall, basement looking east (above) and interior, western room looking southeast at brick cross partition (below), 2021.





Basement, original stone pier looking southwest (above) and eastern room looking southeast at rebuilt stone wall (below), 2021.





Hall looking northwest (above) and Hall mantel looking west (below), 2021.





Hall looking east (above) and detail of central partition with intact brick nogging looking east (below), 2021.





Hall looking north into Passage (above) and Parlor fireplace and hearth looking east (below), 2021.





Parlor looking north (above) and Parlor looking southwest (below), 2021.





Parlor looking southeast (above) and Hall looking north (below), 2021.





Parlor, detail showing framing and pegs attaching porch pilasters to frame looking south (above) and Parlor looking west (below), 2021.





Looking west from Passage into Room 2 under stair landing.



Passage looking north at stair landing (above) and detail of the lower newel post in the Passage looking northeast (below), 2021.





Room 2 looking northeast, 2021



Room 1 looking east at the East Wing door (above), Closet under stair in Passage looking south (below), 2021.





Interior, First Floor, East Wing looking northwest at the door to the main house (above) and Upper Passage looking east (below), 2021.





Upper Passage ceiling looking west (above) and mantel in Chamber 1 looking west (below), 2021.





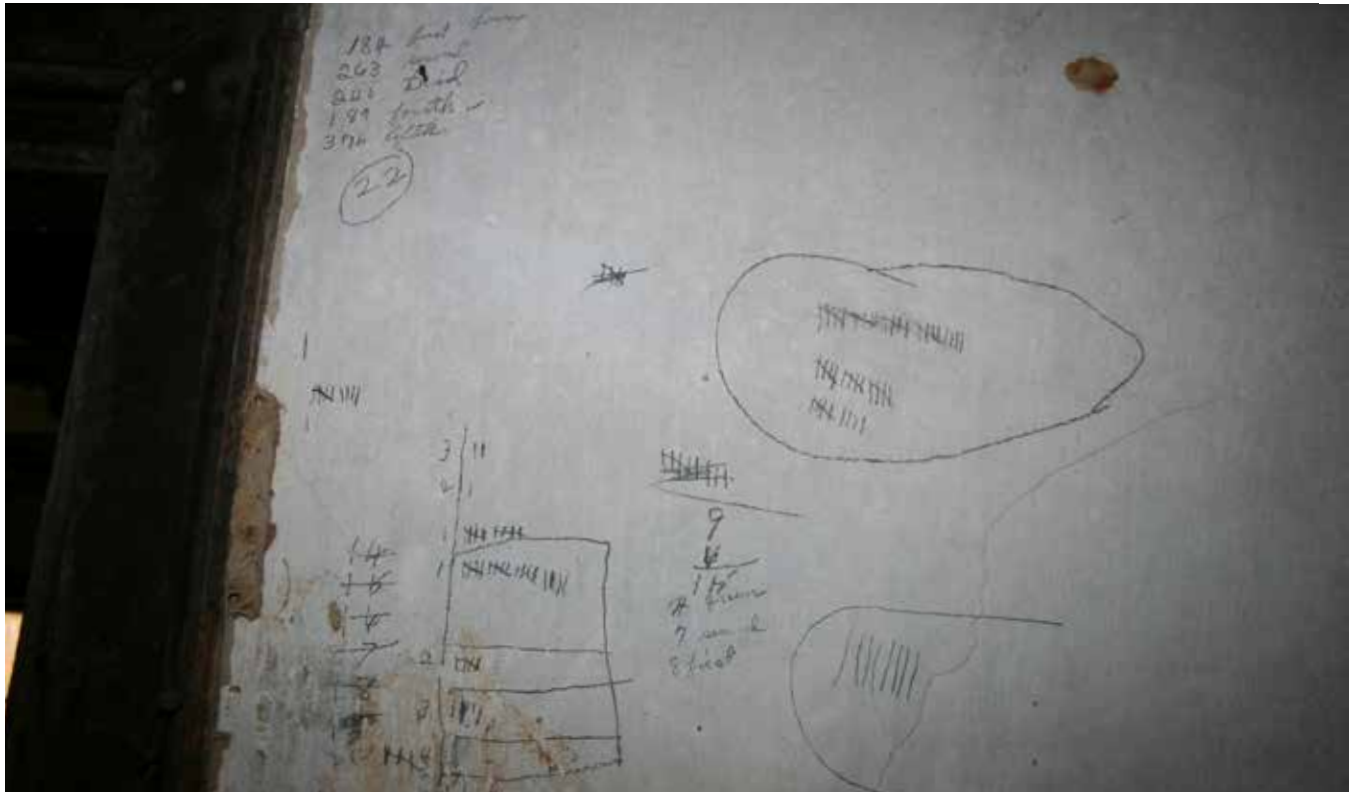
Chamber 2 south window mounting detail looking southwest (above) and north wall of Chamber 2 looking north (below), 2021.





Chamber 1 looking southwest (above) and Chamber 2 looking southeast (below), 2021





Chamber 2 north wall detail of graffiti to the east of the Upper Passage door (above) and detail of north wall of Chamber 2 showing the door to the Upper Passage looking north (below), 2021





Chamber 2 detail of door to Upper Passage looking north (above) and north wall of Chamber 2 looking north (below), 2021.



APPENDIX III
VIRGINIA MASONRY RESTORATION
MASONRY ASSESSMENT





Virginia Masonry Restoration

Masonry Assessment

Virginia Masonry Restoration
P.O. Box 6749
1800 Roseneath Rd.
Richmond, VA 23230
Contractor License #: 2705155443 Class A

March 7, 2022

Attn: Gibson Worsham
Glavé & Holmes

Project: Dromgoole House
Brunswick Co., VA

Owner: Old Brunswick Circuit Foundation

Subject: Assessment of Existing Structure and Recommendations for Rehabilitation

Prepared by: Warren Davies

Introduction

This assessment is intended to supplement the discussions and information that has been addressed during the preparation and assembly of the Historic Structures Report with Glavé & Holmes and Springpoint Structural. Some of these thoughts and recommendations may overlap with other reports but might provide some emphasis from the masonry perspective.

Stone Foundation

The existing stone foundation is largely assembled with stone that has been repurposed from failed elements of the original foundation. Most of the original foundation was undermined by the excavation of the crawl space as part of an effort to create a functional space underneath the house. This excavation exposed the earth below the stone foundation and subsequently weakened the entire supporting structure.

It is not clear whether the attempts to shore up the undermined foundation were undertaken when the crawl space was originally excavated or if the walls were shored up in response to structural failures that occurred in the years following the excavation. The shoring structure did not appear to add anything to the foundation wall assembly, it was merely built as a buttress for the earth upon which the foundation walls were built to help prevent further collapse of the earth under the stone.

The failure of the original stone foundation might easily be associated with the undermining of the walls after the crawl was excavated but it seems likely that these walls were going to have long term structural problems regardless of the excavation.

There is a section of stone wall underneath the transition between the main house and the front porch that appears to be an original part of the structure. The way that the stone is assembled is different than most of the other sections of existing stone wall. The stone is not assembled in an ashlar pattern with large portions of the face laid prominently to present aesthetically. In this area the stones are set flat with the broad side bonded into the masonry wall with consistent “chinking” around it. Chinking is often seen as a way to fill voids to maintain continuity of a stone façade, however, chinking is primarily a way to consistently distribute weight so that pressure is not concentrated in a way that allows the slightest movement to change the stability of a wall.

This original section of stone wall is a good indicator of how the rest of the wall was originally built and why it was doomed to have problems from the beginning. Although the foundation wall may be 18”-24” deep in some places, the beam/plate that supports the frame of the house is only 10” deep. This means that the weight of the entire house is concentrated on only 10” of stone wall that is balancing on rubble and chinking. These stone wedges do not provide the interlocking bond that larger pieces do when they overlap each other.

When the foundation wall is rebuilt, it is important that any attempt to replicate the appearance of the foundation stone as seen in this one section of original foundation should implement a method of stone assembly that maintains the appearance style while also giving the wall more structural overlap.

We recommend that the available stone on site is used in combination with suitable brick to build an interlocking stone and brick wall with stainless steel helical tie rods placed at regular intervals to provide support between the stone veneer on the exterior and the masonry within the crawlspace. The veneer would be built to replicate the original masonry as described above but the stones will be woven to backup masonry comprised of brick and stone as needed. The use of brick will provide units of masonry small enough to adapt to the irregular stone shapes but large enough to overlap and provide structural overlap within the masonry wall. The walls should be built using a lime mortar to provide for consistent evaporation of water within the wall and to promote the self-healing of micro-cracks that may develop with the uneven pressures of the stone assembly.

Foundation Base and Drainage

As mentioned previously, the existing walls are built on ground that is undermined and now buttressed by supplemental walls within the crawl space. Another concern is that there has been a large scale disturbance of the earth at the exterior base of the walls, presumably as part of the drainage system installed in recent years. While this system may have improved the drainage it has complicated the stabilization of the house.

The new foundation walls, particularly on the north and west elevations will require footings that are much lower to avoid building on disturbed earth. The larger concern is the stability of the west chimney. The drain field appears to actually “bowl” around the base of that chimney rather than slope away from it. This will present some challenges when trying to underpin the chimney.

The drainage system as a whole might be a good thing but a detailed drawing that shows the layout of the existing pipes, the depth of the trenches, slopes, filter cloth, and the size and location of any gravel drain fields will be critical to understanding how to incorporate a new drain system into the stabilization plan. The absence of accurate information might necessitate installation of a new system from scratch in order to know that all of the backfilling can be done with drains in place that are tied into a well designed system. Failure to do this will likely cause problems that will be very difficult to troubleshoot in years to come.

West Chimney

This chimney might not be standing but for the support provided by the house framing. The stone foundation below grade has been pushed in from west to east (exterior to interior) by hydrostatic pressure from the ground outside and the stone base within the crawlspace has deteriorated to the point of exposing the stone rubble piled within the base of the chimney. The inward movement at the bottom of the stone base has created an outward bulge above grade where the brick masonry begins on the chimney exterior.

It also appears that the west face of the chimney has settled which has exacerbated the bulging of the masonry and caused the masonry on the sides of the chimney to run out of level sloping away from the house. There appear to have been some repairs done at the base of the chimney which might make it difficult to support the structure without opening the chimney where necessary to assess how the interior wythes of brick are bonded into the outer wythes.

The upper part of the chimney needs to be removed and rebuilt. The upper part should be removed prior to the underpinning so that the overall weight of the chimney can be reduced prior to starting that process. If the condition of the chimney requires it to be dismantled, the “diapering” pattern in the chimney breast should be carefully documented and all of the brick pieces should be numbered and saved for reuse during the rebuild. All loose brick at the shoulders should be removed for safety reasons and salvaged for reuse.

The stone foundation of the chimney is very poorly assembled and may yet prove difficult to save because of how unstable the base is. The weight of the chimney is largely carried by the west face of the chimney with minor support from either side wall. The inner (east) wall of the chimney has failed, exposing the rubble piled within the base. Any underpinning operation must be done in very small segments to minimize any shift in weight at any given moment. A plan for the execution of this work must be carefully studied and detailed prior to starting any other foundation work on the structure.

Once the chimney footing is in place the base of the chimney should be rebuilt with emphasis on interlocking the outer masonry with an inner wythe of stone or brick. All loose material should be removed since it is contributing nothing to the stability of the assembly.

The corbeled brick at the shoulders also present a potential long term problem with water infiltration. As the chimney narrows and separates from the framing of the house the corbelling continues against the house frame behind the chimney. Traditionally the gap between the siding and the corbeled brick was filled with mortar to prevent water infiltration. The mortar inevitably cracks against the siding due to the regular movement of the chimney and the house and water penetrates as it runs down the siding. It is very difficult to create a waterproof detail between the corbelling and the siding, so we recommend that the chimney shoulder is rebuilt in such a way that the brick adjacent to the siding are on one plane instead of corbeled and flashing is installed behind the siding and laps out over that course of brick. This course of brick would need to follow the same angle as the corbelling but be slightly higher to allow for a drip edge. A drawing detail can be provided before the work is performed. This detail would prevent any future water infiltration at this part of the chimney.

The chimney breast on the west elevation seems to have a distinct line, approx. 8' above grade where the brick changes. The brick above this line appear to be smaller and it is at this point that the glazed headers are introduced in a Flemish bond pattern. The brick wall below this line is also built in Flemish bond but the masonry is distinctly different.

There is a structural crack that begins in the stone foundation and carries up approx. 3' into the brick masonry. This section of brick should be rebuilt using stainless steel helical tie rods to help tie this masonry together before the underpinning begins.

East Chimney

This chimney seems to have had similar challenges to the west chimney in that the movement at the base of the chimney has destabilized the entire structure. Some steps have been taken to try and stabilize the masonry at the bottom of the chimney, but it is difficult to assess the efficacy of those repairs because there is no way to know what has been done to structurally bind the base elements together. It is our understanding that concrete has been placed within the base foundation stones, but we do not know if the concrete was able to bind with interlocking stones, how clean the stones were, and whether the concrete was able to bind consistently on all sides of the foundation.

The chances of short term survival of the chimney may have been improved by this stabilization effort, but it might make the underpinning and foundation repairs more difficult because any effort to rebuild the foundation will now require more vibration and energy displacement during the dismantling of the base stones. Also, the ubiquitous use of concrete within a structure of this type creates a rigidity that is incompatible with the rest of the masonry which survives because of its flexibility.

The approach to full stabilization will be no different than the approach at the west chimney which means that the underpinning will be done in small increments and the rebuild of the stone base, to the degree it is necessary, will need to be adapted to suit the bonding with the interior masonry at the base.

The top of this chimney will need to be removed down to the shoulder with emphasis on documentation and salvage of the diapering and the same new flashing detail at the shoulder corbelling should be implemented upon rebuilding.

One item that does appear slightly different between the west chimney and the east chimney is that the brick that terminate against the siding are cut to the shape of the original siding and the gap is filled with mortar which is cracked. Much like the principal behind changing the corbelling detail, we recommend that this masonry be toothed and extended behind the siding. Then place a piece of trim against the straight brick chimney that allows the siding and the brick chimney to terminate against a straight edge. Joint sealant can be applied at the joint which will allow for movement between the house and the chimney without cracking and encouraging water infiltration.

Materials- Stone, Brick, and Mortar

The use of lime mortar is particularly important on a structure like this because expansion and contraction of the masonry is more extreme in older masonry. The bricks have been expanding and contracting for over 200 years and with that movement the brick become more porous. This porosity then causes greater absorption of water which then in turn causes greater expansion during freeze cycles and even with the day to day changes in temperature and humidity. This movement is healthy as long as there is always some “give” in the materials. Once a harder mortar is introduced, a great deal of the expansion and contraction is done at the face of the brick rather than on all sides. This will accelerate the deterioration of the masonry.

It is also important to use lime because the lime mortar between the bricks functions as the main highway for water evaporation. If a mortar is used that inhibits that flow of water, the brick starts to shoulder more of that burden which also accelerates the deterioration.

As it relates to the use of lime mortar for the stone foundation it is important to consider how the irregular shape of the stones distributes the pressure from the weight above. A rigid mortar will eventually cause the masonry to crack in a way that a softer mortar would not. This is far more likely to happen with a stone foundation than a brick foundation because of the uneven distribution of weight at points throughout the foundation wall. A brick foundation will distribute the pressure of the weight above much more evenly and is much less likely to manifest any of this pressure as a crack in the wall. Once these cracks develop the water infiltration accelerates and leads to greater expansion and movement during freeze cycles.

The original stone is known as “schist”. It is possible that some of the foundation stones are also granite, but the majority appear to be schist. At first glance it does not appear that there are enough of these stones on site to rebuild these walls completely, especially since the walls will now need to be taller than they were originally. It would be helpful to find another local source of this stone if it is available. Unlike bricks, stone walls will require more stone to choose from than are actually used, especially if the style of stonework is to be consistent throughout.

There are at least (2) sizes of bricks on the house at the chimneys and the foundation of the addition. Repairs will need to take size into consideration. It is unlikely that this job can be performed without some supplemental brick. It is not recommended that modern hard shale brick such as those currently on site are used for the repairs. Supplemental brick should either be reclaimed brick of the same size and color, or they need to be hand made wood mold bricks, possibly manufactured by Old Carolina Brick.

Conclusion

This project has layers of challenges that all depend on a respect for the use of traditional methods and materials. There are some stabilization challenges that have not been itemized here that will also require a fundamental understanding of traditional masonry construction. This project, more than most, will require an ability to adapt with a constant eye on the structural intent without losing focus on the aesthetic responsibilities that are expected of historic masonry restoration specialists.

Thank you,

Warren Davies
Virginia Masonry Restoration

APPENDIX IV
DESCRIPTION & PHOTOS OF THE
WATERPROOFING SYSTEM



Description & Photos of the Waterproofing System Installed on the Dromgoole Site

*Based on Information provided by Tom King
September & October 2022*

1

PURPOSE:

- Through the services of the architectural firm, Glave and Holmes, the Old Brunswick Circuit Foundation procured an Historic Structure Report and Engineering Assessment of the historic Dromgoole House.
- This report and assessment was supported in part by a grant from the Emergency Supplemental Historic Preservation Fund (ESHPPF) administered by the National Park Service Department of the Interior in partnership with the Virginia Department of Historic Resources.
- The following was one of the recommendations made by Mr. Warren Davies included in the Masonry Assessment in that report:

The drainage system as a whole might be a good thing but a detailed drawing that shows the layout of the existing pipes, the depth of the trenches, slopes, filter cloth, and the size and location of any gravel drain fields will be critical to understanding how to incorporate a new drain system into the stabilization plant. The absence of accurate information might necessitate installation of a new system from scratch in order to know that all of the backfilling can be done with drains in place that are tied into a well drained system. Failure to do this will likely cause problems that will be very difficult to troubleshoot in years to come.

- Builder and preservationist, Tom King, installed a waterproofing system on the Dromgoole property in 2011.
- The following slides include descriptions, photographs and diagrams of this waterproofing system based on information provided by Mr. King on his website and in a series of emails he sent to Ann Keeling in September and October of 2022.

2

Descriptions & Photos

*From a Series of Emails
from Tom King to Ann Keeling*

3

The Trench Around the Spinning House



"There is no drain field. It drains out to daylight at the bottom of the hill near the woods line. There is a minimum of 8" of no. 3 stone on top of the Voltex DS sheets, and 60 mil Firestone pond liner. It's described in detail on my website page about basement waterproofing."

See: <http://www.historic-house-restoration.com/basementwaterproofing.html>

4

**"No new drainage system is needed—only what gets disturbed during any foundation work.
I've found all the pictures, as well. I found them on an old hard drive that I thought was no longer working, but I was
able to recover all the pictures, including the trench around the work house.
One example attached [photo B] . Tom"**



PHOTO A

Bottom of trenches were first dug with a 12" wide bucket on the mini excavator with which Tom King dug a grade establishing ditch. The large excavator was not to disturb this part and saved much time with the more expensive equipment later



PHOTO B

First layer of the Voltex DS sheets

5



**"This shows how the trench around the Spinning House was tied in with the house drainage system.
It also shows one of the stumps taken out from trees that had grown up against the back of the
house. There were three such 10" diameter pine stumps against the foundation along the back of
the house. "**

6



"I believe there are pictures all around from the grade establishing ditch to the geotextile fabric being installed, to backfilling. This photo shows the Voltex DS and pond liner only covering the slopes with the geotextile fabric covering the no. 88 stone. The drainage pipe went on top of this bottom layer of geotextile fabric and all the no.3 stone was also covered with geotex. "

7



"This is the pond liner over the Voltex DS sheets, before the no. 3 stone. If you look closely, you can see there are two different kinds of membrane. The smoother looking layer that goes right up to the foundation is the Voltex DS. The other layer that is not smoothed out yet is the pond liner in preparation for covering the Voltex DS. I never made any drawings. The grade establishing ditch started 5' deep on the northeast end, and went down a minimum of 1 inches in 8 Feet. "

8



Photo A



Close-up View

"Some of the pond liner was 60 mil, and some 90 mil. I couldn't get enough of the 90 mil.

The Voltex DS sheets have a waterproof membrane over the Bentonite layer, but I didn't feel like it was enough protection from the drainage rock. The pond liner is a belt and suspenders system. It sheds water for as long as it lasts, but was mainly to prevent punctures through the membrane built onto the Voltex DS sheets. Whenever the life of the rubber ends, the Bentonite will take over, and should be a permanent solution.

This [Photo A] shows where the drainage pipes with holes changes to solid pipes to head down the hill."

9

"Where Gregory and Mike are standing is the Northeast end of the house, and the shallowest part of the trench. (Photo on the right). It all slopes down from there in both directions around the house. It starts at 5 feet deep there, which being 2' deeper than the level of the basement floor is the way I have done these waterproofing systems. It's about 7' deep on the West end where the water turns to go downhill.

The only place that might require special care is along the back of the house where two stumps were taken out, not the one in the previous picture. Some of that disturbed dirt will come down when excavating for footings, but there is not enough of this area to cause a problem with the undisturbed red clay next to it.

I have a plan that will work with no worry of anything collapsing."

IN A SUBSEQUENT EMAIL:

Right around the Northeast corner where the men are standing (photo) there was rock underground that prevented us from going deeper there, so all the water on the East end is sent around the front, as the grade establishing ditch was dug a little deeper on the East end when I hit that stone where they're standing.

All the area around this part of the country has that Schist underground, on top of the solid Granite. The underground Schist is very similar to that found on top of the ground, as the foundation is built from, but is lighter in color-almost white, and much softer. I've dealt with it building here for my whole life."

10



Information & Photos From Tom King's Website

See: <http://www.historic-house-restoration.com/basementwaterproofing.html>

BACKGROUND:

"The Edward Dromgoole house sits on a stone foundation fairly typical of 18th Century and early 19th houses around this part of the country. The stone was laid in a two row pattern out of stone that is pretty abundant on top of the ground around the area with only sandy dirt out of the yard as "mortar" and small stones trying to hold large stones in place, which is unusual for the area. The basement was dug after the house was built, with bricks laid against the cut earth. As you might expect, especially with the house not built exactly on the highest ground, this wasn't a long lasting design. As the dirt eroded away under the original inner wall of the foundation, it has almost completely caved in over the years. Even parts of the outer layer have fallen, as early 20th Century photographs show, and have been rebuilt at various times.

Some of the last residents still survive, and one lady, who grew up in the house, says that it ALWAYS had water standing under it.

As we found it, the house was barely still standing on remnants of the outer stone wall. Soon after the Foundation purchased the property, the decision was made that the water situation had to be remedied, or the house would be lost."

11

EXCAVATION:

"Tom has a system of waterproofing old house basements that has been proven to work before. This situation was a little different, although they are all unique, in that the foundation was so fragile, that there was danger of the whole thing collapsing if it was dug too close to the remaining remnants of the foundation. In doing this before, Tom had dug close to existing basement walls that were intact enough to support a house. In this case, if the excavation was dug close to the existing foundation, there was a good chance that everything would have collapsed. On this house, the excavation was dug at about a 45 degree angle down, and away from the base of the foundation to leave that part of the red clay to give an extra bit of security to the subsoil under what is left of the foundation.

Tom rented a mini-excavator, and dug a "grade establishing" ditch around the house. The bottom of that ditch started two feet below the floor level in the basement, and at about a 45 degree angle away from the ground level at the edge of the foundation. The plan was to dig all the dirt away from the ground intersection at the house to the bottom of the grade establishing ditch, leaving original, undisturbed earth to hold the house up. If this grade establishing ditch was not dug, it would have taken a lot of extra time, with a more expensive, large piece of equipment there to be guided while doing the major part of the excavation.

It worked like a charm, and once the large excavator arrived on the job, with the grade establishing ditch already there, quick work was made of the major part of the excavation. A metal edge was welded to the teeth on the large excavator (shown in the photo to the right) so the operator could completely clean out the excavation with little hand cleanup left."



12

DRAINAGE LAYERING:

“Once the excavation was complete, Voltex DS sheets were installed only on the earthen slope of the trench but not across the bottom of the trench on top of the #88 Stone. The Voltex DS sheets are protected by the next layer of 90 mil Firestone Pond liner. The bottom of the excavation was graded to slope down at a rate of 1 inch in 8 feet, and drained out to daylight downhill from the house.

On top of the Voltex and Pond liner washed crushed rock (railroad ballast size) was layered so any water could quickly drain down to the perforated pipe at the bottom. Geotextile fabric was placed between the drainage stone and the fill dirt.

Long story shortened, it works like a charm, and the basement has been completely dry since. Several comments have been made by onlookers that it's probably dryer than any new basement.

Having now solved this problem, the rest of the restoration can commence.”

13

Photos – Chronicling the Work



Bottom of trenches were first dug with a 12" wide bucket on a mini excavator with which Tom King dug a grade establishing ditch.

14

Additional 18 Photos From King's Website

(Some of these photos have already been discussed in the previous slide taken from Mr. King's emails.)



Welding bucket edge



Second Layer edge

Preparing the larger excavator for the job

15



The large excavator creates the slope from the foundation

16



Above: Voltex DS – comes in 3 X 7 sheets. Every sheet gets overlapped by the next one.

Right above: Work done by hand needed to take any roots up near the surface before covering



Left: Leveling #88 stone

17



Pond liner – the trench out to the lower right in this photo is the one connecting to the Spinning House trench.



Voltex DS before the no. 3 stone with the pond liner not placed completely over it yet. The pond liner does not have a shiny surface, but the Voltex DS top layer is shiny.

18



Top no. 3 Stone covering the pipe which drains down the hill starting on the northwest corner of the house.



Drainage pipes with holes changes to solid pipes when it turns to go down the hill



Geotextile Filter fabric at the bottom of the trench, Voltex Ds and Pond Liner on the slopes



Above: Pipe on Geotextile filter fabric, with Voltex DS and pond Liner on the slope.



Above and Below: Top rock fill



FINAL STEP



Dirt going on top

It's not simply a "French Drain". A French Drain has no waterproofing membrane. It's a Waterproofing System .



Handling Tree Roots

Growing Under the Dromgoole House

The concrete you see in the excavation behind the house was leftover from the chimney base filling, and cost nothing, since we would have had to pay for it even if they carried it back, being in the minimum charge. It fills in where the Pine stump roots had been removed 6 years prior. By the time that concrete was put there, those roots had rotted, been removed, and left hollows under the brick foundation for the single room. That concrete had plasticiser in it, so it flowed into all the hollows left by the roots, and also stabilized the dirt under the foundation, taking the place of the radial load zone that was missing because having to get those stumps out.

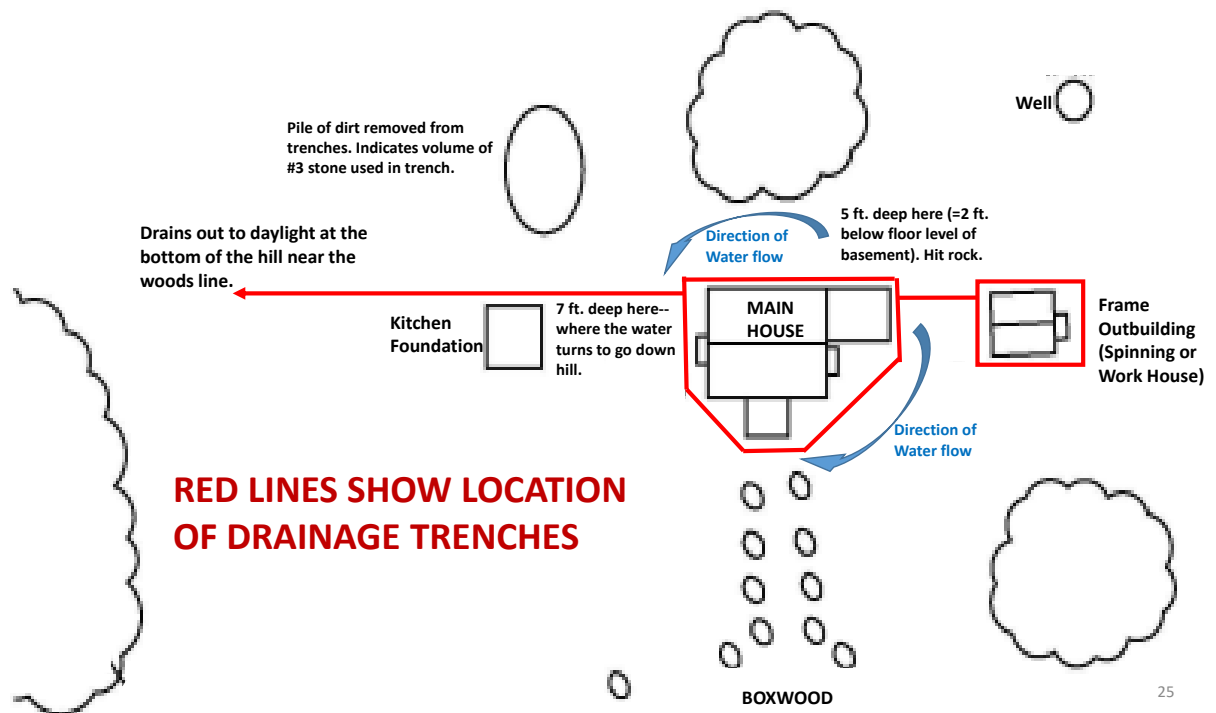
This picture [above] shows just some of the roots from that one stump that had roots under the single room brick foundation. There were more roots into that stone footing along the same stretch of foundation wall but we don't think any photos were taken of that. About 6 feet to the right of what you see in this picture was a much larger void left by larger roots. The residual roots were there in 2011 but by 2017 they had rotted, and were removed, leaving holes. Those are the holes I'm talking about the concrete filling. We picked out the remnants of the rotted roots, and blew the voids out with compressed air before the concrete pour.

That was the reason I left the part of the excavation for the waterproofing system open back there where that stump was to start with. I knew we would have some leftover concrete at some point. It would have damaged something to pull those intact roots out, but I knew they would rot in a few years.

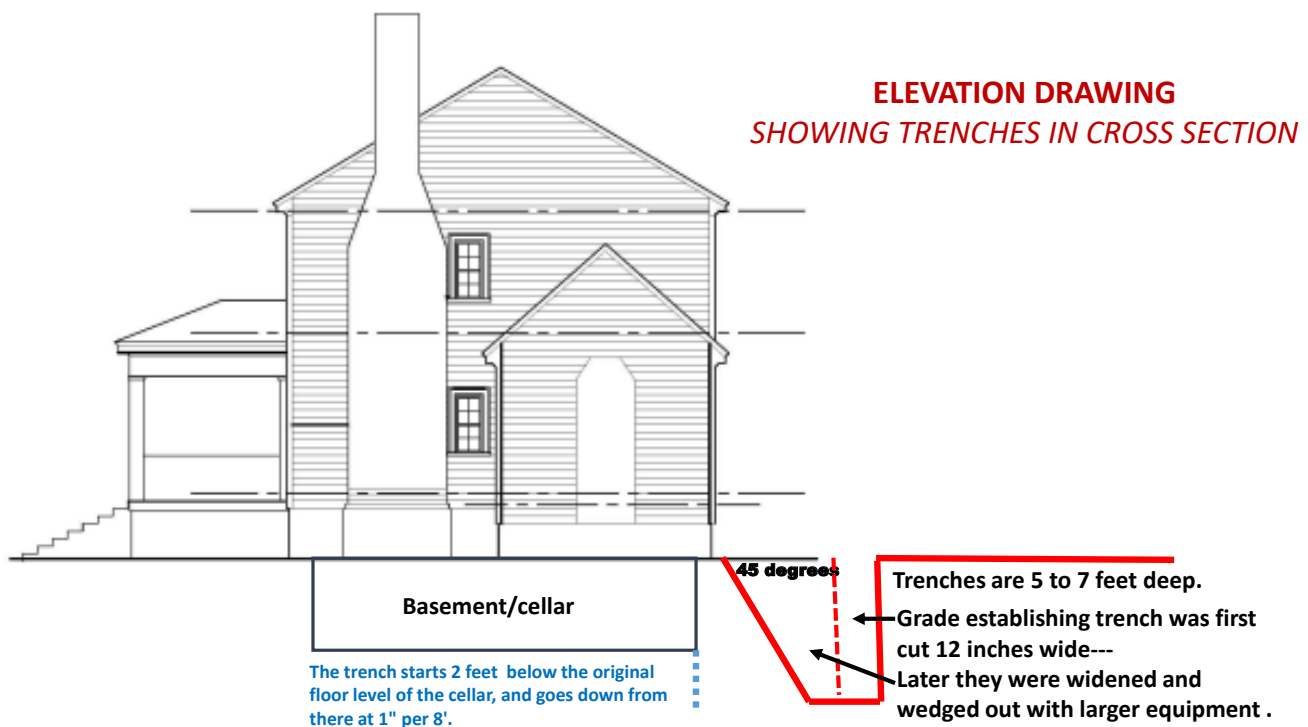
The brick foundation under the single east wing room has stone footings under the brick walls. Whoever built that foundation knew a lot more about what they were doing than the ones who built the main house foundation and chimney bases.

DIAGRAMS

*To Illustrate Waterproofing System
Installed by Tom King
On the Dromgoole Property*



25



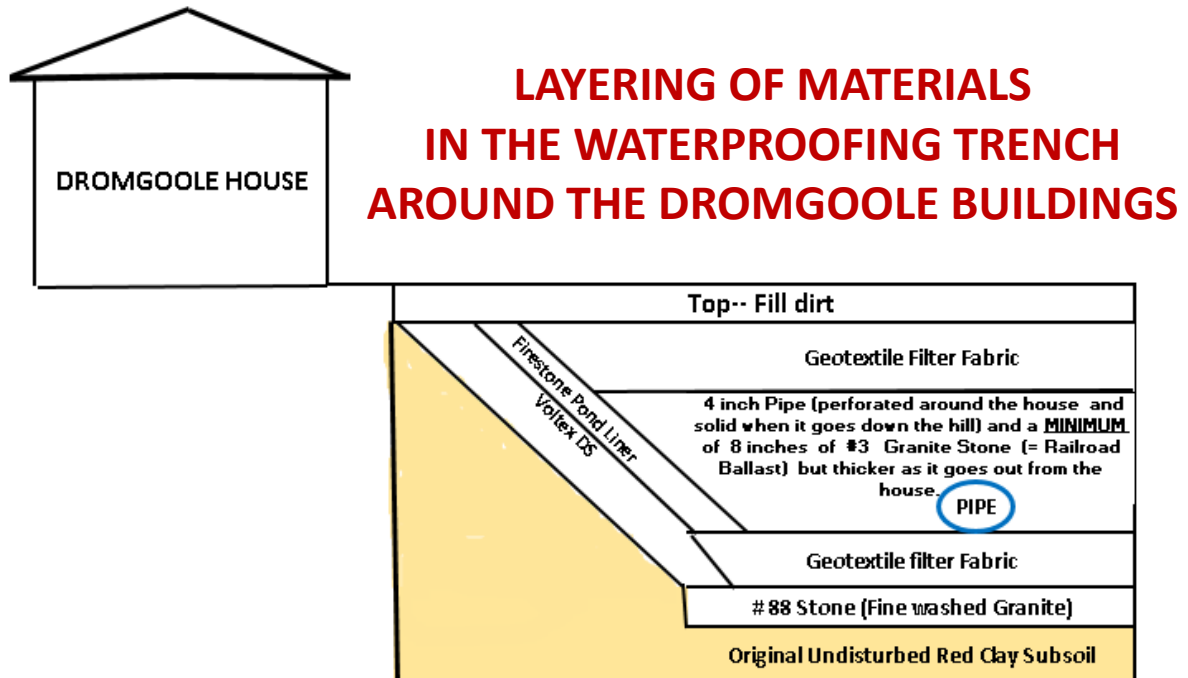


Diagram does not reflect proportions of materials used.

Designation of the types of stone that were used are those used by the local Vulcan Granite Quarry.

INFORMATION ON MATERIALS USED

Geotextile Filter Fabric

Questions? Contact Us
or call (800) 518-2299

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Woven Filtration

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NTPEP APPROVED - GTX-2019-01-284. US 230 is a woven monofilament filtration geotextile made of 100% high-tenacity polypropylene yarn. US 230 resists ultraviolet and biological deterioration, rotting, naturally encountered basics and acids. Polypropylene is stable within a pH range of 2 to 13. US 230 will satisfy the requirements as outlined in AASHTO M-209-06 for Permanent Erosion Control & Subsurface Drainage (<15% fines) and meets the following M.A.R.V. values except where noted:

Data Sheet

Detailed Overview

Drop in Specs

US 230 General Application(s):

Bulkhead

Permanent Erosion Control

Bio-Rap

Sewall

Shoreline Erosion Control

Subsurface Drainage

Underdrain (Drainage Geotextile)

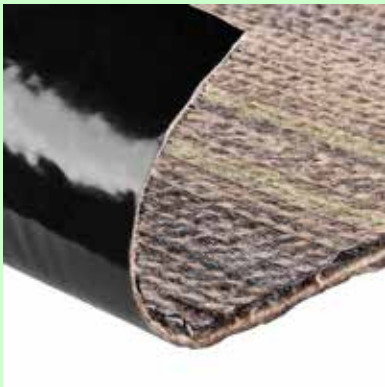
Structural Wall Drainage

See: [US 230 - US Fabrics \(usfabricsinc.com\)](https://usfabricsinc.com)

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Voltex DS Bentonite Geotextile Waterproofing

See: [Voltex DS Bentonite Geotextile Waterproofing | The WaterStop Shop](https://www.waterstop.com.au/wp-content/uploads/2021/06/VOLTEX-DS-for-shotcrete-or-contaminated.pdf)



Voltex DS is a highly effective waterproofing composite of high strength geotextiles, 110 pounds of sodium bentonite per square foot, and a integrally bonded polyethylene liner. The high swelling, low permeable sodium bentonite is encapsulated between the two geotextiles. A proprietary needlepunch process interlocks the geotextiles together forming an extremely strong composite that maintains the equal coverage of bentonite, as well as, protects it from inclement weather and construction related damage. Once backfilled, Voltex DS hydrates and forms a monolithic waterproofing membrane. Voltex DS contains zero VOC, can be installed in almost any weather condition to green concrete, and most importantly, has proven effective on both new and remedial waterproofing projects worldwide.

Voltex DS works by forming a low permeability membrane upon contact with water. When wetted, unconfined bentonite can swell up to 15 times its dry volume. When confined under pressure the swell is controlled, forming a dense, impervious waterproofing membrane. The swelling action of Voltex DS can self-seal small concrete cracks caused by ground settlement, concrete shrinkage, or seismic action.

Voltex DS forms a strong mechanical bond to concrete when the geotextile fibers are encapsulated into the surface cast-in-place concrete.

PRODUCT CODE	CET-VoltexDS
BRAND	Cetco
PRODUCT TYPE	Sheet Membranes
APPLICATIONS	Basement/Retaining Walls
CONTAINER TYPE	Roll
DATASHEET	Voltex DS Bentonite Geotextile Waterproofing

GOT A QUESTION?

See Datasheet at: <https://waterstop.com.au/wp-content/uploads/2021/06/VOLTEX-DS-for-shotcrete-or-contaminated.pdf>

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Firestone Pond Liner

(now called Elevate GeoGard EDPM Membrane)

Available in standard or reinforced with a scrim, Elevate EPDM Geomembrane systems offer the strength and resilience to perform in many of the most demanding environments. This makes Elevate EPDM Geomembrane ideal for:

Agricultural Pits and Ponds
Aquaculture Applications
Canals
Constructed Wetlands
Decorative Water Features
Evaporation Ponds
Exposed Covers and Caps
Landscaping Features
Mining Applications
Retention Ponds
Water Reservoirs

Technical Information Sheet



Description

GeoGard EPDM Membrane is a cured single-ply geomembrane designed to comply with ASTM D7465. GeoGard EPDM is nontoxic to fish and plants and is commonly used for raw water storage and canal applications in exposed or buried environments.

Product Preparation

1. Substrates must be clean, dry, smooth, and free of sharp edges, fines, loose or foreign materials, oil, grease, and other materials that may damage the geomembrane.
2. All roughened surfaces that can damage the geomembrane shall be repaired as specified to offer a smooth substrate or covered with a nonwoven protection geotextile.
3. All substrate voids greater than 6.3 mm (0.25") wide shall be properly filled with an acceptable fill material.
4. The use of a protection geotextile is recommended to prevent damage and provide a clean installation.



Elevate GeoGard EDPM Membrane (cont.)

Technical Information Sheet

Typical Properties - 1.52 mm (0.060") EPDM Geomembrane

Property	Test Method	Units	SI	ASTM D7465 ENG
Specific Gravity	ASTM D792	gm/cc	1.16	1.16
Unit Weight	ASTM D751	kg/m ² (lb/ft ²)	1.84	.38
Thickness, Type I	ASTM D412	mm (in)	1.52	.060
			+15/-10%	+15/-10%
Tensile Strength, Die C min	ASTM D412	MPa (psi)	9.0	1305
Ultimate Elongation, Die C min	ASTM D412	%	300	300
Tear Resistance, Die C	ASTM D624	kN/m (lbf/in)	40.28	230
Puncture Resistance, Die C	ASTM D4833	N (lbf)	181.56	43
Resistance to Ozone: 7 days/100 @ 37.8 °C (150 °F) 50% est.	ASTM D1149	---	---	no cracks
Oven Aging @ 116 °C (240 °F) for 670 hrs, followed by:	ASTM D573	---	---	---
Tensile strength Die C	ASTM D412	MPa (psi)	8.3	1205
Ultimate elongation, Die C	ASTM D412	%	200	200
Tear Resistance, Die C	ASTM D624	kN/m (lbf/in)	37.32	213
Xenon Arc: for 5040 kJ/m ² /min @ 340 nm @ 80 °C (158 °F)	ASTM G155/G151	---	---	---
Visual Inspection 7X: no cracks or crazing bent loop @ 10% strain	ASTM D518	---	---	pass
Brittleness Point	ASTM D2137	degrees	-45 °C	-49 °F
Water Absorption: Weight after immersion 168 hrs @ 70 °C (158 °F)	ASTM D471	%	+8/-2	+8/-2
Linear Dimensional Change, max	ASTM D1204	%	+/- 1.0	+/- 1.0
Chronic Toxicity Screening	EPA/600/4-89/001 ASTM E729	Method 1000.0	pass pass	pass pass

NOTE:

1. Certified GeoGard EPDM Membrane production materials are special order items requiring a minimum of two weeks as production lead-time.
2. GeoGard EPDM Membrane meets or exceeds the minimum requirements set forth by ASTM D-7465 for Type I Non-reinforced geomembrane.

October 6, 2022

Sales: (800) 428-4442 | Technical: (800) 428-4511

TIS 301

3



The Firestone (now Elevate) company no longer makes the 90 mil pond liner. This is the Technical Information Sheet for the nearest similar but thinner GeoGard membrane that is produced today.

The full document can be found at:

<https://www.holcimelevate.com/content/dam/fsbp/migrated-document/us/en/16/169910.pdf>.

"The thickness was mostly 90 mil, but some 60 mil to get enough. It looks like we probably bought the last of the 90 mil thick. I only found some 60 mil on Amazon, and all the pond liners sellers online now have the thickest listed at 45 mils. Tom"

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Elevating the Human Spirit