

**FINAL REPORT FOR THE  
ARCHAEOLOGICAL TESTING,  
WATER STREET,  
SANDWICH, MASSACHUSETTS**

Prepared for

Tom Keyes

and

Family

By

Craig S. Chartier

Plymouth Archaeological Rediscovery Project

March 2012

**TABLE OF CONTENTS**

List of Figures and Tables.....iii

I. INTRODUCTION .....1

II. ENVIRONMENTAL CONTEXT.....2

III. ARCHITECTURAL HISTORY. ....6

IV. PREHISTORIC CONTEXT.....17

V. HISTORY OF THE TOWN OF SANDWICH.....24

VI. ARCHAEOLOGICAL INVESTIGATIONS.....30

VII. ARTIFACT ANALYSIS. ....52

VIII. CONCLUSIONS AND RECOMMENDATIONS.....133

REFERENCES CITED.....135

APPENDIX A 22 Water St. House Measurements.....148

APPENDIX B Artifact Catalog.....151

## LIST OF FIGURES

Figure 1. Location of the project area on topographic map.....	3
Figure 2. Location of 22 Water St and the Knoll House Site.....	4
Figure 3. 22 Water St. House exterior views.....	9
Figure 4. Line drawing of principal timbers 22 Water St. ....	10
Figure 5. Interior photographs of 22 Water St. ....	12
Figure 6. Interior photographs of 22 Water St. ....	13
Figure 7. Seventeenth century idealized farm plan (Modified from Markham 1614) .....	16
Figure 8. 1884 lithograph showing Jonathan Burr and Daniel and Phebe Weston's house as well as their barn and associated outbuilding.....	30
Figure 9. Archaeological testing around the house at 22 Water St.....	32
Figure 10. 22 Water St. test pit 6 excavation.....	33
Figure 11. Archaeological testing at the Knoll House site.....	34
Figure 12. Excavation at the Knoll House Site.....	35
Figure 13. Unit 1 excavation.....	38
Figure 14. Profiles of North, east and west walls of Unit 1.....	39
Figure 15. Plan and profile views of S9.5 W4 .....	43
Figure 16. Plan view of S9.5 W4 at 30 cmbs.....	44
Figure 17. South and west wall profiles of S9.5 W.....	45
Figure 18. North wall of Ell.....	48
Figure 19. Plan of the north wall of the ell. ....	49
Figure 20. Profile of the north and south walls of the robbed north wall of the ell...50	
Figure 21. Late eighteenth and nineteenth century artifacts from 22 Water St.....58	
Figure 22. Prehistoric artifacts from the Knoll House Site.....61	
Figure 23. Distribution of quartz and rhyolite artifacts at the Knoll House Site.....67	
Figure 24. Personnel items.....75	
Figure 25. Kettle and hearth items.....77	
Figure 26. Cutlery recovered from the Knoll House Site.....79	
Figure 27. Tools recovered from the Knoll House Site.....80	
Figure 28. Medieval horse equipment.....84	
Figure 29. Horse equipment recovered from the Knoll House site. ....85	
Figure 30. Comparison of spall and blade gunflints from the C-1 site.....88	
Figure 31. Gunflints from the Knoll House Site.....89	
Figure 32. Examples of recovered faunal remains.....103	
Figure 33. Hume pipe bowl shapes.....110	
Figure 34. Serration of pipe stem bores from various Plymouth Colony Sites.....112	
Figure 35. Pipe stem distributions between various deposits at the Knoll House site.....	113
Figure 36. Tobacco pipes from the Knoll House Site.....114	
Figure 37. Redware recovered from the Knoll House site.....120	
Figure 38. Tin-glazed ceramics recovered from the Knoll House Site.....122	
Figure 39. Slipware recovered from the Knoll House Site.....123	
Figure 40. North Devon gravel-tempered possible chamberpot from the Knoll House Site.....	125

Figure 41. Stoneware recovered from the Knoll House Site.....129

**LIST OF TABLES**

Table 1. Domestic species present in Sandwich 1875 (Source: Wright 1875: 418). . 28  
Table 2. Main agricultural products and products from animal species  
in 1875 (Source: Wright 1875: 8)..... 29  
Table 3. Test pit locations Units 5 to 55.....36  
Table 4. Artifacts recovered from around the house at 22 Water St.. .....52  
Table 5. Artifacts recovered from the knoll excavations 2011.....53  
Table 6. Prehistoric artifact counts.....64  
Table 7. Platform angles.....65  
Table 8. Rhyolite colors.....65  
Table 9. Measurable bricks from the Water St. House.....68  
Table 10. Comparison of brick sizes between 17<sup>th</sup> to 19<sup>th</sup> century sites.....69  
Table 11. Hand-Wrought Rose Head Nail Size Distribution.....71  
Table 12. Distribution of vessel glass.....73  
Table 13. Horse colors present in Plymouth Colony.....81  
Table 14. Recovered horse related artifacts.....82  
Table 15. Gunflints recovered from the Knoll House Site.....88  
Table 16. Shellfish recovered..... 91  
Table 17. Vertebrate Species Comparison by fragment count.....102  
Table 18. Species occurrence by artifact concentration area.....102  
Table 19. Cattle elements present.....105  
Table 20. Recovered swine remains.....106  
Table 21. Recovered sheep remains.....107  
Table 22. Overall site pipe stem distribution.....111  
Table 23. Clay Pipe Distribution.....111  
Table 24. Pipe bowl styles recovered at the Knoll House site.....113  
Table 25. Distribution of ceramic remains.....118  
Table 26. Turnbaugh redware types.....119  
Table 27. Transfer-printing color date ranges and periods of maximum popularity..126  
Table 28. Tin-glazed ceramic occurrence comparison.....131  
Table 29. Ceramic vessels present in the Knoll House site assemblage.....131  
Table 30. Classes of ceramic vessels present in the Knoll House Site assemblage...131  
Table 31. Comparison of Knoll House Site Ceramic Class Assemblage.....132

## I. INTRODUCTION

The 2011 excavations at the 22 Water St. property and its adjacent Knoll House site offered a unique opportunity to the archaeologists involved. The unexpected and surreptitious unmasking of the seventeenth century character of the 22 Water St. house and the subsequent identification of the seventeenth century home's original location, allowed archaeologists to study both the architectural fabric of what to us is an unusual house, and the pristine site where the home's original owners lived and died. It is thanks to David Wheelock's keen powers of observation regarding both the extant house's architectural import and the Knoll House site's potential for being a possible seventeenth century home site location, that researchers are indebted. It is also to the Keyes family's great willingness to explore their property's history that any of the findings in this report ever came about.

Excavation at 22 Water St. showed that the property was being inhabited at the earliest by the late eighteenth century, effectively prodding the archaeologists to answer the question of if not here, then where did the seventeenth century house that was discovered come from originally. That question was answered to everyone's satisfaction through the testing at the adjacent property. On a knoll overlooking the lake, situated in much the same way that the Hoxie House is, sits a middle to late seventeenth century house site. The builders followed typical seventeenth century practices in choosing it. It sat on a high and dry hill overlooking partially navigable water. They chose their site in much the same way that the Native Americans whose refuse we also encountered did. Later after Water St. had become more of a main thoroughfare through the town, someone decided that having a house so far away, once an advantage as you could use all that land for pasture and farm yard, was now a disadvantage, and they moved the little house to the road side of Water St. And little house it was, probably the smallest surviving seventeenth century house in New England, the kind of small house that researchers read about but never get to see in the flesh as they were most often demolished to build larger houses as means allowed, allowed to rot away, or incorporated and lost into larger houses.

The following report attempts to place the artifacts that have been recovered from the excavations around the house at 22 Water St. and its original location at what is here called the Knoll House site to the north of its present spot. The site was examined within several contexts. First, it is placed within the context of the site itself. Next, the artifacts and findings are placed within the context of the history of the house as represented by the architecture. The findings from the excavations were then placed within the larger context of the history of Sandwich and Cape Cod and finally, when appropriate, were placed within a larger state or national context. The archaeology that has been carried out at the Water Street sites has allowed a fuller picture of the occupants of the house to be created. We now know more about what they ate, what sorts of material furnishings they surrounded themselves with and even how they dressed. When reading this report, be mindful of what the documentary record recorded about the inhabitants and what it did not record, then think about how much more we now know as a result of the evidence recorded in the ground and the fabric of the house itself.

## II. ENVIRONMENTAL CONTEXT

Soils on Cape Cod are terminal deposits located at the southern end of the ice sheet that once covered New England. These soils rest on bedrock with depths to that bedrock ranging from 100 feet at the eastern edge near the Cape Cod Canal to 1000 feet at the western edge following the east to west slope of the bedrock (USGS [http://pubs.usgs.gov/ha/ha730/ch\\_m/M-text2.html](http://pubs.usgs.gov/ha/ha730/ch_m/M-text2.html)). Wetlands on Cape Cod are all post glacial developments. Fine-grained glacial-lake deposits overlay the bedrock and are in turn overlaid by coarse sand and gravel outwash (USGS [http://pubs.usgs.gov/ha/ha730/ch\\_m/M-text2.html](http://pubs.usgs.gov/ha/ha730/ch_m/M-text2.html)). The glacial lake deposits are related to Glacial Lake Cape Cod, which was formed at the end of the last ice age as the Cape Cod lobe of the retreating glacial receded north of the Sandwich moraine. The lake was formed in an arcuate (bow-shaped) lowland north of the moraine with the moraine impounding the southern side and the South Channel lobe of the glacier the eastern side (Skehan 2001:88). Glacial lake Cape Cod had two outlets which later became riverways: the Monument River in Sandwich and Whites Brook-Parker River (near the present day Bass River in Yarmouth).

The underlying aquifer on Cape Cod is recharged in part (45%) by the precipitation that percolates through the soil to it. The aquifer on Cape Cod is not flat but is composed of six low mounds that get higher as they get farther from the coast (USGS [http://pubs.usgs.gov/ha/ha730/ch\\_m/M-text2.html](http://pubs.usgs.gov/ha/ha730/ch_m/M-text2.html)). The aquifer mounds are separated by ocean inlets and narrows that act as discharge areas. Saltwater underlays the freshwater in the northern part of the Cape. For example, at Truro the freshwater zone is 200 feet thick while at mid-Cape it extends to the bedrock.

The Town of Sandwich is located in the middle portion of Cape Cod (mid-Cape) and is bordered by Cape Cod Bay to the north, Barnstable to the west, Bourne to the east, and by Mashpee and Falmouth to the south. The northern portion of the town can be characterized by hilly topographic contours that are up to 200 feet above sea level composed of the Sandwich moraine. The central and southern sections are more level, with maximum above sea level height being 100 to 150 feet as a result of their creation as part of the Mashpee outwash plain. Drainages in the town consist of numerous marshes, creeks and streams with tidal marshes bordering the town's northern edge between the Sandwich moraine and Cape Cod Bay. Major drainages include Scusset River, and Mill, Dock, Old Harbor, Scorton and Spring Hill creeks. Ponds include Peters, Spectacle, Triangle, and Lawrence ponds as well as many smaller bodies of standing water. Generally the soils in Sandwich are sandy loams with good agricultural soils being located in the Old Scusset area of the northern part of town and on the Mashpee outwash plain in the south.

The 22 Water Street and Knoll House site properties sit on Eastchop loamy fine sand on 3-8% slopes (United States Department of Agriculture [USDA] soil designation 264B) (**Figures 1 and 2**). Eastchop soils are characterized as being very deep, gently sloping, and excessively drained located on outwash plains and low hills in glacial lake deposits. The stratigraphic profile of Eastchop soils is composed of approximately two inches of



Figure 1. Location of the project area on topographic map

3/5/2011

### Town of Sandwich



Property ID	73-144-
Number	22
Address	WATER STREET
Current Owner	KEYES, THOMAS F & MELISSA J (TE)



MAP FOR REFERENCE ONLY  
NOT A LEGAL DOCUMENT

Because of different update schedules, current property assessments may not reflect recent changes to property boundaries. Check with the Board of Assessors to confirm boundaries uses at the time of assessment.



Figure 2. Location of 22 Water St and the Knoll House Site

A0/ decomposing and decomposed organics. This layer overlays an approximately six inch thick topsoil (A) layer of very dark gray loamy sand that transitions to a yellow brown loamy sand. The Topsoil/ A horizon overlays a 19" thick layer of subsoil/ B1 horizon that is a yellow brown loamy fine sand that transitions to an olive yellow loose fine sand (B2 horizon). Below the B2 horizon the substratum extends to a depth of 65" and is a loose fine sand (C1 horizon) that is light yellowish brown to olive brown in color. Depth to the water table is more than six feet. Eastchop soils are poorly suited to cultivated crops and hay or pasture due to their low available water capacity. The soil is also poorly suited to the development of woodlands due to the droughtiness. The most common trees that grow on Eastchop soils are stunted and poor quality eastern white pine, pitch pine, scarlet oak, and white oak.

Shawme and Upper Shawme Lake were created in the seventeenth century when Thomas Dexter dammed the stream to create a mill pond to make a fall for his grist mill located to the north of the project area. Before the damming of the stream the land on either side of it may have been wetlands and cattail swamp as it is much lower than the surrounding land and would have been wet even before the damming. The center of the stream was probably located about 300 feet to the west of the Knoll on which the house was located.

Whoever built this house selected the location based on the presence of an elevated piece of land surrounded by arable potential field and orchard lands. While the soils where the house is situated are not well suited for agriculture, the use of raised beds for a kitchen garden on the south side of the house and the use of the land to the immediate east, south and west for agriculture appears to have been a wise choice. The elevated position of the house would ensure that the house would stay high and dry while the fields around it remained well-watered. he must have been able to gauge the fecundity of the land based on the plant species that were growing in the area when he arrived and then selected the best place for his house based on his observations.

### III. ARCHITECTURAL HISTORY

The Water St. house was made using a plank frame construction technique. While there was a diversity of origins for the carpenters and housewrights who resided in Plymouth Colony, the houses that were built in the early colonies were often designed and built by the farmers themselves and represent examples of vernacular architecture. Richard Candee (1967) was one of the first architectural historians to suggest that the Dutch origins of many of the early colonists had to be taken into account when considering the surviving and recorded architectural styles present. The First Comers who arrived in 1620 had spent a 12 year sojourn in Holland before arriving. For example, in the first decade of settlement in Plymouth colony, there were a total of 457 immigrants, 94 of whom had solely Dutch backgrounds and the ratios were even higher in the first years (Candee 1967: 11). and surely must have been influenced by the houses they saw and inhabited during that time. The first building erected in Plymouth was begun on December 25, 1620 when men were sent out "some to fell timber, some to saw, some to rive, and some to carry" the sawn boards, riven pale or clapboards, and other "stuff for building" indicating a strong possibility that the first house was plank framed (Candee 1967: 11). Subsequently a shed "wattled up with boughs" was built against one side of the first building (Candee 1967: 11). The building had a wooden or wattle and daub chimney added to it and a thatched roof, as it is known that a fire in the building "broke out of the chimney into the thatch" (Candee 1967: 15). Daubing was known to have been used somewhere on the buildings as in February of 1621 Winslow reported that a storm "caused much daubing of our houses to fall down" (Candee 1967: 15).

Constructing a house using vertical planks was a common feature of Dutch architecture in the early seventeenth century and one that appears to have been brought to New England by the colonists who had lived in Holland. Building a house using vertical planks involves the use of wide sawn boards used to cover a frame of widely spaced vertical timbers placed at the corners of the structure. The vertical planks are spiked to the horizontal sill and holes are drilled into the top plate and trunnels are driven in to secure them. Framed houses require more joints than planked houses and thus are more costly to build with regards to time and expense. Holes for casement windows were sawn possibly after erection and the frames were affixed to the boards.

This method of construction was rare in seventeenth century New England, being limited in the early decades to Plymouth Colony and the northern corner of Rhode Island (which was settled by colonists from Plymouth Colony). Over 90% of surviving structures in Plymouth Colony prior to 1725 were built in this manner (Candee 1967: 41). Vertical planked structures were known to have been built as early as 1622 in Plymouth. When the fort on what is now Burial Hill was constructed in 1622 it was described by a Dutch visitor as being "built of thick sawn planks stayed with oak beams" (Candee 1967: 18). All the documented Plymouth Colony houses of plank construction had boards that were 1 1/4" thick and had their edges half beveled together (Candee 1967: 45). The exterior of these structures were covered with clapboards and the interiors were not plastered but were often wainscoted at the edges of the vertical board with a molding plane, in manner identified during Lombard's excavations of the "Aptucxet Trading Post" in 1926-1927 (although it was not identified as such) (Lombard 1953). This indicates that this house was originally constructed as a vertical plank house which had plaster added to the interior at a later date.

In Massachusetts Bay the agreement for the building of the meeting house in Manchester, built in 1719, specified "that the house shall be planked and not studded" (Cummings 1979: 89). The highest concentration of vertical plank houses is found to the North of Boston around Cape Ann but not one

dates before 1680 (Cummings 1979: 89).

The walls of the house were not insulated either with the inclusion of wattle and daub walls or through the infilling of a space between inner and outer walls with brick nogging or any sort of grasses such as has been theorized for other early structures such as the Ezra Perry II house (aka Aptucxet Trading Post Museum) in Bourne (Lombard 1953). The interior of the vertical plank walls were whitewashed and the exterior was covered with horizontal clapboards, most probably of split oak. The roof is theorized to have been thatched with traces of that original thatch possibly having been identified in 2010 when the more modern siding on the exterior east wall was removed and the side was reshingled. The hearth is theorized to probably have had wattle and daubed walls on the south, west and north sides and the chimney hood would have been timber framed and wattle and daubed. The theory that the hearth and chimney were constructed in this way is based on the recovery of fragments of burned daub during the 2010 excavations and the lack of any daub on the main walls of the house. The south wall of the hearth would have acted as a windbreak for drafts entering the house from the door, which appears to have been located in relatively the same location that it is today.

In Massachusetts Bay, Abbott Lowell Cummings has noted that “a significant portion of surviving seventeenth century two-room, central-chimney houses...commenced life as dwellings of single-room plan. Clearly the immediate need for shelter under pioneer conditions...seems to have dictated for many of the settlers at every class and economic level a simple single-unit dwelling for a start, to be soon enlarged as their situation in life improved.” (Cummings 1979:22). Cummings found that the earliest surviving houses of one room plan in Massachusetts Bay had been enlarged several times in their existence. The expansion began longitudinally and then laterally with a lean to addition to the rear (Cummings 1979:23). J. Frederick Kelly illustrates a good example of this with the Hempstead house (single-room structure built 1643) in New London, Connecticut (Kelly 1963:11).

Paul Chase, when he reviewed 17th century probates, found that in Plymouth Colony most houses through 1675, appear to have been of a single room design (Chase 1985: 60). Chase also noted that one-room houses appear to have been more common for individually with estates valued at or under 90 pounds, the amount which appears to mark the difference between the wealthy and the common people in seventeenth century Plymouth Colony (Chase 1985: 62).

In Massachusetts Bay, single bay cottages were common throughout the seventeenth century and into the eighteenth (Cummings 1979: 22). A 1640 contract stipulated that the house to be built was “16 foot long and 14 foote wyde...the Chimney framed without dawbing to be done with hewen timber.” (Cummings 1979: 22). Cummings found that of the 79 dwellings whose dimensions were recoded in documents from 1637 to 1706, 39 were single-bay cottages with only two being less than 15 feet square (Cummings 1979: 22). Seventeen of the measured from 22-28 feet long and 18-20 feet wide (Cummings 1979: 22). These small houses appear to be limited to individuals with limited means with estates ranging from £15-163 (Cummings 1979: 22). This was not always the case though, as deputy to the General Court John Whipple also had a single-bay house (Cummings 1979: 22).

In England it has been found that during the Late Medieval to Post-Medieval period the single chimney/ hearth house was the most common form in much of England, making up to 70% of the houses during this period (Barnwell and Airs 2006). There has also been found a clear relationship between the number of fireplaces and the wealth of the occupants, a trend that continued into the Victorian period when the average laborers cottage measured 12' square (Barnwell and Airs 2006:

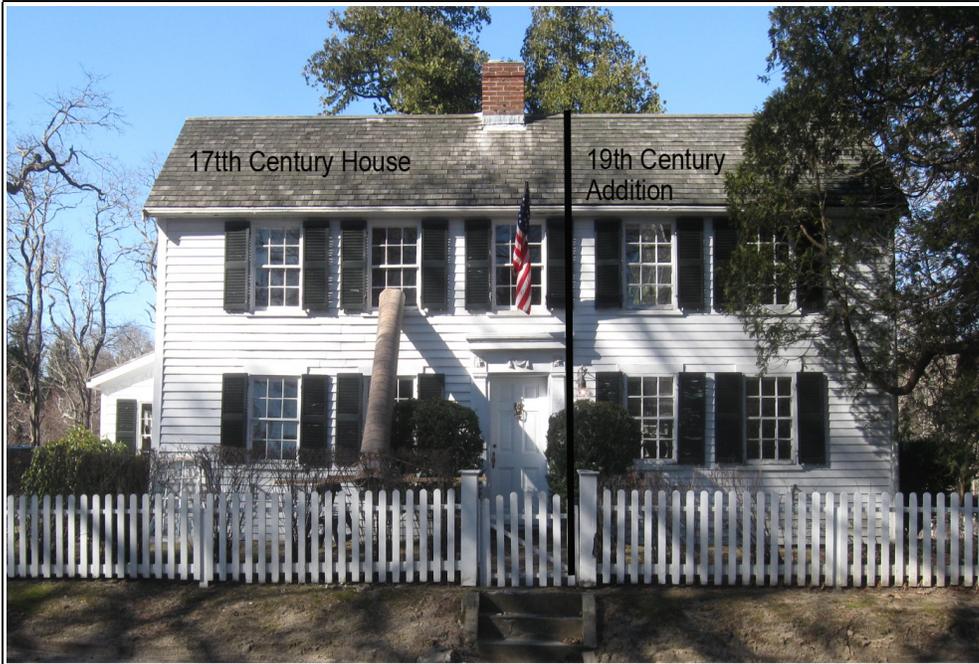
76). During the period 1600 to 1637, 40 cottages on Brigstock Little Park, Northhamshire measured 3 x 3.6 m (10 x 12') and cottages built on the waste at Urchfont, Wiltshire between 1606-1639 averaged 3 x 4.25 m (10 x 14') and the simple late 17th and 18<sup>th</sup> century cottages probably cost between £3-24 to build (Barnwell and Airs 2006: 76). (Barnwell and Airs 2006: 79).

The floor space at 22 Water St. is 216 square feet for the main 12 x 18 house with an additional 144 feet (12 x 12) for the north ell, making a grand total of 360 square feet. This is definitely larger than the 10 x 12, 10 x 14, and 12 x 12' sizes in England discussed above.

The Water St. House measured 12'4" at the gable ends and 18 feet along the front and rear (**Figures 3 and 4**). The north ell measured 12' x 12' and was probably used as a dairy and kitchen ell. Architectural archaeologists David Wheelock and Michael Burry have determined that the original structure was a story and a half. The roof was later raised and a second story was added. Later, the ell on the north side was added. The determination that the house was originally a story and a half is based on the fact that the corner posts on the first floor only rise to the top plate and not all the way up to the second story top plate. It is possible that the house was originally built as a two and a half story but that due to timber constraints, it was built in two sections, the lower and the upper. The characteristics of each story are similar in styles of finishing so if it was not originally intended as a two and a half story, then at least the hewing of the timbers for both the lower and upper story were done by the same person or persons. Evidence that the ell was added is apparent by the fact that locking pins were used to attach the frame of the ell to the main house, an indication that it was added at a later time.

One of the characteristics of these are that they are small when compared to similar timbers from other seventeenth century houses, it is almost as if the house was built in miniature. This is probably a result of the size of the timbers that were used and the final size of the structure that was desired. The builders knew that they were building a cottage size house and thus they may have decided to not use full size timbers. There is also the possibility that by the mid to late seventeenth century when the house was built, the timber available to the builder was either cheaper if it was smaller, or larger pieces may not have been available in the immediate vicinity. One way for an owner to save money on building a house is to use lumber that came from the owner's own property. Larger trees may have been sold earlier in the century and what was left on the property may have been smaller trees, the second choice of builders. It is also possible that some of the timbers in the house came from larger trees that were split to provide more timber per trunk.

People's concept of space was different in the past, and while we look at a house that measures 12' x 18' and say how small it is, the original family probably felt that it suited their needs for shelter and warmth. The fact that the house was small from the start and did not grow appreciably indicates that the people who built it were not wealthy but were probably middling farmers, a conclusion supported by the artifacts recovered from the Knoll House site excavation. Wealthier individuals would have probably chosen to build a standard central chimney hall and parlor house or to soon add on to the cottage to develop it into a larger, fairer house. This is what is often found at other historic houses, like the Wing Fort House, where it started as a 20 x 20' house and was expanded by the second generation to a central chimney hall and parlor style. Below are some examples of other seventeenth century Plymouth Colony house dimensions:



22 Water St. looking west



22 Water St. Looking north

Figure 3. 22 Water St. House exterior views

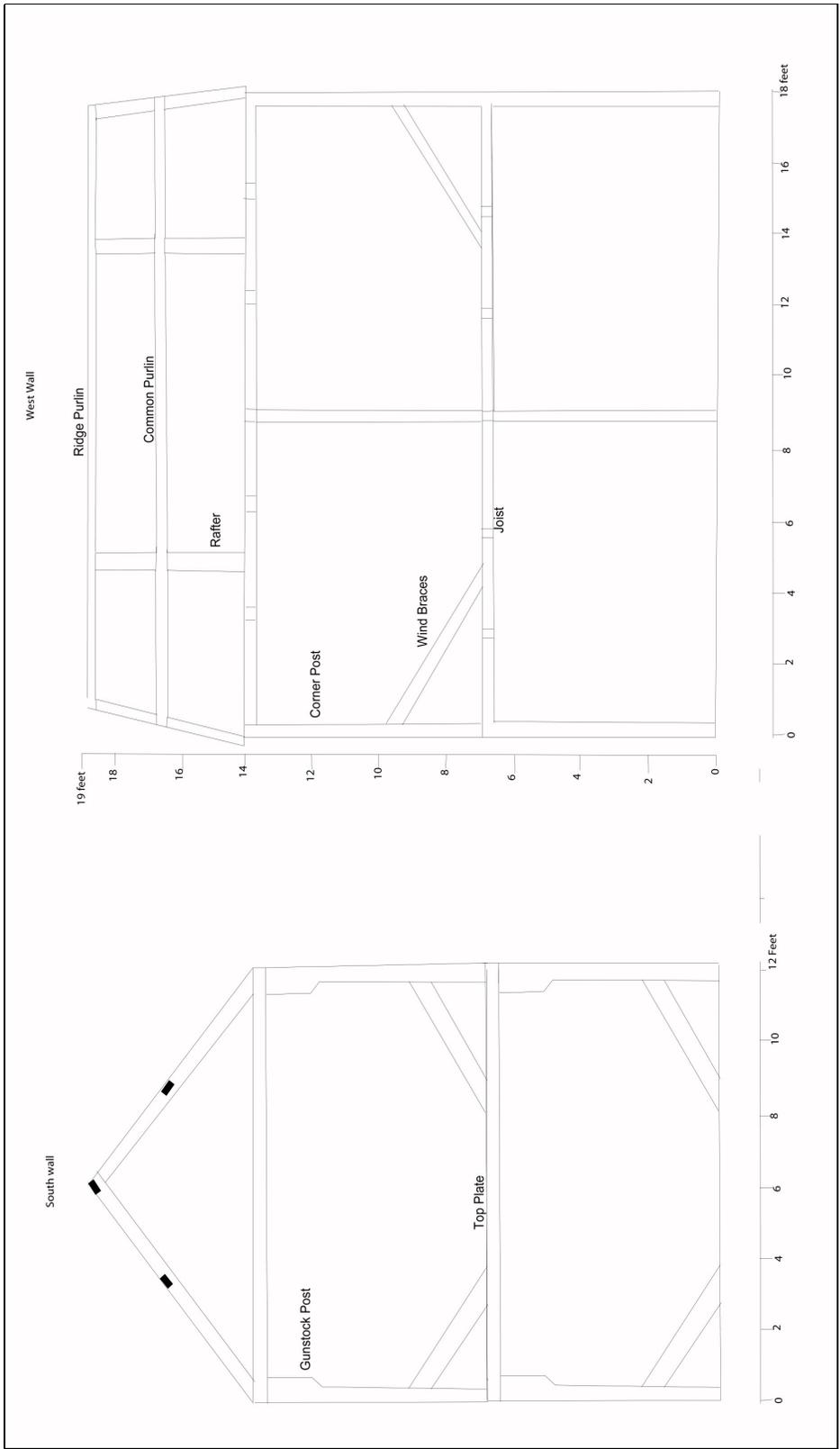


Figure 4. Line drawing of principal timbers 22 Water St.

- Ezra Perry II House (Aptucxet Trading Post Museum) ca. 1676  
25.3 x 27.6 for hall and 21 x 15' ell
- John Howland House ca 1638 17'6" by 33' for the hall and 9' x 25' ell
- Isaac Allerton House ca 1632 20 x 22'
- Stephen Wing House ca 1640 20 x 20'

Certain characteristics, as outlined by Abbot Lowell Cummings (1979), of the construction help to date the 22 Water St. house (**Figures 5 and 6**). The roof angle was 40° (10/12), which is more common in the later seventeenth century. Earlier roofs tend to be steeper as carpenters were not as used to covering them with shingles or boards, thatch, which requires a steeper roof pitch to shed water, was the more common choice for roofing. The common rafters in the attic were bird-mouthed on the ends and possibly trenched and secured with a single pin. Bird-mouthed rafter feet are present in the Pierce House, which dates to ca. 1650. Common rafters are present in the Fairbanks House, the oldest house in Massachusetts (ca 1634) and the securing of the rafters with a single pin is a common early technique that was less common in East Anglia in England but did still occur. The ridge purlin at 22 Water St. lies in a trench, as was common throughout the seventeenth century, not evolving into a proper ridge pole until the eighteenth century.

The roof system of the Coffin House (ca. 1654) in Newbury makes use of principal and common rafters, a technique especially prevalent in east Anglia) that was eventually replaced with a series of principal rafters, ridge pieces, and common purlins like what is present at 22 Water St., indicating a possible later seventeenth century date for the house. Among Post-Medieval English carpenters, the principal and common rafter system was pre-eminent and the differences between the dimensions of the scantlings becomes heavier as one moves from east to west across England- lighter elements in the east and heavier in the west. The common purlin that is present in New England, and at the 22 Water St. House, was designed by period carpenters in terms of slender scantlings and relatively close spacing to receive roof boards and shingles, not thatch, which would require a heavier roof and wider spacing. By the end of the seventeenth century the principal rafter and common purlin system was the preeminent technique used in Massachusetts Bay.

The wind braces in the chamber fall as opposed to rise. In the Fairbanks House they rise from the corner post to the top plate, a technique that was more common in the West Country of England while falling was more common in East Anglia. The floor joists are positioned flatwise versus on their side. Usually by the early seventeenth century carpenters placed the joints depthwise, but flatwise was rule in modest houses in Suffolk, England. The tenons used to secure the second story floor joists were tusk and dove tailed. Earlier builders used tusk tenons and by 1660 open cog/ butt-cogged joints were the more common ones used as opposed to the tusk and dovetail tenons. Based on the architectural evidence, the 22 Water St. house can be dated to the late middle to late seventeenth century, possibly ca 1660 at the earliest.

But the house can not be considered in isolation. It is believed that the house formed part of a larger farmstead that was the center of. The life of the seventeenth century family was centered around the farmstead, the croft and the toft, much like their Medieval forebearer's lives were. The croft was the messuage as it was often called in Plymouth Colony records, the land immediately surrounding the house. This land was often set off from the surrounding land by means of ditches, walls, or hedges. It contained the house, house garden, barn, and outbuildings belonging to the family (Hanawalt 1986: 23). The toft was the house itself. Together, the toft and the croft formed the family's homestead. The



Attic showing Common Purlin and Rafter



Plank Framing on what was North Side of House



Looking to second floor from bottom of 19th century staircase, shingled roof section above new 2 x 4s, exterior plank framing on left side of picture



First Floor ceiling showing location of possible staircase

Figure 5. Interior photographs of 22 Water St.



Bird-mouthed rafter and tusk tenon



Original paint



Released pin on north side of house



Second Floor wind braces



Gunstock corner post



Finished first floor with reproduction paint scheme

Figure 6. Interior photographs of 22 Water St.

house itself could take several forms in Plymouth Colony from the basic cottar/ cot/ cottage which was a one-room/ one bay structure that often measured about 16 x 12' in Medieval times to longhouses of around 33 by 13 feet, to central chimney plan houses common in East Anglia in Old England (Hurst 1972: 104; Hanawalt 1986: 32; Cummings 1979). The Cot was typically considered appropriate for those of lower social scale in the Middle Ages, but by the time of the settling of Massachusetts, it was often found to be a "starter" home for colonists. Longhouses evolved out of Medieval houses that sheltered both man and beast, people at one end in the house and animals at the other in a byre, all under one roof. They were typical Medieval peasant housing that were common in many regions of England and absent in the central Midlands, East Anglia and Kent (Hanawalt 1986: 33). The differential distribution has been attributed by some to the latter areas ability to produce abundant amounts of grain which resulted in abundant straw for bedding in crew yards versus in byres (Hanawalt 1986: 33). In all cases, wealthier peasants planned their homesteads as farms, one house for people and barns, stables, and ancillary support building set separately and either at right angles to the house or in line with it. Laying out the farm in this way created a yard in front of the house and barn where animals could be cared for and protected. The linear arrangement of support buildings was more common in the north and southwest of England while the L-shape courtyard pattern was common elsewhere with more diversity as one moved south (Smith 1982: 65). The farm was typical of the more prosperous villagers such as the yeomen farmers (Hurst 1972: 107).

Gervase Markham outlined his ideal plan for a fully functional, self contained farm in *The English Husbandman* (1613:8). Markham recommends that when selecting a location for a house the husbandman would not want to place his house on a high hill to look down on everyone (as this is unprotected from the wind), but should locate it on "...some pretty hard knole of constant and firme earth" with tall trees around for protection from the wind and use for the livestock (Markham 1613: 8). The house should be located near a river or fresh running water, but no so near that it will get flooded, and that it should face south and east to take advantage of the sun. The entrance into the house would be located on the south or east sides. While Markham does not explicitly state it, an entrance on the south would be used on a small house where one would enter into the multi-function hall whereas an entrance on the east would result in an entrance into the hall as well but then entertainment in the parlor (**Figure 7**). Markham recommends laying out your farmyard in the following manner. On the south side, where one has the best defense against the north wind, it was recommended that the following be situated:

- garden
- orchard
- best rooms in house

The west side of the house is where the the following should be situated a large base court containing:

- outside dairy court
- outside kitchen court
- a fenced in base court with large pond where cattle may drink and horses can be washed
- dovecote

Buildings for the keeping of large domestic mammals, species that can weather the cold north wind, should be located on the north side of the base court (which is located on the west side of the house):

- stables
- ox house
- cow house

-swine cotes

While all of these building should be located on the north side, their windows and doors should be located on the south side to provide ease of access and warmth during the winter.

The following buildings should be located on the south side of the base court (which is located on the west side of the house):

-hay-barnes

-corn-barnes

-pullet-houses for Hens, Capons, Ducks, and Geese

-malting kilne and malting floors.

Also on the north side it was recommended that the buildings of "the inferior offices" be situated where the cold of the north wind will benefit them:

-kitchen

-buttery

-dairy

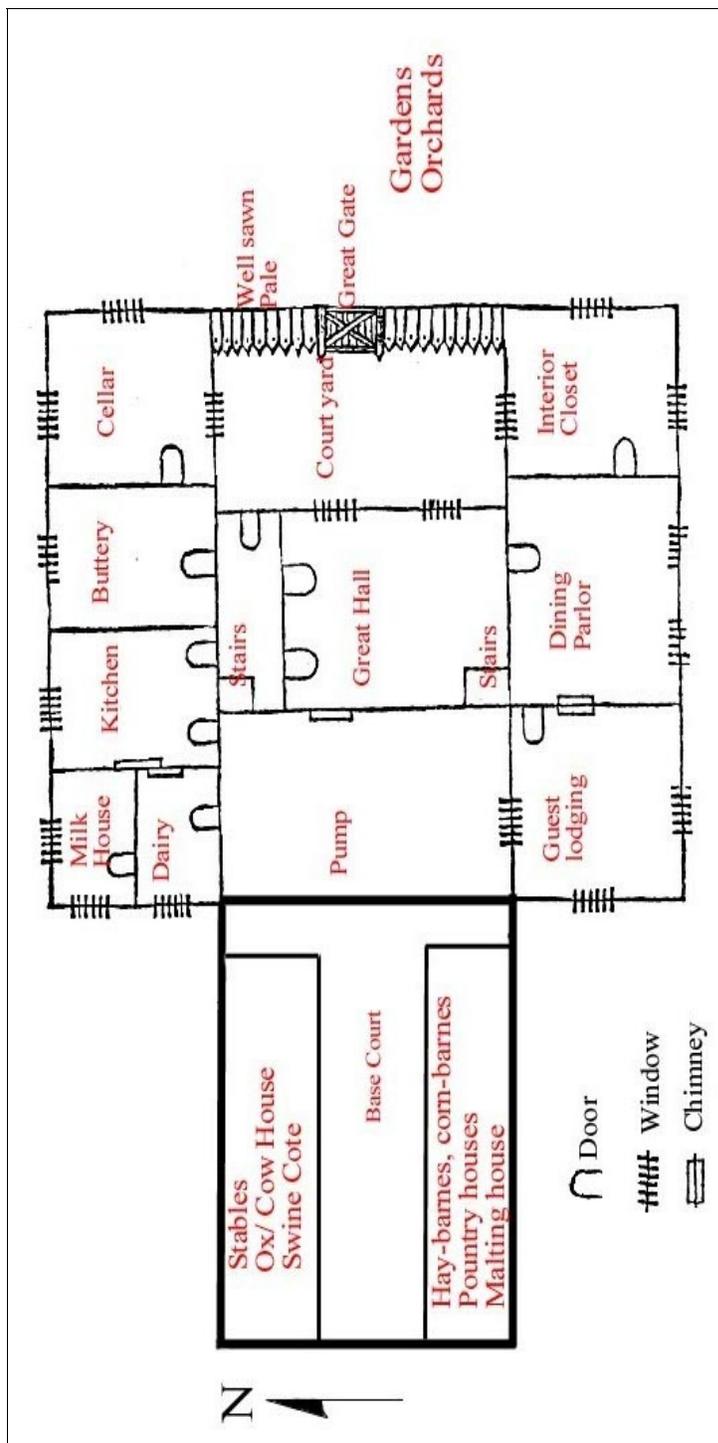


Figure 7. Seventeenth century idealized farm plan (Modified from Markham 1614)

Between the north and south sides of the base court, hovels (open sheds or shelters) to store peas in the upper part and in the lower part where tools such as carts, plows, harrows and their associated timber should be stored. It is theorized that the Knoll House faced south, had orchards and gardens on the south and east sides and a barn to the east, possibly at a right angle to the house. Outbuildings may have been located to the south, north, east, or west depending on their functions.

#### **IV.. PREHISTORIC CONTEXT**

New England's prehistory is poorly understood relative to that of other regions in North America. For most of the prehistory in the region, river drainages, defined physiographic units within which human communities operated. This pattern follows from the longitudinal diversity of habitats that occur along drainages, forming ecologically unique wetland habitats, together with the transportation routes afforded by their watercourses. In the clearest examples, rivers provide access to maritime and upland resources at each end of the drainage, and to the diverse habitats in between. The exploitation of those habitats can be integrated into a seasonal round that differs at various historical moments.

The prehistory of southern New England is divided into seven periods, each identified by characteristic styles of projectile points, pottery and other artifacts. These periods are the Paleo-Indian (13,000-10,000 BP), Early Archaic (10,000-8000 BP), Middle Archaic (8000-6000 BP), Late Archaic (6000-3000 BP), Early Woodland (3000-2000 BP), Middle Woodland (2000-1000 BP) and Late Woodland (1000-350 BP). In addition to their artifacts, the periods are characterized by changing patterns of site location, activities and size. The final report for this project will contain a more detailed discussion of the prehistory of Massachusetts and how any prehistoric archaeology uncovered in the project area or immediately around it, relates to larger trends that have been observed regarding the Ancient native American settlement of New England.

New England has a rich and extremely interesting Pre-Contact period. Archaeology has contributed a great deal to our understanding of the Native history of New England, without it our picture of the past would, unfortunately be only a sketch. Unfortunately, archaeology can only give us only a bare bones look at the lives of the people who have lived in New England in the Pre-Contact past. We can never answer questions like what was a man thinking when he made a certain projectile point style, or what did a woman think about when she made a pot. We can only theorize and guess at these sort of details. But through archaeology, we have been able to learn when people first arrived in Southeastern Massachusetts and how they made a living.

Because archaeology relies on the material that is recovered from the soil, we are limited to how much we can ever really know about the most ancient people. So we must try to say something archaeologically meaningful from the scant bits of evidence that have survived. Unfortunately, the farther back in time we travel, the more scarce our evidence becomes. This is due to the fact that there were less people in the area in the past and some sites have been flooded by rising sea levels. Bearing this in mind, the following is a sketch of what happened in the past, always being added to and never complete.

##### **Paleo-Indian Period 13,000-10,000 BP**

Although there is new research being conducted all the time, the present theory is that the people who first settled in New England arrived in the New World during the end of the Wisconsin ice age, approximately 13,000 years ago. Before this time, New England and much of the northern half of the United States was covered by a mile and a half thick sheets of ice called glaciers. Ice ages are part of the Earth's natural warming and cooling cycle. Approximately 60,000 years ago for some unknown reason, the temperature dropped on Earth just a few degrees, just enough to cause the glaciers and ice caps located at the north and south poles to begin removing water from the oceans and growing. By approximately 20,000 years ago the edges of the northern ice sheet had reached its maximum extent, present day Martha's Vineyard and Nantucket, and began to recede. As the glaciers melted, they

dropped millions of tons of sand, gravel and boulders that had accumulated during their journey southward. All this material, the moraine and outwash soils, became the sandy hills, the drumlins, eskers and kames, and basically all the lower layers of soil that make up our landscape today. Mixed in with the moraine and outwash were glacial erratics, these are the large boulders, like Plymouth Rock, that dot our landscape today.

Following the retreat of the glaciers, the climate in southern New England was a southern tundra. It was cold, windy and barren and covered with large areas of wetlands. Scattered intermittently across the landscape were patches of grasses, shrubs such as sedge, alder and willow, and small stunted trees including spruce followed by birch and pine. There was also a lot more landscape than there is today because the oceans were approximately 300-400' feet lower than they are today. In New England, this meant that the coastline was up to 50 miles to the east of its present position. This left exposed large portions of land, like George's Banks, that are today underwater. The islands that we see today in many coastal harbors, were at this time hills on a barren landscape and many of the rivers that we know today were nothing more than springs or small streams.

The types of animals that were present at this time included some of the smaller species such as foxes and rabbits, but megafauna were also present. Megafauna is a term that describes the large breeds of animals that were present in New England after the last ice age. These included the mammoth, which existed on the tundra, the mastodon, which lived in the early forests, the horse, which later became extinct and was reintroduced by the Spanish in the 1500s, bears like the large Kodiak variety, beavers up to 6' long, bison, elk, caribou and musk ox, which disappeared fairly early.

In southeastern Massachusetts, sites that date to this period have been encountered in Plymouth on the Eel River and on the coast in Marshfield.. At these sites, the evidence of people living here after the last ice age has consisted predominantly of stone projectile points of a variety called the Paleo or fluted point. These points were generally made from exotic materials that were carried in by the inhabitants as they traveled from the west. These materials predominantly are very fine grained stones including cherts from New York and Maine and jaspers from Pennsylvania. Population densities have been estimated at approximately 5-12 people per 100 square kilometers. These people made their living by hunting and possibly scavenging the carcasses of the megafauna. They also hunted smaller game such as rabbits and they may have fished on the coast. The populations in New England at this time may have numbered no more than a few hundred. These people lived in small groups and traveled seasonally. They probably were not nomadic, but were following seasonally migrating herds. Paleo sites are often located on hilltops overlooking plains or were high on the shores of glacial lakes.

Archaeologically there is little evidence of the Paleo-Indian period on the Outer Cape. One of the reasons for the paucity of finds may be related to the fact that during this period the coastline was approximately 100 miles to the east and south of today's George's Banks with the result being that more attractive sites may have been located near the paleo-shore and are now flooded. No Paleo-Indian materials have been recovered in situ on the outer Cape, with one fluted point having been recovered from Eastham, constituting the total of the evidence on the Outer Cape for occupation at this time (Johnson 1997: 17). On the shore of the Bass River in Yarmouth, a cache of possible Paleo-Indian Eden blades of Mt. Kineo felsite from Maine was recovered from a tree fall (Dunford 1997: 32). It is more likely that these blades date to the Middle Woodland period and are not, in fact, Eden points.

By the end of the Paleo Period the environment in New England was stabilizing and life ways were becoming fairly distinct. The megafauna were extinct by 10,000 years ago, probably due to a combination of hunting by the first settlers and climactic change. the forests were beginning to change to more pine and nut bearing hardwoods which created new habitats for animals and new food sources for people. While the Paleo Period can be seen as a time of initial colonization, the next period, the Early Archaic, can be viewed as a time of settling in and accommodation to life in New England.

### **Early Archaic 10,000-8,000 BP**

The extinction of the megafauna and the changing climate led to a revamping of the Paleo-Native way of life around 10,000 years ago. The environment in the Early Archaic had warmed slightly and as a result, trees such as oaks, pitch pines, beeches and hazel began to flourish. It was during this time that the major rivers that are around today began to form as well and into these rivers anadromous fish species like salmon and herring began to run. This would have provided another food source for the inhabitants of New England. As New England began to become more forested, new mammalian species also would have moved into the area. These species would have included black bear, deer and moose.

The Early Archaic is one of the little understood periods of New England prehistory. Early Archaic sites tend to occur on a wide range of settings including hills sides with slopes over 15 degrees and hill tops. Some sites are situated on the same locations as Paleo sites while others appear alone in the landscape. Homes at this time have been theorized as being either of a longhouse shaped, as have been identified in Taunton, Massachusetts at the Titicut site, or as small pits dug into the sides of hills as have been identified in Connecticut and northern Massachusetts. It is unknown if the two forms of houses occurred simultaneously, were seasonally determined or represent different building traditions by different populations.

Evidence of the Early Archaic peoples' process of "settling in" is evidenced in their use of local volcanic materials such as rhyolite and felsite for tools and projectile points and their possible use of quartz for quick, expendable tools. Hunting during this period may have taken the form of spear throwing with the use of the atl-atl, a weighted stick that was held in the hand onto which a long spears was placed and launched from. The atl-atl was basically an extension of the throwers arm and it effectively increased the distance, force and accuracy of the throw. Like the preceding Paleo-Indian period, little evidence exists for occupation on the Outer Cape during the Early Archaic. One bifurcate base point was recovered from the Chase Farm site in Eastham and a bifurcate base point base was recovered from the Nauset trail on the Cape Cod National Seashore (Dimmick 2006: 2). During the Early Archaic the sea levels were still approximately 25 meters below their present level but the Cape was covered by a mixture of oak and pine forest.

### **Middle Archaic 8,000-6,000 BP**

While the Early Archaic was a time of transition from the Paleo-Indian nomadic way of life to a more sedentary and permanent situation, the Middle Archaic can be seen as a time of more normality and permanency. It still was a time of many changes though. Oceans remained approximately 29 feet lower than they are today but the rate of rise had slowed enough for estuaries to begin forming. the formation of estuaries led to the establishment and proliferation of shellfish beds. Shellfish first settled in the warmer southern waters and eventually moved northward as the sea level rise slowed and waters warmed.

By 7000 years ago, forests with the same basic composition as today began to be established. The use of heavy stone woodworking tools such as axes, adzes and gouges increased during this period, possibly indicating the construction of log canoes or at least an increase in woodworking. Evidence for hunting using atlatls first appears at this time as well. In fact, the oldest burial in New England, 7500 years ago, was located in Carver, Massachusetts and contained two atlatl weights of the whale-tail variety. Sites from this period are fairly common, indicating that people had begun to spread out over larger areas. It also indicates that there may have been more people in Massachusetts than before.

No Middle Archaic sites are known from the Outer Cape. On the Lower Cape, the Upper Mill Pond Site in Brewster's Stony Brook Valley yielded specialized tools, points, scrapers, hammerstones possibly used to harvest and process the more seasonally available resources of this time. The site lies on a kettle pond approximately 50 feet above sea level.

### **Late Archaic 6,000-3000 BP**

The Late Archaic represents the period with the most identified and recorded archaeological sites in Massachusetts. This has been interpreted by many as indicating a very large number of people living in our area during this period, although archaeologists are not sure why this happened. The case may also be made that this proliferation of stone tools and sites may be more related to a wider variety of stone tools being manufactured for specific purposes and a wide variety of habitats being exploited as opposed to a population boom. The Late Archaic is also a time of greater diversification and specialization than was evident in the earlier periods. The tool kits of the people living on the south coast and its coastal forests differed from that of the people in Maine and further north. This in turn was similar but distinct from the inhabitants of the strictly boreal forests such as those in New York and inland Massachusetts.

Along coastal Massachusetts, the combination of stabilizing sea levels and estuary formation led to significant runs of anadromous fish by the Late Archaic. As a way of taking maximum advantage of these fish runs, Native people began using weirs in the rivers, streams and bays. In fact, one of the largest weirs found anywhere in the world was encountered in what was once Boston harbor. It is believed that the weir was constructed approximately 5000 years ago and covered several acres. Weirs of a smaller scale were undoubtedly employed in most of the bays, rivers and larger streams in southeastern Massachusetts.

Unlike the preceding periods, the Late Archaic is well represented on the Outer Cape, as is the situation everywhere in Southeastern Massachusetts. A number of Late Archaic shell midden sites were identified in the High Head section of Truro during McManamon's archaeological survey of the Cape Cod National Seashore, indicating possibly a greater use of shellfish during this period (McManamon 1984: 348). Other Late Archaic sites include a single Otter Creek projectile point, representing the Laurentian tradition, recovered during McManamon's Cape Cod National Seashore survey from site 19-BN-274 and another from Nickerson's Neck in Chatham (McManamon 1984). Small Stemmed tradition sites are better represented on the Outer Cape with 20 of the sites identified by McManamon yielding Squibnocket Triangle and Small Stemmed points. Small Stemmed tradition sites occur in a wide variety of environmental settings. Susquehanna tradition sites, characteristic of the Transitional Archaic, have been identified in Orleans (the Coburn site), one possible Atlantic point, and seven Susquehanna/ Wayland Notched projectile points, and two Orient Fishtail points were recovered from McManamon's survey. All of these points are diagnostic of the Transitional Archaic period.

### **Early Woodland 3000-2000 BP**

Following the Terminal Archaic is an ill-defined time labeled the Early Woodland by New England archaeologists. In the face of the date for the start of pottery production being back into the Late to Terminal Archaic and the absence of horticulture possibly until after 1000 A.D, some archaeologists, like Snow, do not view the designation of Early Woodland as a valid one (1980). They see no real change occurring that could be used to differentiate the Terminal Archaic and the next 1000 years. They merely see a continuation of tumultuous times that began after 3000 to 4000 years ago. In the words of Filios "... the chronological picture (for the Early Woodland) is more murky than previously suspected. ...the horizon markers (of this period) need to be reevaluated." (Filios 1989:87). Traditional horizon markers for the Early Woodland have included Vinette I pottery, which has been shown to have been produced before the Early Woodland, an absence of Small Stemmed points, which have been shown to have continued in use into the Early Woodland, and increased sedentism, which appears to have begun before the Early Woodland, and horticulture, which in New England was not intensively practiced until after 1000 A.D.

Some of the trends identified above, the decreased population and fragmentation, are based on the small number of Early Woodland sites that have been identified. This may be more a product of the criteria used to identify the sites, such as the presence of pottery and absence of Small Stemmed points, and number of Early Woodland sites may not be as small as thought. If one includes sites yielding Small Stemmed points but no pottery, as these may represent special purpose floral or faunal resource procurement task camps and not residential locations, the number of sites possibly attributable to the Early Woodland increases. Due to the increasingly long temporal use range for Small Stemmed points, their presence or absence can no longer be used as valid "datable" criteria to assign the site to one period or another. What is needed is more radiocarbon dates associated with specific materials. Until this occurs the Early Woodland will remain obscure and ill-defined.

A dramatic population collapse has traditionally been one of the defining characteristics of the Early Woodland. Filios (1989) came to a similar conclusion although her data shows a break in radiocarbon dates from 2700-2400 years B.P. possibly showing a population decline after 3800 years B.P. and a greater decline after 2800 years B.P. If there was in fact a population collapse, reasons for it have included climatic and environmental change, epidemics, the effects of plant and animal die-offs and socio-cultural factors. One of the main causes may have been if nut bearing trees, already in decline in the Terminal Archaic, were hit hard by plant disease or environmental change, then this may have caused a population reliant on this resource to die off. This would account for the drop in inland sites in the period. Alternately the populations living on the coast that focused their procurement strategies on river valley, estuarine and inshore resources may have remained relatively unscathed. These would be the Rossville and Lagoon point users, point styles that show a high concentration in coastal areas especially Cape Cod.

One of the most important Early to Middle Woodland sites excavated on the Outer Cape is the Carns Site on Coast Guard Beach in Eastham (Bradley 2005). This site yielded abundant evidence of Fox Creek phase occupation which were similar to sites in New York's Hudson valley (Dimmick 2006: 11). Seven other sites have been identified on the Cape Cod National Seashore dating to this period as well.

### **Middle Woodland 2000-1200 BP**

This period is marked by a decrease in the number of exotic finished goods indicative of long-distance trade, and by changes in mortuary practice (increase in secondary interments, less use of ocher, fewer

grave goods, more variation in preparation of the dead). While the roots of ceramic and lithic variability are found in the preceding periods, more rapid variation in sequence through time and more regional variation characterize this period. Ceramics vary more in decoration and form. Lithic projectile points are less important in the tool kit, and bone and antler tools are preserved at some sites where matrix conditions are appropriate (Shaw 1996:84-87). By the end of the period there is evidence of maize horticulture (Thorbahn 1982).

Fox Creek and Steubenville bifaces characterize this part of the period. There is some overlap in time between the Fox Creek and Jack's Reef points during this part of the Middle Woodland. Fox Creek points are relatively rare in Eastern Massachusetts with few known from the outer Cape (Truro and Wellfleet) and Martha's Vineyard. These points are diagnostic of the Middle Woodland Period, occurring from AD 400-700, and they are often found on multi-component sites (sites with multiple time periods represented) and area associated with the growing of corn and decorated ceramics. On Martha's Vineyard, they have been found in association with postmolds outlining an oval-shaped house measuring 16' in diameter (Towle 1986: 30). Other projectile point styles such as Greene points are considered as being used contemporaneously with Fox Creek points in the earlier period of their use while Jack's Reef points and Levannas (the triangular points that are the hallmark of, and only point style occurring in, the Late Woodland period). The people who used the Fox Creek points are believed to have been seasonally migrational, spending the summers on the coast and the winters further inland, and they show many of the cultural characteristics evident with southeastern Massachusetts' Native people at the time of Contact. Other types of artifacts commonly found associated with Fox Creek points include exotic lithics like New York state cherts and Pennsylvania jaspers, Saugus jasper, Blue Hills hornfels and Great lakes' copper.

Jack's Reef points continue to be used into the Late Woodland. Exotic lithic materials increase in the Middle Woodland, except in the Champlain drainage. Jack's Reef points are often made of non-local chert (Shaw 1996:92-93). Some lithic tool types, such as Rossville (Shaw 1996:90) and Small Stemmed (Hasenstab et al. 1990) continue into the Middle Woodland.

The Carns site, previously mentioned, contained a significant Middle Woodland component while three sites identified during McManamon's survey contained diagnostic Middle Woodland points and four sites contained diagnostic Middle Woodland pottery. Occupation of the Outer Cape appears to have had a significant coastal orientation to it, with most sites being located within one half kilometer of the ocean (Ingham 2004:20). This presumed coastal focus could also be a result of the other factors as well: much of the Outer Cape is coastal and thus more sites would be expected to be identified in coastal settings, the highest yield of natural resources are in coastal areas, and the collection/ survey bias caused by the Cape Cod National Seashore survey, which of course, was located in a coastal environment. Only a limited amount of archaeological fieldwork has been conducted on non-coastal sites on Cape Cod.

### **Late Woodland Period 1200-500 BP**

This is the period just prior to European contact and as a result, many of the historical reports written by the early explorers to New England (Verrazanno, Gosnold, Pring, Smith) present one way of understanding the late Late Woodland period. Some of their observations may be able to be extrapolated back into the Pre-Contact past through the use of ethnographic analogy. These analogies can be created with more confidence as pertaining to the culture of the Late Woodland period than any earlier one.

The ceramics of the Late Woodland period are often shell-tempered or made with fine grit temper and have thinner bodies and a more globular form than the earlier ceramics. The diagnostic projectile point of the Late woodland period is the triangular Levanna points and occasionally the Madison. This period is marked by an increasing importance in food production (maize, beans, squash, sunflower and other vegetables) in coastal or riverine zones, which begins by ca. 1100 BP on Martha's Vineyard (Ritchie 1969).

These decrease in projectile point styles and the increase in the reliance on horticultural crops, may be attributed to increasing numbers and densities of population at larger sites. While the occurrence of the "village" in southeastern Massachusetts continues to be debated, the affect of an increased reliance on corn, beans, squash and to a lesser degree gourds, sunflowers and tobacco, definitely led to a degree of sedentism not seen prior to this time (Hasenstab 1999; Kerber 1988).

Ceramics are often shell-tempered or made with fine grit temper and thinner bodied; there is a shift to globular forms, and the addition of collars, sometimes decorated with human faces. Elaborate collars similar to those of Iroquois ceramics are found in the Merrimack and Champlain drainages. Triangular projectile points (smaller Madison points or larger Levanna points) are diagnostic for this period. This period is marked by an increasing importance in food production (maize, beans, squash, sunflower and other vegetables) in coastal or riverine zones, which begins by ca. 1100 BP on Martha's Vineyard (Ritchie 1969).

These changes in assemblage, and by implication, adaptation, are attributed to increasing numbers and densities of population at larger sites. Research issues include the extent of permanency in Late Woodland settlements, the nature of such settlements (i.e., whether such settlements were villages; see Hasenstab 1999; Kerber 1988), the identification of horticulture with non-native plants and definition of the effects on humans. In addition, researchers might ask about the use of different ecozones, the reality of population growth, and whether or not climate change (e.g., the Little Ice Age), affected settlement and subsistence. There is some evidence of the development of long-distance exchange again, and some workers have suggested that a native beaver trade was developed before Contact. Regional differences are visible. In Vermont, there are fewer late Late Woodland sites than early Late Woodland. This may be a response to Iroquois settlement changes. In southern New England, horticulture did not replace existing gathering and hunting strategies, and large settlements did not replace small seasonal sites. Differential dependence on horticulture is likely to have affected society and politics. Cultural differentiation of the Iroquois from the Algonquin also presents research opportunities (Shaw 1996).

Numerous Late Woodland sites occur on the Outer cape with the best known and most extensively studied being the shell middens identified during Mcmanamon's survey (Mcmanamon 1984). The shores of Salt Pond are known to have been the focus of Late Woodland to Contact Period Native settlement as well.

## V. HISTORY OF THE TOWN OF SANDWICH

The first reference during the **Plantation Period (1620-1675)** to the area that later became Sandwich was a voyage that the Plimoth colonists made to Manamet (West Sandwich/ Bourne) was near the end of July in 1621. At this time a young boy by the name of John Billington became lost in the woods outside of the plantation and eventually ended up at Manamet. Both Bradford and Winslow relate these events (Morrison 1984: 87, Young 1974: 217). Canacum, the sachem of Manamet, sent the boy to Aspinet, the sachem of Nauset (present day Eastham). From this trip, Winslow described Manamet as thus:

"This town lieth from us south, well near twenty miles and stands upon a fresh river...It will bear a boat of eight or ten tons to this place. Hither the Dutch or French or both use to come. It is from hence to the bay of Cape Cod eight miles out of which bay it floweth into a creek some six miles almost direct to the town. The heads of the river and the creek are not far distant." (Young 1974:307).

This report fully supports the idea that the town lay between the two rivers at Bournedale. If the distances given by Winslow are compared to a modern map, then the present location is very near the present day Sagamore Bridge and Bournedale. The fresh river referred to by Winslow was the Manamet River and the creek that flowed to the town was the Monoscusset (Scusset). Following this voyage, the sachem of Manamet, Caunacum, and several other Natives from the southeastern Massachusetts area, signed a document dated September 13, 1621, making themselves subjects to King James of England (Morton 1855: 29)

The first European settlers in the area were servants set out from the Plymouth Plantation who were charged with manning a house established within the Native territory of Manamet. This trading house, also called the house at Aptuxet, was likely located near the mouth of the present day Cape Cod Canal (Chartier 1995). This initial settlement was likely short lived and no further settlement occurred until the 1638 settlement of Sandwich by families from Saugus. During the Plantation Period (1620-1675) settlement loci were located at Manamet and Pocasset with the first meetinghouse being in need of repairs in 1644 and the first gristmill in 1648 (Keene 1975 :29, 31). Two missionaries, Thomas Tupper, Benjamin Nye's father-in-law, and Richard Bourne, preached to the natives of Sandwich. Bourne's work focused on the Natives living at what was left of the Contact Period community of Manamet around Great Herring Pond in present day Bournedale. Bourne established a meetinghouse here on the south side of Great Herring Pond in the early seventeenth century (MHC 1984: 4).

The Town of Sandwich was established in 1637 and the bounds were laid out by Myles Standish and John Alden in the same year:

"Beginning, westerly, by the dividing line between the town of Plymouth and the said town of Sandwich, and on the east by the line which divides the town last mentioned from the town of Barnstable, which runs north-east to the sea; and southwest into the woods; and is bounded northerly by the sea; southerly partly by the dividing line between them and Suckanussett and partly by the Indians' land, according to the known and accustomed boundaries."

The western portion of Sandwich was settled during the **Colonial Period (1675-1775)** and County

Road, running along Buzzards Bay, was laid out in 1684 while other overland routes were also improved (MHC 1984: 5). Buzzards Bay harbors at Buttermilk Bay and Pocasset became important during this period while as early as 1676 the Monoscusset-Herring-Monument River drainage was explored as a possible location for a cross-isthmus canal linking Cape Cod Bay to Buzzards Bay. The Native community at Herring Pond was said to number 226 people over the age of 10 years in 1693, and this population was recorded as close to the same in 1764 (Shaw and Merrick 1982: 11). Overall, in Sandwich 136 heads of households (exclusive of Quakers) were recorded in 1730 and by 1765, 245 households and 1,449 individuals were recorded (MHC 1984: 6). Grist mills were established in North Sandwich by 1695 (Elijah Bourne) and at Monument (Elijah Perry 1739) with corn being the main crop grown and ground (MHC 1984: 6). While herring were caught in the Herring River and sheep were increasingly becoming the most important livestock, the most significant industry for the town was wood exportation. Both Natives and non-Natives engaged in this trade which harvested wood for lumber as well as pine pitch for turpentine, tar and pitch (MHC 1984: 6). A meeting house for the Christian Natives at Bournedale was built in 1765, eventually being moved to Cataumet and used as a Methodist church.

The **Federal Period (1775-1830)**, saw an increase in the role of shipping with a route for what would one day become the Cape Cod Canal being surveyed in 1824 and wharves being constructed at Buttermilk Bay and Red Brook Harbor (MHC 1984: 7). The population, as well as the role of industry grew during this time as well. Salt making gained in importance and a woolen mill and trip-hammer were built on the Herring River (MHC 1984: 8). The town was described by Wendell Davis in 1802 as a post town with light and unproductive soils in the peripheral areas but which had extensive tracts of woods composed of oak and pine which were being shipped to other areas that lacked wood for building, and a population of 2024 persons and 296 houses (per the 1790 census) (Davis 1802: 119, 124).

Davis goes on to describe the various villages of Sandwich: Scusset, the Village of Sandwich, Spring Hill, the Woods, Pocasset, and Monumet. Scusset was described as the western portion of the Town where the soil on the east side of the road through it is "good, well cultivated, and productive" while that on the west side is "far less so" (Davis 1802: 121). The Village of Sandwich was notable for a "large and beautiful pond of water in the centre", a grist and a fulling mill, a number of shops "for the different mechanick arts", the meeting house, two public inns and the principal houses of the village (Davis 1802: 121). Spring Hill was where the meeting house of the Friends, described as a "considerably numerous and respectable class of the inhabitants", is located (Davis 1802: 121). The Woods was described as several small settlements and a few valuable farms located around Snake and Hog ponds (Davis 1802: 122). Pocasset had its own a meeting house and a small number of families, excellent and plentiful oyster beds, and wild deer that are protected by a recent law regulating their hunting to certain times of the year and in certain manners (Davis 1802: 122). Finally, Monumet had a small collection of houses and a meeting house and a wide variety of fish in the Monumet River (Davis 1802: 122).

Davis described the people in the Spring Hill in greater detail than the other portions of town. He said that the principal employment of the people here was both maritime and agricultural and that the inhabitants were "substantial livers" (Davis 1802: 121). The inhabitants of Spring Hill generally occupy small farms and till them to the best advantage possible, due to the productive nature of the soils in this part of the town with a wide variety of grains being raised (Davis 1802: 121). In addition to the productive soils, the meadows and marshes in this part of the town were considered a great source of

wealth to the inhabitants, allowing them to keep large stocks of cattle for the winter and to sell upwards of 100 loads of salt hay to towns west of Sandwich (Davis 1802: 122). This area was also considered excellent for raising "sheep of the best kind" which were allowed to run free in the forests and plains and then sold in the month of October to drovers from the north and west for about \$1.00 per head, with Sandwich sheep meat being much preferred by connoisseurs (Davis 1802: 122).

A wide range of sheep and deer were known to inhabit Sandwich and Wareham's extensive pine barrens in 1815 (Collections of the Massachusetts Historical Society 1846: 290). The method of letting them roam in the barrens was not recommended as being the best though, as the fleece gets diminished by tangling in the underbrush and the flock was vulnerable to casualties caused by fires and predation by dogs and wild animals (Collections of the Massachusetts Historical Society 1846: 290). The total count of sheep in Wareham and Sandwich was estimated at approximately 2000 in 1815 (Collections of the Massachusetts Historical Society 1846: 290).

Other industries in the town included salt making (accounting for 25% of the annual income) and to a lesser degree fruit tree cultivation (of which there are found more than in any other part of the county) (Davis 1802: 122). One cider press, the only one on the Cape, is also located in Sandwich (Davis 1802: 122).

The first recorded owner of the house at 22 Water St. was Daniel Weston. In 1817 he entered into an agreement with Reverend Jonathan Burr, who lived across the street, and offered the northern half of his property as collateral for a loan of \$400.00 (Barnstable County Records Volume 2: 351, 352). In the document it mentions that one of the bounds of the property put up as collateral was near the corner of Daniel Weston's house. This shows that Weston was living here before 1817. Daniel Weston was presumably born in the late eighteenth century. He married Phebe Spooner Gibbs who was born on September 11, 1790 in September. She would have been 27 in 1817 and may have married as early as 17 or 18 (1807/1808). Daniel was presumably not much older than her. Phebe died on December 29, 1837. It is not known when Daniel Weston died.

The **Early Industrial Period (1830-1870)**, was one of rapid growth in the area. The population increased to 4496 people in Sandwich, the highway network was improved and in 1848 the Cape Cod Branch of the railroad arrived in Bourne and Sandwich (MHC 1984: 9). Industries in the Bourne area of Sandwich included a nail factory at Bournedale in the 1830s, a woolen mill at Sagamore in 1831, shoe making, which began in 1853, cranberry production in the middle part of the century, and the export of wood. The wood industry was begun by the Perrys of Monument in the 18th century, and was expanded in the 19th century into the Head of the Bay area (Keene 1975: 64). From the heavily timbered Head of the Bay, large amounts of wood were shipped out along the Manamet River. The town was described by John Warner Barber, a well-known engraver and recorder of local history, in 1839 as follows:

"Sandwich is the most agricultural town in the county; the lands however in the extreme part of the township are light and unproductive There are numerous ponds, some of which are very large, which afford fine fishing and fowling: deer are also found in this vicinity. There are in the town 1 cotton mill, 1 woollen factory, a furnace, a nail factory, a number of carding-machines, ice., with an extensive manufacture of glass. There are 15 or 20 sail of coasting or fishing vessels belonging here, and a considerable quantity of salt manufactured. Population 3,579. The following is from the statistics published by the state in 1837. " Nail factory, 1; nails manufactured, 500 tons; value of the same,

\$57,500; hands employed, 20; capital invested, \$13,500; glass manufactory, 1; value of glass manufactured, \$300,000; hands employed, 250; capital invested, \$250,000." (Barber 1839:51-52).

During the **Late Industrial Period (1870-1915)**, the town of Bourne became a separate entity. The town proper did not exist until 1883. Before that date, it was considered the eastern village of the town of Sandwich and it shared in the growth of the town. The economic base of Cape Cod as a whole and of Sandwich in particular blossomed in the early to mid nineteenth century. The growth of Sandwich began with the founding of the Sandwich Glass Company in 1825 (Lovell 1984:279). The economy in the next 25 years was further bolstered by the whaling industry, the arrival of the railroad in 1835, the flourishing of brick kilns and the establishment and growth of mills.

The peak of this economic growth was in the 1850s with most of the population working in the glass production, mills and maritime industries (Lovell 1984:319). The population began to decline in the 1860s foreshadowing the stagnation of the economy of the town. By 1870 the population had decreased to 3694 persons (Lovell 1984:319). Between 1860 and 1920 the Cape's population decreased by 26% (Brown 1995:204).

While the population of the town as a whole was beginning to decline, that of the western village declined slightly from 1870-1883, but it appears that this portion of Sandwich was more isolated from the general population trend affecting Sandwich and Cape Cod in general. The western village maintained its own share of town industry and economic growth. The Keith Car Company, which began in 1847 by making tools, axles and ironware, expanded its operations throughout the century and eventually focused its production on Pullman cars for the expanding railroad (Lovell 1984:394). Coupled with the growth of the Keith Company was the expansion of the railroad on Cape Cod and specifically its expansion to Woods Hole. The line traveled through the western village and contributed to the tourist trade beginning in the late nineteenth century (Lovell 1984:370).

The main industry in Sandwich was glass making, but by the 1870s this business was becoming increasingly unprofitable. This was the trend on all of the East Coast as the markets favored the glass producers in the Mid-West (Lovell 1984:381). The depression of 1874 with its financial panic and associated business depression, as well as the power of the unions in creating strikes among workers, marked the end of the Sandwich Glass Factory. The factory, which at its height employed 520 workers, placed a for sale sign outside of its main factory on October 16, 1888 (Lovell 1984:385). Out of work glass makers tried to form their own company, the Cooperative Glass Co., which had limited success until it too went under in 1911. The failure of the Sandwich Glass Factory was also paralleled by the Cape Cod Glass Works of Sandwich, which closed its doors in 1892 (Lovell 1984:388-389).

The railroad business peaked in the 1890s when Eben Keith was expanding his car works, but at the turn of the century Bourne, as well as Cape Cod faced an uncertain future. The population of Sandwich as a whole continued to decline until 1930 when it stabilized and grew (Lovell 1984:515). Bourne's population, while never as large as Sandwich's, grew throughout the century, especially after 1920 (Lovell 1984:515).

The economic base of Sandwich in the early years of the twentieth century was somewhat uncertain. Manufacturing, the marine industries and farming all experienced substantial losses. Industries continued to close down in town, many of which were reopened by new owners just to be closed down again. Industry always appeared to town planners to have the potential to save the town. The great

boom times for Sandwich had been during the Sandwich Glass Company years, and it would appear that many saw the potential for a return to the glory years by encouraging new industry. The potential was never realized and industry never again played a major role in town economics.

The savior of Sandwich was the increase in tourism and summer residency in the early twentieth century. As early as 1903 summer residents paid seventy five percent of the town's taxes (Lovell 1984:435). Along with this influx of tourists went the need to house all of them. Many towns along the west coast of Cape Cod were able to accommodate the tourists. Bourne participated in the building boom from the area around the presumed location of Aptucxet to the southern end of the Cape Cod Canal. Sandwich, on the other hand, was not as affected by the building boom because of the previous population decline. Many of the new residents merely moved into vacant houses in the town (Lovell 1984:499).

The economic gain to the town was accompanied by a cultural loss felt by the year round inhabitants. The small town atmosphere was lost for several months out of the year as the summer residents returned. The local history of the town began to be researched, polished up and put on display for the summer residents. By 1930, two historical businesses formed the core of the historical tourism aspect of Bourne and Sandwich's tourist industry. The Sandwich Historical Society began to make the Sandwich glass industry the main thrust of its new museum in 1925 (Lovell 1984: 450). Agriculture remained important in the town during this period as well. The 1875 census of agriculture in Massachusetts (Table 1) indicated that milk cows, oxen and horses were the most valuable domestic

Table 1. Domestic species present in Sandwich 1875 (Source: Wright 1875: 418)

Species	Count	Value in dollars
Ducks	202	93
Geese	8	11
Guinea Fowl	2	2
Heifer	87	1526
Hens/ Chickens	8206	3450
Hogs	155	2470
Horses	193	19,063
Lambs	46	116
Milk Cows	353	13,415
Oxen	56	4210
Pigs	32	214
Sheep- Merino	10	50
Sheep- Saxony	22	125
Sheep	44	202
Steers	29	710
Turkeys	49	51

livestock, a fact that reflects the use of horses for transportation, oxen were used as beasts of burden, and dairy cows provided milk. Also present in the town were over 8,000 hens and chickens and almost

200 swine. The paucity of sheep (only 76 total) reflect the general malaise of the sheep industry at this time. These species made up an appreciable amount (\$39, 305.00/ 32%) of Sandwich's total agricultural product for that year (\$121, 880.00) (Table 2). Firewood, cranberries, ice and English hay were the other

Table 2. Main agricultural products and products from animal species in 1875 (Source: Wright 1875: 8)

Product	Amount	Value in dollars
Firewood		10, 425
Cranberries		14, 255
English Hay		15, 231
Ice	596 tons	1630
Beef	16, 600 lbs	1376
Manure	984 tons	5439
Milk	86, 630 gallons	17612
Veal	9480 lbs	947
Tripe	80 lbs	8
Chickens dressed	1915 lbs	432
Eggs	45, 893	9566
Feathers	20 lbs	10
Geese dressed	330 lbs	56
Turkey dressed	130 lbs	26
Other Poultry dressed	100 lbs	18
Mutton	340 lbs	57
Pork	37, 560 lbs	3758

main product based on the monetary amount that they contributed to the economy of the town, milk cows, eggs and beef were the principal products out of a wide range of animal products produced in that year.

An 1884 lithograph of Sandwich (**Figure 8**) shows the property at 22 Water St. along with an associated barn located on the Knoll House Site property adjacent to the road.

The **Early Modern Period (1915-1940)** saw the completion of the Cape Cod Canal in 1935, significantly shortening the route from Buzzards Bay to points north. This period also saw the construction and improvement of roadways leading to Cape Cod, encouraging tourist traffic to Cape Cod and away from the Town of Bourne (MHC 1984:14). This led to some population decline and economic difficulties. Bourne did remain the most industrial town on Cape Cod during this period. The Keith Manufacturing Company as well as foundries at Bournedale and Pocasset provided the majority of the economic base for Sandwich and Bourne. Unfortunately, the Keith Company closed in the 1930s and the economic base of the town quickly shifted to cranberry growing, dairying and the tourist trade (MHC 1984:15).

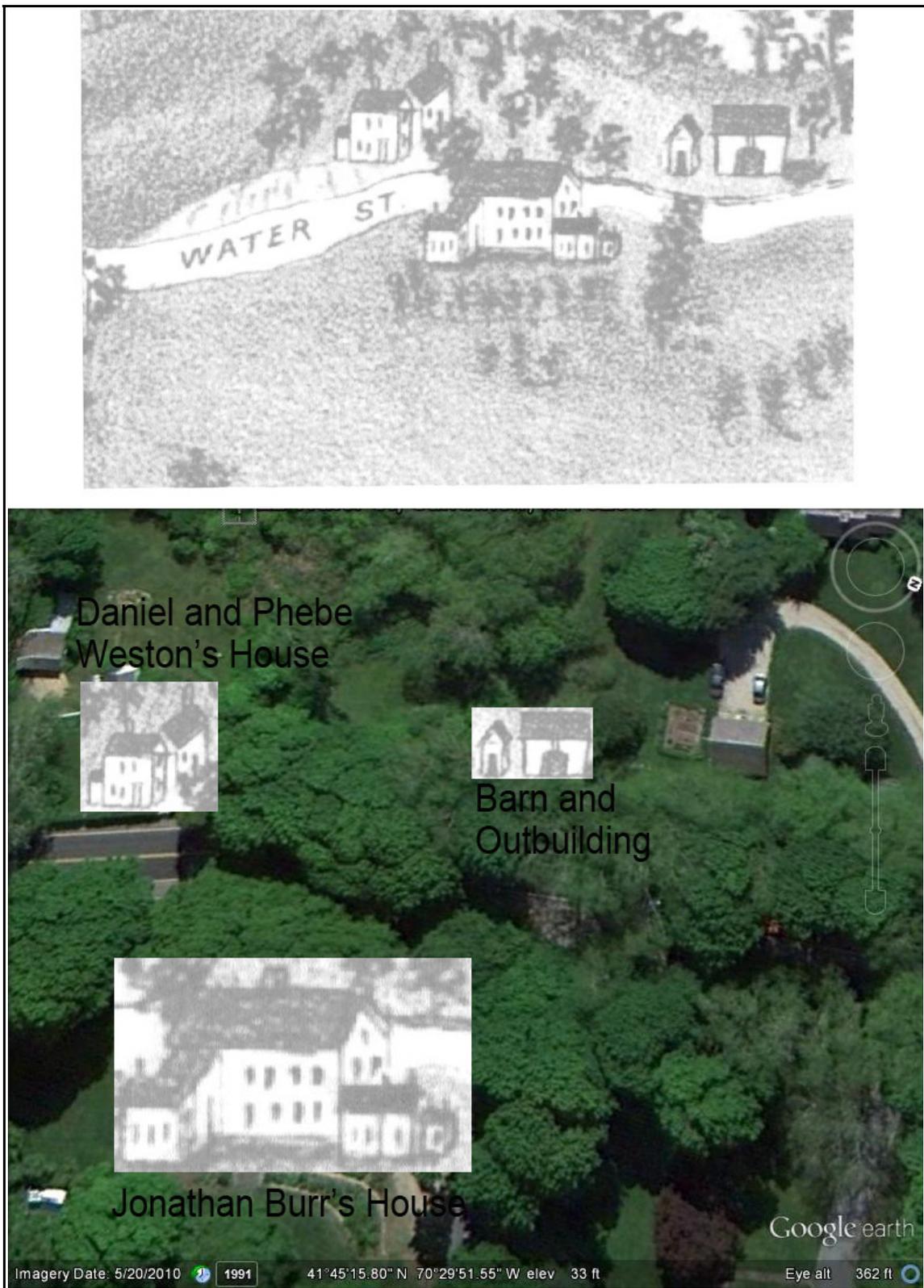


Figure 8. 1884 lithograph showing Jonathan Burr and Daniel and Phebe Weston's house as well as their barn and associated outbuilding

## VI. ARCHAEOLOGICAL INVESTIGATIONS

### 22 Water St. Testing

Testing around the house at 22 Water St. was designed to help date the structure and to provide an archaeological context for this obviously seventeenth century structure. The orientation of the house paralleling Water St. with its front door facing east versus the traditional south, made investigators question the structures origin. It would be uncharacteristic for a seventeenth century New England house to face any direction except South so there existed the possibility that the house either had been turned or was moved to the site from another location. The earliest deed referencing the property is dated 1817 and at this time, when Daniel Weston owned the house, the deed stated that it already existed on the site before that date. Ten 50 cm square test pits were excavated on the east and eastern half of south side of the house. The western half of the south side and the western yard had both been previously disturbed and were not tested. Test pit 1 was located 2.35 m east of the front of the house, halfway between the house and the fence bordering Water St. Test pits 2 to 5 were located at 5 meter intervals paralleling Water St. Test pit 6 was located adjacent to the southeast corner of the house to examine whether the possibility existed that the house was moved or if it was possibly of earthfast construction. Test pit 7 was 2.5 m south and 5 m west of Test pit 4. Test Pit 8 was 5 m west of Test Pit 7 1.7 meters south of the south side of the house. Test Pit 9 was 5 meters south of Test Pit 8 near the edge of the driveway. Test Pit 10 was 1.9 meters south and 30 cm west of the southeast corner of the house (**Figure 9**).

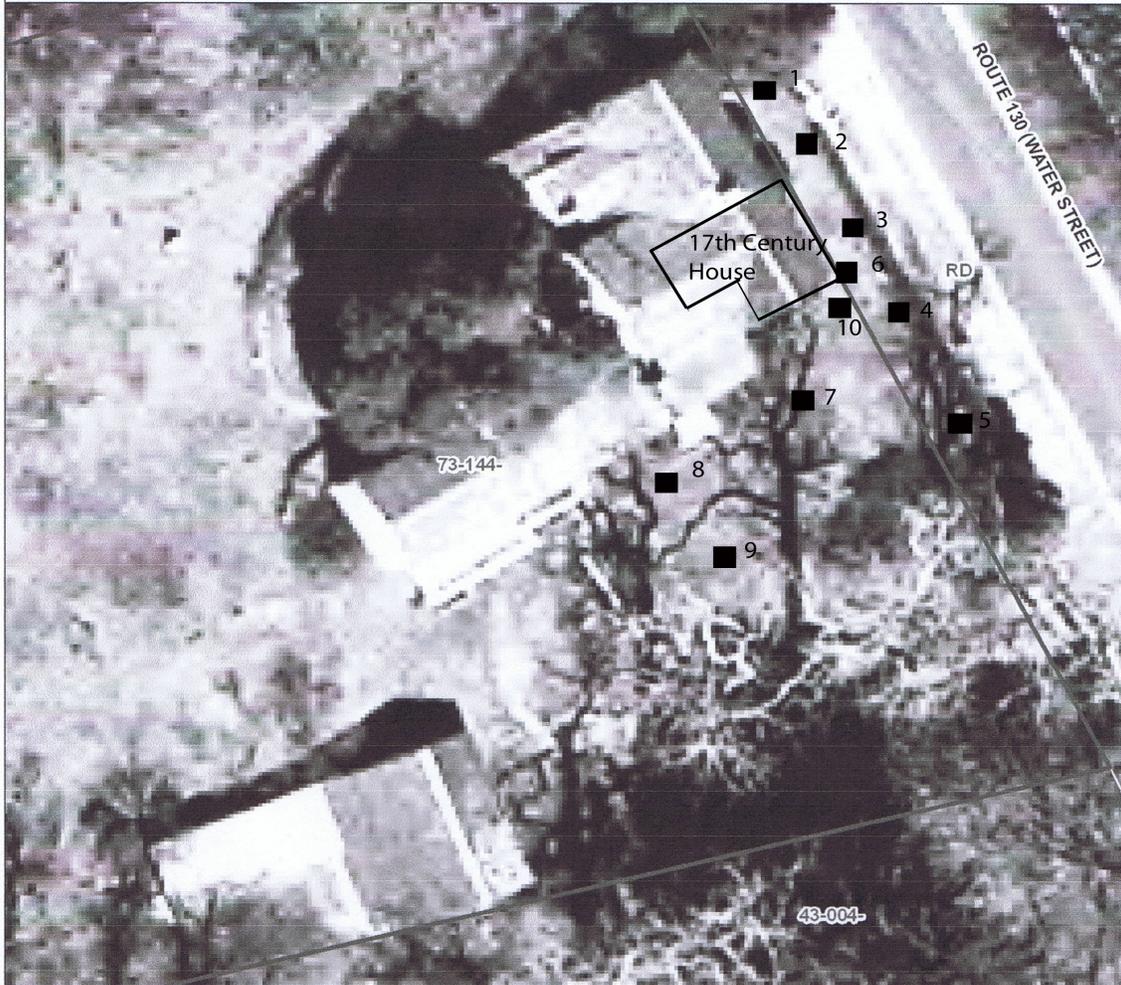
The stratigraphy encountered consisted of a 4 to 5 cm deep A0/ Duff followed by a 10 to 20 cm deep Olive brown (2.5Y4/4) clayey A1 horizon A 20 cm deep Olive Yellow (2.5Y6/6) clayey with gravel B1 horizon was encountered to and average depth of 55 cmbs while a clayey Pale Yellow (2.5Y7/4) B2 or C1 horizon was below that. Test Pit 6 did not yield any evidence of earthfast construction or any evidence that the foundation or the house had been moved around the site. Testing failed to uncover any artifacts dating earlier than the late eighteenth century with most of the material dating to the early to mid-nineteenth century (**Figure 10**).

### Knoll Test Pits

Testing on the knoll began with four 50 cm square pits placed at the most likely locations for a seventeenth century house- the highest point of a knoll over looking navigable water. A total of 35 square meters (376.7 square feet) was eventually excavated on the knoll (**Figures 11 and 12**). Test pit 1 was located five meters at 194° from the north side of the bushes and trees at the highest point of the knoll. Test Pit 2 was located 5 meters at 240° from Test Pit 1. Test Pit 3 was 5 meters at 180° from Test Pit 2. Test Pit 4 was located 4 meters at 194° from Test Pit 3. The stratigraphy revealed in test pits 1-3 was of a four cm deep A0/ Duff that overlaid a 16 to 20 cm deep dark gray brown A1 horizon that in turn overlaid a dark yellow brown B1 horizon. Test Pit 4 revealed a dark gray brown A1 that overlaid a dense concentration of brick fragments and granite cobble at 25 cmbs.

3/5/2011

### Town of Sandwich



Property ID	73-144-
Number	22
Address	WATER STREET
Current Owner	KEYES, THOMAS F & MELISSA J (TE)



MAP FOR REFERENCE ONLY  
NOT A LEGAL DOCUMENT

Because of different update schedules, current property assessments may not reflect recent changes to property boundaries. Check with the Board of Assessors to confirm boundaries uses at the time of assessment.



Figure 9. Archaeological testing around the house at 22 Water St.

22 Water St. Unit 6 Plan



22 Water St. Unit 6 Profile



Figure 10. 22 Water St. test pit 6 excavation





Knoll House Site Looking West



Knoll House Site Looking Northwest



Knoll House Site Looking Southwest

Figure 12. Excavation at the Knoll House Site

## Knoll Excavation

**Unit 1** was a 2 x 2 m square placed around Knoll test pit 4 which had a concentration of brick and granite. The unit was oriented north to south and the south half was up slope and slightly higher than the north. The northwest corner was 13 cm below the southeast and the northwest was 4 cm below the southwest. The southeast corner of Unit 1 was 15.75 m from the southeast property bound. Knoll Test Pit 4 was 95 cm west and 40 cm north of the southeast corner of Unit 1. Stratigraphy in this unit consisted of 13 cm of sterile topsoil overlaying a brick layer that was first visible immediately below the topsoil. This layer was slightly more yellow brown in color with heavy gravel and large pieces of brick. More rocks than bricks were concentrated in the southwest quadrant and small rocks were scattered around the unit. Layer 1 (0-13 cm) appears to either be soil that accumulated since the house was removed or lawn dressing placed here to level the land. The layer was a very rooty clayey silt with little gravel. Layer 2 (13-20 cm) consisted of scattered brick fragments and a medium to heavy concentration of medium to large rocks. Layer 2 continued to a depth of 32 cmbs with more bricks uncovered beneath the rocks (**Figures 13 and 14**).

**Unit 2** was located between 4 and 5 meters south of the northeast corner of Unit 1. This unit was originally 50 cm wide (east to west) and one meter long (north to south). This unit was placed here with the hope of encountering one of the walls of the house. Unit 2 was expanded to the east to make it into a one meter square unit. Layer 1 (0-20 cm) consisted of dark brown sandy loam with a heavy concentration of brick appearing at 10 cm. Layer 2 (20-27 cm) consisted of a heavy concentration of brick and gravel above the subsoil.

**Unit 3** was four meters east and four meters south of Unit 1's southeast corner. This unit was placed here with the hope of encountering the south wall of the house. Layer A0 (0-6 cm) was a dense root mat/ A0 followed by Layer 1 (6-10 cm) a dark gray brown topsoil that did not yield any artifacts. Layer 2 (10-25 cm) consisted of brick fragments and slightly gravelly soil. The B1 horizon was excavated from 25 to 35 cmbs. It was a yellow brown sandy silt with a moderate amount of gravel.

**Unit 4** was located one to 1.5 meters west of Unit 1 SW corner and extended 50 cm to the south. This unit was 50 cm square and was placed here to attempt to locate the continuation of the wall. Layer A0 was a rooty duff that was followed by Layer 1 (6-12 cm) which contained little gravel or cultural material. Layer 2 (12-25 cm) encountered rocks from 15 to 25 cmbs and small amounts of brick rubble.

Table 3. Test pit locations Units 5 to 55

Pit #	Location S of Unit 1	Depth	Notes
5	1.5-2 m W .5-1 m S of Unit 1 SW	A1 0-12cm, A2 12-23 cm, bottom 23 cm	Foundation covering floor at 23
6	2.5-3 m W 1.5-2 M S of Unit 1 SW	A1 0-12 cm, A2 12-25 cm, bottom 30 cm	no large rocks, large root W1/2
7	2-2.5 m W 1-1.5 m S of Unit 1 SW	A1 0-13 cm, A2 13-23 cm, bottom at 23 cm	Foundation in N1/4
8	2.5-3 m W 1-1.5 m S of Unit 1 SW	A1 0-13 cm, A2 13-23 cm, bottom at 23 cm	Foundation continues in N1/4 possible turn to S
9	3-3.5 m W .5-1 m S of Unit 1 SW	A1 0-10 cm, A2 10-20 cm, Bottom at 20 cm	possible foundation portion
10	3.5-4 m W, 0-.5 m S of Unit 1 SW	A1 0-13 cm, A2 13-23 cm, bottom at 23 cm	Few artifacts, no rock
11	3-3.5 m W 0-.5 m S of Unit 1 SW	A1 0-13 cm, A2 13-23 cm, bottom at 23 cm	Concentration of mortar

			brick and small rock in E1/2
12	4-4.5 m W 0-.5 m S of Unit 1 SW	A1 0-10 cm, A2 10-20 cm, Bottom at 30 cm	No wall, little cultural material
13	2-2.5 m W 1.5-2 m S of Unit 1 SW	A1 0-10 cm, A2 10-20 cm, bottom at 20 cm	No rocks
14	3.5-4 m W .5-1 m N of Unit 1 SW	A1 0-10 cm A2 10-20 cm, bottom at 25 cm	no rocks
15	0-.5 m E 0-.5 m N of Unit 1 SW	A1 0-10 cm, A2 10-23 cm	Cobbles and brick concentration
16	.5-1 m W 0-.5 m N of Unit 1 NE	A1 0-10 cm, A2 10-23 cm, bottom 30 cm	Lots of small brick and small to medium rocks
17	3.5-4 m W 0-.5 m N of Unit 1 SW	A1 0-13 cm, A2 13-23 cm, bottom at 23 cm	Rocks and dark soil in NE1/2
18	5-5.5 m W, 3-3.5 m N of Unit 1 SW	A1 0-10 cm, A2 10-20 cm, bottom 20 cm	No rocks
19	5-5.5 m W 2.5-3 m N of Unit 1 SW	A1 0-7 cm, A2 7-15 cm, Bottom 15 cm	2 rocks in NW orner
20	Adjacent to wall of Pit 5	A1 0-10 cm, A2 10-23 cm, Bottom 23 cm	Rocks on floor
21	Adjacent to wall of Pit 20	A1 0-13 cm, A2 13-23 cm, bottom at 23 cm	Rocks on floor
22	0-50 cm N of Unit 20	A1 0-13 cm, A2 13-23 cm, bottom at 23 cm	No rocks
23	0-50 cm S of Unit 1 SE	A1 0-10 cm, A2 10-23 cm, bottom at 23 cm	Brick concentration on floor
24	.5-1 m W .5-1 m S of Unit 1 SW	A1 0-10 cm, A2 10-23 cm, bottom at 23 cm	Rocks on floor
25	0-.5 m E .5-1 m N of Unit 1 SW	A1 0-13 cm, A2 13-23 cm, bottom at 23 cm	Brick and mortar in floor, large rock in west wall
26	2.5-3 m W 3.5-4 m S of Unit 1 SW	Bottom 23 cm	12' S of Foundation corner, no stone, little brick
27	3-3.5 m W 1.5-2 m S of Unit 1 SW	Bottom 16 cm	no rock
28	0-.5 m W .5-1 m S of Unit 1 SW	Bottom at 27 cm	Foundation corner
29	0-.5 m W 1-1.5 m S of Unit 1 SW	Bottom at 27 cm	No rocks
30	0-.5 m E 1-1.5 m S of Unit 1 SW	Bottom at 27 cm	No rocks
31	1-1.5 m E 4.5-5 m S of Unit 1 SW	Bottom at 25 cm	Looking for hearth, no rocks
32	3.5-4 m W 1-1.5 m S of Unit 1 SW	Bottom at 23 cm	No rocks
33	1.5-2 m W 4.5-5 m S of Unit 1 SW	Bottom 25 cm	Adjacent to Unit 2 East Wall Rocks in W 1/2
34	10 M W of Unit 1 SW	Bottom at 22 cm	5 m E of BVW 6 m S of boundary line
35	10 m W of Unit 1 SW 5 m N of Pit 34	Bottom at 24 cm	1 m from lot bound
36	10 m W of Unit 1 SW 5 m S of Pit 34	Bottom at 22 cm	
37	10 m W of Unit 1 SW 10 m S of Pit 34	Bottom at 24 cm	
38	10 m W of Unit 1 SW 15 m S of Pit 34	Bottom at 23 cm	



Unit 1 Plan at 30 cms



Unit 1 North Wall Profile



Unit 1 East Wall Profile with Hearth Stones on Right



Unit 1 Plan at 30 cms showing Brick Demolition Debris and Hearth Stones

Figure 13. Unit 1 excavation

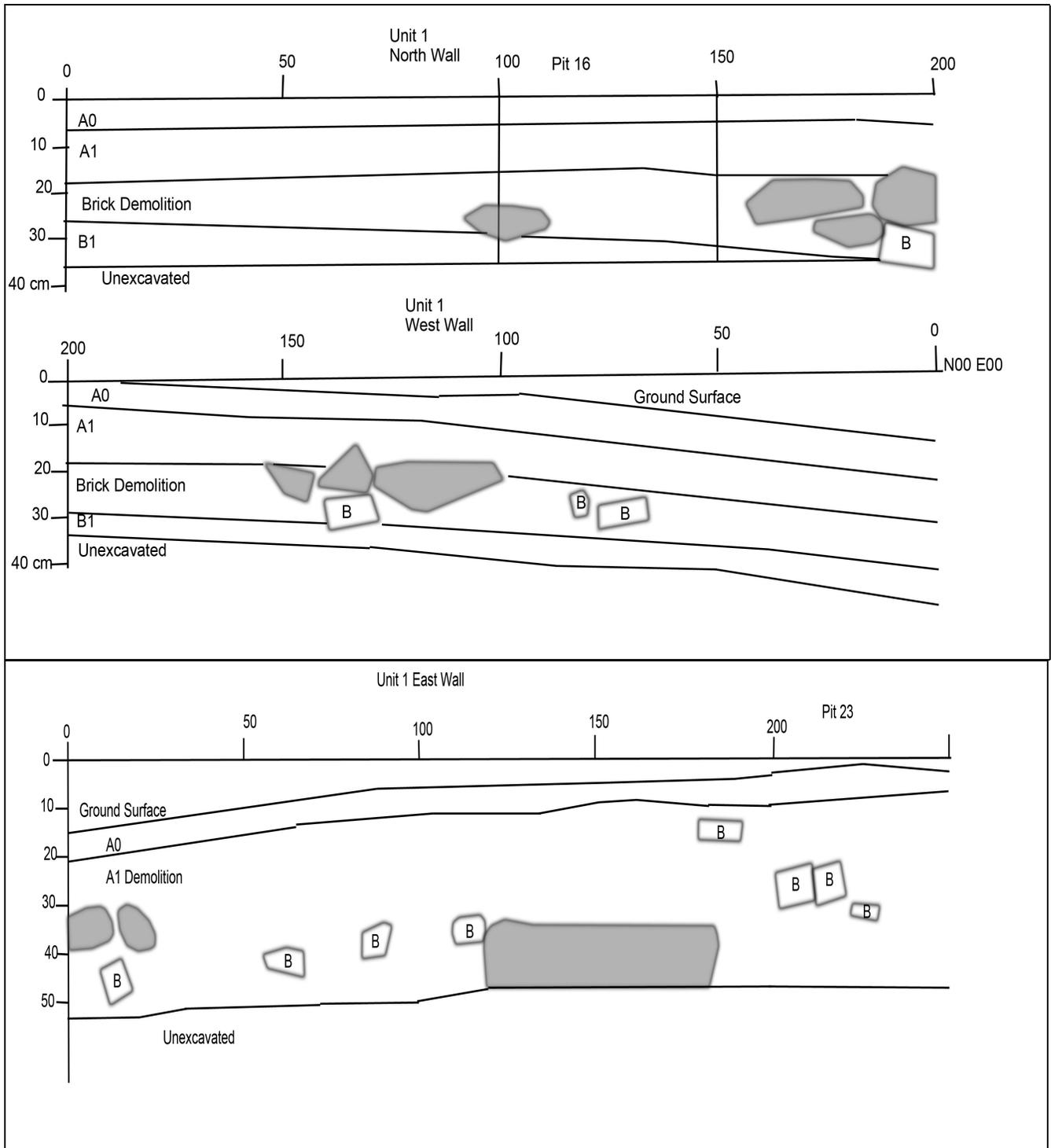


Figure 14. Profiles of North, east and west walls of Unit 1 (B represents brick fragments, gray areas are rocks)

Table 3. Continued

Pit #	Location S of Unit 1	Depth	Notes
39	10 m W of Unit 1 SW 20 m S of Pit 34	Bottom at 23 cm	
40	10 m W 25 m S of unit 1 SW	Bottom 23 cm	on bottom of slope
41	5 m W 10 m S of Unit 1 SW	Bottom 27 cm	Western edge of brush
42	5 m W 15 m S of Unit 1 SW	Bottom 24 cm	Flat area
43	5 m W 20 m S of Unit 1 SW	Bottom 25 cm	on s. slope of hill adjacent to apple tree
44	0 m W 15 m S of Unit 1 SW	Bottom 16 cm	S of cedars
45	0 m W 20 m S of Unit 1 SW	Bottom 24 cm	on S. slope
46	5 m E 20 m S of Unit 1 SW	Bottom 20 cm	On S. slope
47	5 m E 15 m S of Unit 1 SW	Bottom at 23 cm	On flat area
48	5 m E 10 m S of Unit 1 SW	Bottom at 26 cm	On flat area
49	10 m E 20 m S of Unit 1 SW	Bottom at 26 cm	on S. Slope rocks in SW corner
50	10 m E 15 m S of Unit 1 SW	Bottom at 27 cm	On flat area
51	10 m E 10 m S of Unit 1 SW	Bottom at 22 cm	Sandy subsoil
52	10 m E 5 m S of Unit 1 SW	Bottom at 26 cm	On Flat area
53	10 m E 0 m S of unit 1 SW	Bottom at 27 cm	On flat area 2 m from property bound
54	2 m E 4 m S of Unit 1 SW	Bottom at 27 cm	Inside of house
55	2 m W 25-75 cm S Unit 1 SW	Bottom at 27 cm	Beneath back dirt

On June 3 the northeast corner of the house was believed to have been found. No stones were present in this location and it was determined that the foundation stones had been robbed but the north wall of the ell on the north side of the house appears to be intact. The brick and mortar encountered in Unit 1 were determined to represent a demolition area associated with the reduction of the chimney and hearth. The east wall of the house was found in Unit 33 and Unit 2's southeast quadrant. The sill appears to have been robbed but scattered cobbles remained. These were inline with the northeast corner of the ell.

On July 28 the northeast corner of the ell was found at 50 to 60 cmbs. It was found to have been robbed out to this point. It was determined that excavation would have to be conducted to the south of this point in line with this corner to find the continuation of the wall to the south. Gravel encountered across the project area was determined to be associated with the robbed sections of the wall. The heavy gravel was associated with mottled olive brown to dark olive brown soils interpreted as fill.

David Wheelock excavated three 50 x 50 cm square units, labeled units 1, 2, and 3, along the estimated south wall of the house. These units were arranged in an L-shape with unit 1 at the northwest corner, unit 2 adjacent to the south and unit 3 adjacent to the east. Unit 1 was 19 feet (5.8 meters) south of the northeast corner of the ell. Possible footing/ sill stones were found at a depth of 9 inches (23 cmbs). The soil at this depth was a dark brown sandy loam. Artifacts recovered included combed slipware, pipe and brick fragment, nails, redware and calcined bone. The subsoil emerged at 12" (30 cm) below the surface. Unit 3 encountered a dark sandy loam with a heavy gravel subsoil at 30 cm. Unit 3 contained one large stone that could be a remains of the foundation.

On August 14, 2011, David Wheelock excavated a series of units labeled Unit 3 North, Unit 3 B North, Unit 1 B North, Unit 2 North as part of what was called a "shovel test survey". This consisted of a series of shovel test pits dug along the presumed front (south side) of the house. Each test pit was given an a number running east to west. Unit 1 being the most easterly pit. Unit 1 was located 9 feet (2.7 meters) from the corner of unit S7 E2 and ran in a north to south direction. The test units were 16" (40.6 cm) square. The units were excavated from the surface to the subsoil with no measurement being made. Units 1, 2, and 3 were placed at 5' (1.5 meter) intervals east to west. Unit 1 North was added on to and eventually measured 6'1" (1.9 meters) long. The additions to Unit 1N were termed 1A, 1B, 1C, etc. These units (units 1 to 3) encountered subsoil at 17" (43 cm). Eventually he dug Unit 1, Unit 1 North, Unit 1 A North, Unit 1 B North, Unit 2, Unit 2 North, Unit 3, Unit 3 North, Unit 3A North, and Unit 3B North.

On September 12, 2011 excavations were carried out to the east and west of Dave Wheelock's Unit 1North dig. This area was located 140 cm south of S7 E2 and the east to west extensions that were added on this date measured 75 cm east to west and 50 cm north to south. They were labeled **S8.4 E2 and S8.4 E1.25**. These units were paled here to investigate a possible trash deposit containing the spoon bowls that Dave identified in Unit 1. Excavation of S8.4 E2 revealed a topsoil that extended from 0-16 cmbs on top of the heavier gravel and brick demolition layer. This demolition layer extended from 16 to 18 cmbs and then the soil became siltier with less gravel. From 16 to 30 cmbs the brick and gravel gave way to a mottled A/ B layer at 30 cm with a low density of artifacts that was possibly located inside of the house A small collection of 7-10 cm diameter cobbles was present in the southeast corner wall. The subsoil encountered at 30 cm was a mottled layer with a medium amount of gravel and no cultural material. This was excavated to a depth of 40 cmbs.

The top 10 cm of **S8.4 E1.25** was sterile but more artifacts were present from 10 to 20 cm. Larger brick pieces were present from 20 to 30 cmbs.

Unit **S8 E2** was located to the immediate north of Dave's Unit 1. It measured 40 cm wide (north to south) by 75 cm long (east to west) and was located adjacent to the corner of unit S7 E2. Less gravel and more silt was present from 0-20 cmbs than in other units to the south, possibly an indication that this unit was inside the house while the units to the south were in the sill/ foundation trench area. At 20 cmbs there was slightly more brick and gravel than to the west and two rocks, each 12 cm in diameter were encountered in the south half of the unit at 18 to 20 cmbs. Brick fragments were gone by 28 cmbs and the soil was more silty with pipe and redware were encountered from 20 to 28 cm. Two additional rocks were encountered at 28 cmbs, one in the center of the east wall and one in the north west corner.

**S5.5 E.5** measured 50 cm square and was adjacent to the west wall of S5.5 E1. This unit was placed here to investigate the gravel and cobble concentration located in S5.5 E1. The concentration was found to drop off to the west but did not disappear. Excavation found larger cobbles in the eastern half of the unit with virtually no gravel further to the east of the cobble concentration.

**S5.5 E1** measured 50 cm square and was located along the line for the east wall of the house. Scattered brick fragments were encountered from 10-20 cm in the topsoil. The brick became a scattering that covered the floor of the unit at 20 cm. A 10 cm dia cobble was located in the center of the unit at 20 cm. Bricks and mortar were present at 28 cmbs in the east quarter. A dense cobble concentration was found in the west quarter to west half possible representing evidence of the foundation.

**S5.5 E1.5** was placed adjacent to the east wall of S5.5 E1. Excavation to 26 cm revealed a concentration of rock and brick that was interpreted as being part of the foundation trench for the house. The dark soil within the foundation trench continued to 35 cmbs. At 35 cm 10 to 12 cm diameter rocks were encountered in the east half of the unit. These were interpreted as cobbles at the bottom of the sill trench.

**S7 E.5** was located adjacent to the northwest corner of **S7 E2** and measured 50 cm square. Small brick fragments that were not saved were encountered from 0-10 cmbs and from 10 to 20 cmbs more brick was found along with light gravel. This unit was completed at 30 cmbs where a moderate amount of gravel was found. This gravel was not as heavy as to the north in the S5.5 units.

David Wheelock excavated a series of test pits on October 9, 2011 in the central portion of the project area in an attempt to locate the wall between the original house and the addition. David excavated a total of five 50 cm square test pits laid out in an L-shape. Each test pit was 18" (45 cm) square. The first test pit excavated was called Southeast Test (SET) 1 and it had its southeast corner at S4 E0. Southeast Test 2 and 3 were laid out adjacent to the west of SET 1. The testing turned north at SET 3 and continued for two more test pits, identified as Units 3A South and 3B South. Excavation of SET 1 revealed a topsoil of dark brown loamy sand with light gravel to a depth of 7" (17.8 cm) below the surface where a moderate amount of brick fragments were encountered. Level 2 in this unit extended to 10.5" (26.7 cm) below the surface and had a small amount of brick and changed to yellow brown B1 subsoil at 26.7 cm. Test pit SET 3 revealed dark sandy loamy sand with few artifacts to a depth of 8.5" (21.6 cm). From 21.6 cm to 13" (33 cm) below the surface a heavy concentration of brick fragments were encountered along with mortar and wood ash. Test pit Unit 3A south was then opened adjacent to the north side of SET 3 with the purpose of following the brick debris found to the south. This unit encountered a dark brown loamy sand and a heavy concentration of brick fragments at 6" (15.4 cm) below the surface. This unit ended at 12" (30.5 cm) at the top of the subsoil. Unit 3B south was opened adjacent to the north side of Unit 3A south to expose an area of brick fragments first seen at 6" below the surface. Excavation uncovered a heavy concentration of brick fragments and wrought nails, as and mortar in the northwest wall. Most of the nails were found below the brick rubble at 12" (30.5 cm) below the surface. The unit was closed at 12.5" (31.75 cm) below the surface on top of the subsoil.

**Unit S6 W4** was a one meter square unit placed in an attempt to locate the northwest corner of the original house. Excavation revealed brick fragment in the floor at 10 cm but no definite evidence of the foundation. A heavy concentration of gravel, which appears related to the robbed foundation trench in other locations of the site, was encountered but no definite trench could be identified.

**Unit S7 E 2** was a one meter square unit excavated near the projected location of the hearth approximately halfway along the east wall of the house. Layer A0 (0-7 cm) consisted of a rooty duff horizon that overlaid the A1. Layer 1 (the A1 horizon 7-22 cm) consisted of a dark sandy loam that had a high concentration of brick and daub or clay mortar of the type associated with the interior portions of hearths. The subsoil was encountered at 22 cmbs.

A large excavation area was opened at **S9.5 W4** in order to locate the southwest corner of the house and to determine if the original house had sills or was earthfast (**Figure 15, 16, and 17**). The initial unit, S9.5W4, measured 1 square meter. Layer A0 consisted of a 7 cm thick duff root mat. Layer 1 extended from 7 to 10 cmbs and encountered more gravel and brick fragments at 10 cm. Layer 1 consisted of a very dark gray brown (10YR3/2) silty sand. Layer 2, the A2 horizon, had a heavier gravel and brick



S9.5 W4 Plan at 40 cmbs



S9.5 W4 Plan at 40 cm after removal of Cobbles



S9.5 w4 West Wall Profile

Figure 15. Plan and profile views of S9.5 W4

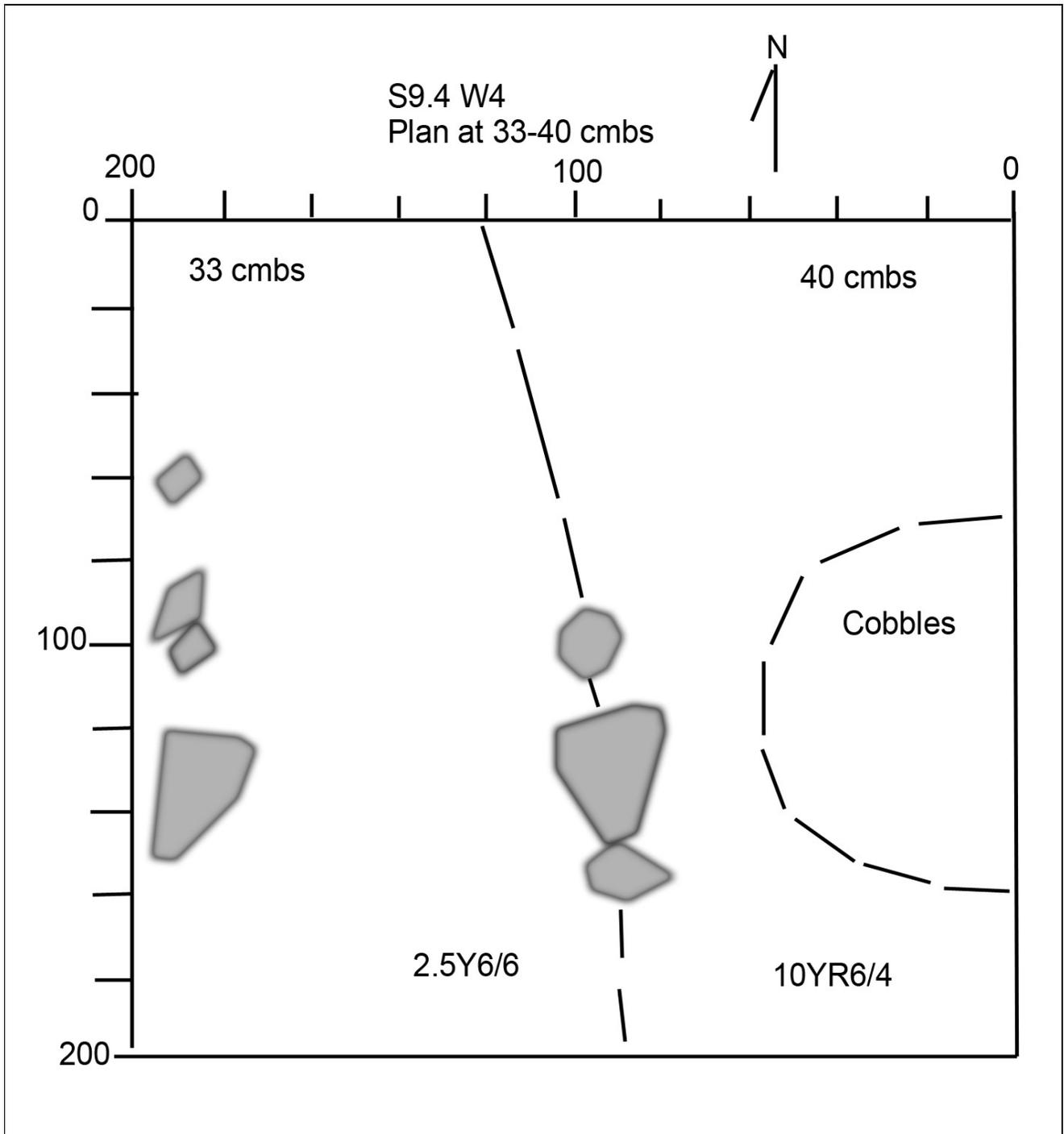


Figure 16. Plan view of S9.5 W4 at 30 cmbs (gray areas are rocks)

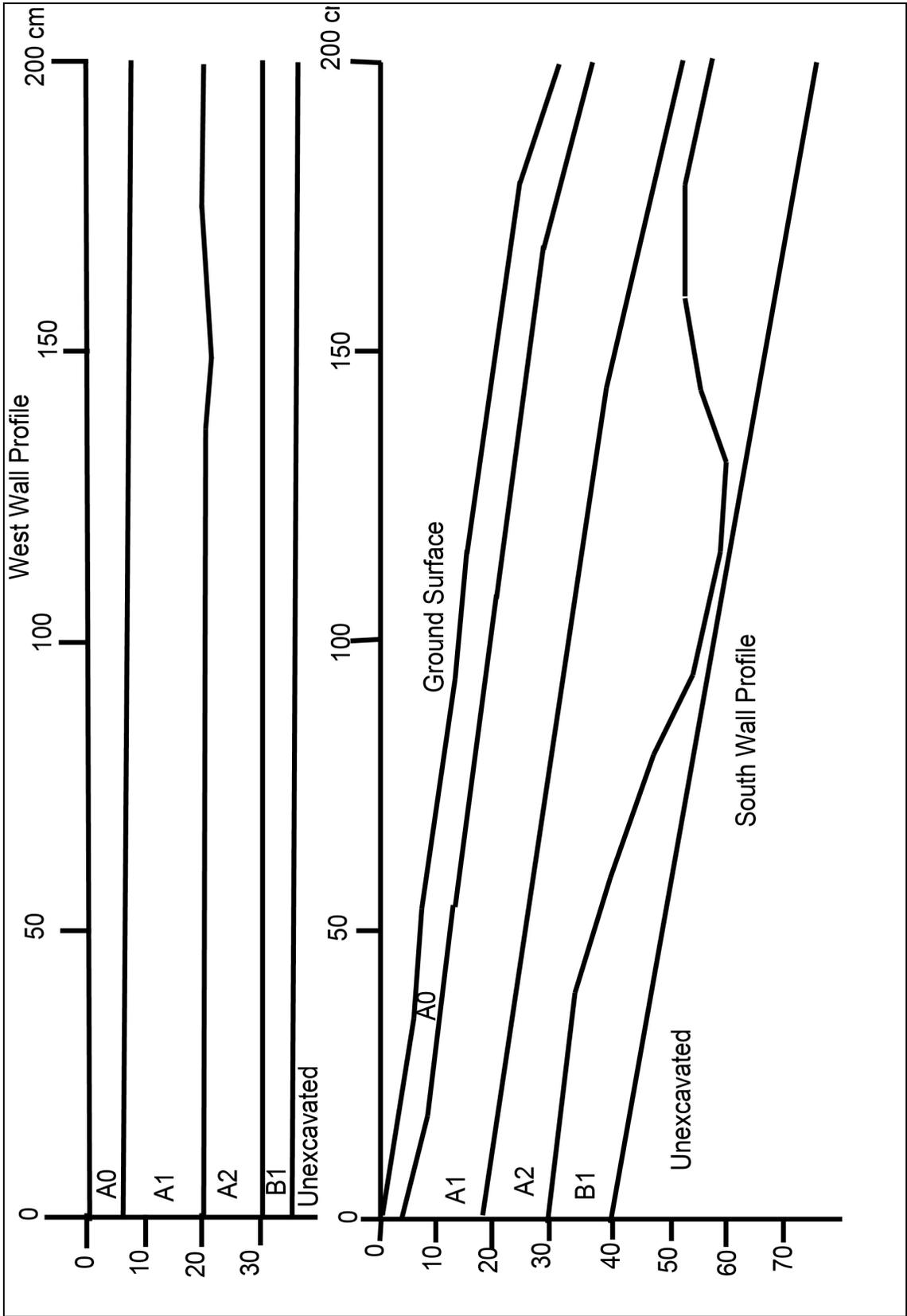


Figure 17. South and west wall profiles of S9.5 W4

fragment concentration and was interpreted as representing a demolition layer associated with the removal of the house. Soil in the south half of the unit was less gravelly and contained pipes and faunal remains. Layer 3 consisted of a mottled A2 (very dark gray brown) and dark yellowish brown (10YR4/6) silty sand with charcoal, ceramics and faunal remains. This was interpreted as an occupation layer dating to the late seventeenth century (based on the presence of combed slipware. heavy gravel and rock was encountered in the east half of the south half with the north half being less gravelly. More redware and bone was recovered from the east half. What appeared to be a refuse deposit or midden was encountered across the entire unit except from the southeast corner where rocks, possibly associated with the foundation, were found. Layer 4 (30-40 cm) was more mottled and tending to the B1 subsoil. The entire unit was subsoil at 42 cmbs. This initial unit was then opened up to a 2 x 2 square and the original unit was in the northeast quadrant of this larger unit.

The larger unit was designated the S9.5 W4 Extension Unit. Brick fragments were first encountered in this unit at 10 cm with brick occurrence becoming heavier in Level 2 (10-20 cm). Layer 3 was slightly mottled with charcoal, calcined bone, abundant tobacco pipes and tin-glazed ceramics from the north half. The southeast quad of the extension yielded light sandy loam from 0-20 cmbs with many roots associated with the bushes to the east. Layer 2 (20-30 cm) encountered gravel deposits possibly associated with the foundation deposit. The gravel concentration became very dense in the SE corner of this quadrant. The NW quarter of this quadrant had a lens of darker soil that ran from the SW corner to the middle of the north wall, effectively splitting the unit in two. This lens contained darker soil and charcoal fragments. The soil within this lens became more mottled at 398 cmbs before disappearing. The SW quadrant of the extension contained many artifacts from 20-30 cmbs as well as two large rocks in the NW and NE quarters. Overall the soil was very dark across the floor at 30 cmbs. The subsoil was encountered at 40 cmbs. An unevenly-shaped depression was found running from the north to the south across the unit possibly representing an erosion ditch or possible footpath.

50 cm wide (north to south) by one meter long (east to west) unit S8.5 W4 was added to the south of S9.5 W4. This unit revealed a dark sandy loam with a concentration of stones in the northwest corner. The unit encountered heavy gravel at 40 cmbs with just a few brick fragments being present. The rock concentration was probably related to the robbed foundation trench.

Two units were added to the west of S9.5 W4- S9.5 W5 and S9.5 W5.5. The former measured 50 cm square while the later measured 50 cm north to south by one meter east to west. S9.5 W5.5 was at the upper end of the slope to the west. Brick fragments were found in Layers 2 and 3 (10-20 and 20-30 cm) but were gone by 30 cmbs. This unit was placed here to determine if the midden that was encountered in S9.5 W4 continued to the west down the slope. It did not appear to. Excavation ceased at the top of the subsoil at 40 cmbs.

Unit S9 W4.5 was a 50 cm square unit located off of the northwest corner of S9.5 W4. The top layer from the surface to 20 cmbs was removed as one level. Level 2 (20-30 cm) encountered dark brown soil and several seventeenth century artifacts such as slipware and pipe stems, possibly representing more of the midden. Unit S8.5 W5 was located adjacent to the northwest corner of S9 W4.5. The top 20 cm were stripped as one level and the subsoil was encountered at 30 cmbs. Little cultural material was recovered. Unit S9 W4 was located adjacent to the east wall of S9 W4.5 and measured 50 cm north to south by one meter east to west effectively connecting unit S8.5 W4 with S9.5 W4. Few artifacts were recovered.

Unit S10 W3 was located adjacent to the southwest corner of S9.5 W4 and extending to the west. It measured 50 cm north to south by one meter east to west. . The top 20 cm were stripped as one level. From 20 to 30 cmbs the soil had a moderate amount of gravel and some smaller cobbles. The subsoil was encountered at 30 cmbs. Unit S11.5 W4.5 was located adjacent to the NW corner of S9.5 W4 extending to the south. This unit was 50 cm square and the top 20 cm were removed as one level. Subsoil was encountered at 30 cmbs.

The eastern extent of the north wall of the ell was investigated through a series of units placed south of Unit 1. Previous testing determined that the wall was 50 cm wide, extended 50 cm into the subsoil and was 12' long, dimensions which match the north ell on the 22 Water St. house (**Figure 18 and 19**). S3.5 W.5 was a T-shaped unit consisting of three 50 cm square pits extending for 1.5 meters west of S3.5 W.5 and one 50 cm square unit extending north from S3.5 W1. Excavation encountered a gravel deposit mixed with brick fragments at 14 cmbs. Layer 2 from 20 to 28 cmbs yielded fewer artifacts and light sandy soil. The subsoil was encountered at 28 cmbs. Excavation revealed that the north wall of the ell extended to a depth of 65 cm below the ground surface at the north east corner. The entire north wall was found to be deeper than the foundation elsewhere. This was interpreted as possibly the result of the slope of the ground to the north and east necessitating a deeper foundation than elsewhere. No evidence of a cellar was found within the north ell. Units S2.5 E.5 and S2.5 E1 further investigated the deep foundation, finding layers of burned soil and ash at 45 to 50 cmbs, possibly representing back filling of the hole dug to remove the foundation stones when the house was moved. In Unit S2.5 E1 what was interpreted as a demolition layer of brick and mortar was found to extend to 40 cmbs and was located adjacent to a large flat possible hearth stone to the north. The soil below 40 cm contained less brick and mortar. The soil from 40-50 cmbs in this unit was olive brown in color and eventually gave way to what appeared to be an olive gray compact clay layer at 50 to 60 cmbs with no cultural material. Excavation of units S3 E0 to S3 E1.5 showed evidence of what was originally interpreted as a possible cellar outside of the east wall of the house. This possible cellar extended to 60 cmbs which was 40 cm below the floor of the house. The stratigraphy of this section was a 20 cm A0 to A1 horizon that yielded abundant brick at 20 cm. From 20 to 30 cm the soil was mottled across this and the adjacent unit. From 30 to 40 cm the brick layer had disappeared by 32 cm and what was interpreted as a possible original ground surface as found at 32. A large broken iron hook, possibly used to pull down the chimney, was found amid the bricks in the NE corner of S3.5 E1. The soil was more mottled at 40 cm with more subsoil and lots of brick, charcoal, and mortar. Beneath the bricks was a layer of strong brown burned soil and clay below which was a thin layer of charcoal and below that a layer of olive brown clay, B2, C1. Few artifacts were recovered from the lower layers. It is believed that this whole area represents an area excavated to set the foundation stones on the slope and then subsequently re-excavated to retrieve most of the courses when the house was moved (**Figures 20**).



Figure 18. North wall of EII

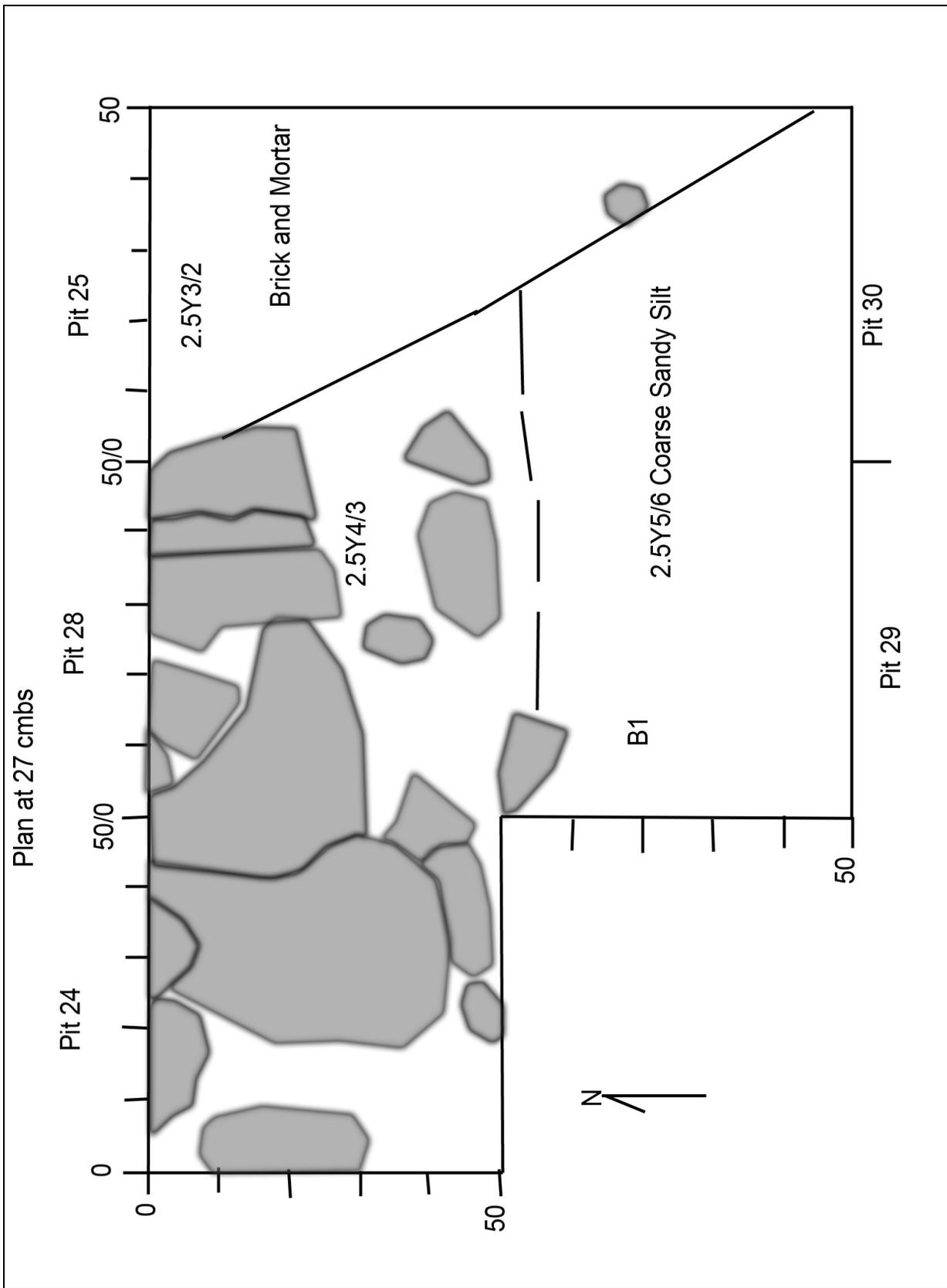


Figure 19. Plan of the north wall of the ell (gray represents rocks)

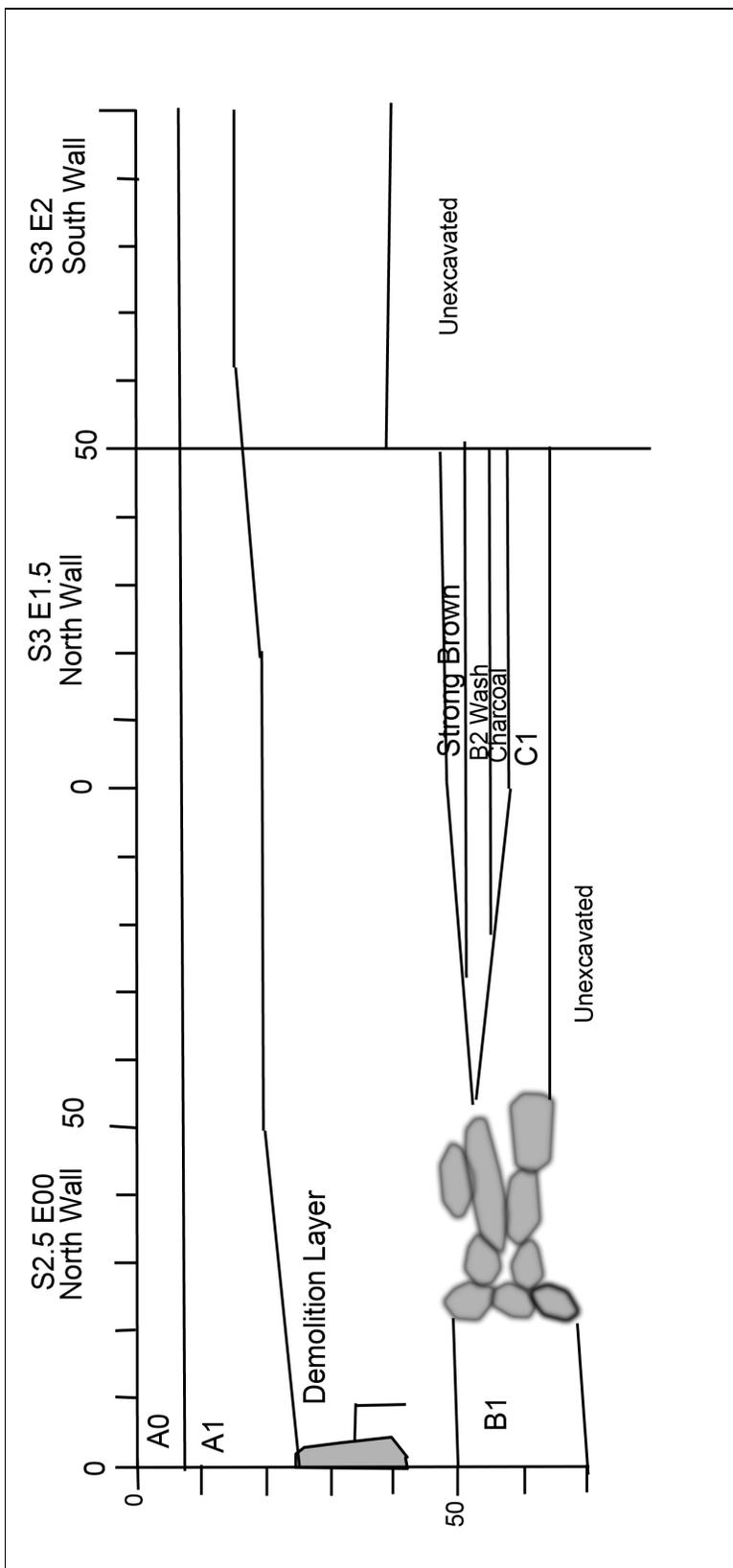


Figure 20. Profile of the north and south walls of the robbed north wall of the ell (gray represents rocks)

Excavation was also carried out along the wall in the western section of it. Pits S4 W2.5 and S4 W2.5 were excavated in the subsoil. heavy gravel was found across these units with a scatter of larger rocks parallel with the west wall of the house indicating that the walls here were robbed and rubble and possibly gravel were back filled into the holes. Excavation of the north side of the wall at S3.5 W1 to 50 cmbs revealed a nice strait clean wall resting on B2 subsoil with a moderate amount of gravel. Excavation along the possible east wall of the house at S5.5 E1.5 revealed mottled soil and a single larger rock at 40 cm, possible evidence of the wall presumed to have been located here.

## VII. ARTIFACT ANALYSIS

A total of 592 artifacts were recovered from testing around the extant house at 22 Water St (Table 4).

Table 4. Artifacts recovered from around the house at 22 Water St.

<b>Artifact</b>	<b>Count</b>
<b>Prehistoric</b>	<b>1</b>
Rhyolite Flake	1
<b>Architectural</b>	<b>373</b>
Brick	111
Mortar	2
Hand-Wrought Nails	11
Machine-Cut Nails	180
Wire Nail	20
Wood Screw	1
Flat Glass-Aqua	44
Flat Glass-Clear	1
Shutter hardware	1
Electric Box Slug	1
Hinge	1
<b>Ceramics</b>	<b>128</b>
Redware	25
Slipware	2
Tin-Glazed	1
Tobacco Pipe Bowl- Molded ribs	1
Tobacco Pipe Stem 4/64" Bore	1
Creamware	10
Refined Earthenware	1
Pearlware	24
Ironstone	6
Whiteware	55
Porcelain	2
<b>Vessel Glass</b>	<b>21</b>
Wine Glass	1
Wine Bottle	2

Milk Glass	2
19 <sup>th</sup> Century medicine	5
Machine-Made Bottle	9
Glass Slag	1
Sandwich Glass	1
<b>Fuel By-Products</b>	<b>21</b>
Charcoal	3
Coal	18
<b>Faunal Remains</b>	<b>27</b>
Swine	1
Medium Mammal	10
Quahog	12
Soft-Shell Clam	4
<b>Husbandry Items/ Tools</b>	<b>4</b>
Horseshoe Nails	3
Tool Ferrule	1
<b>Hearth Items</b>	<b>2</b>
Hearth Chain	1
Spoons	1
<b>Personal Items</b>	<b>6</b>
Thimble	1
Milk Glass Buttons	4
Button	1
Iron Other	4
Cuprus Other	1
Lead Other	1
<b>Total</b>	<b>592</b>

Architecturally related artifacts (nails, brick, etc.) accounted for most of the recovered material (63%). One prehistoric flake was recovered and a small amount of material dating to before the first quarter of the nineteenth century (hand-wrought nails, slipware, creamware) were found, but the majority of the artifacts dated to the later nineteenth century. Based on the artifacts recovered, the house was probably moved to the site between the third quarter of the eighteenth century and the first quarter of the nineteenth (1775-1825).

Most of the artifacts recovered from the 2011 testing came from the knoll excavations where 6686 artifacts were found by the excavators (Table 5) (**Figure 21**). Architectural

Table 5. Artifacts recovered from the knoll excavations 2011

<b>Artifact</b>	<b>Count</b>
<b>Prehistoric</b>	<b>95</b>
Quartz Core	1
Shatter	32
Flakes/ Flake Fragments	9
Small stemmed Point	1
Uniface	1
Rhyolite Core	2
Flakes/ Flake Fragments	31
Bifaces	2
Drill	1
Levanna Point	1
Late Archaic Broad Blade	1
Unifaces	2
Quartzite Flakes/ Flake Fragments	2
Hornfels Flakes/ Flake Fragments	6
Granite Hammerstone	1
Fire-Cracked Rock	1
Argillite Levanna Point	1
<b>Architectural</b>	<b>4884</b>
Brick	3896
Mortar	258
Hand-Wrought Nails	435
Machine-Cut Nails	38
Wire Nail	1
Flat Glass-Aqua	244
Flat Glass-Clear	1
Window Leads	9
Door Lock Spring	1
Pintle	1

<b>Ceramics</b>	<b>891</b>
Redware	488
North Gravel-Tempered	7
English Buff-Bodied	1
Slipware	48
Tin-Glazed	58
Stoneware-Bellarmino	5
Stoneware- English Brown	1
Stoneware- Westerwald	5
Tobacco Pipe Bowl	111
Tobacco Pipe Stem 4/64" Bore	3
Tobacco Pipe Stem 5/64" Bore	10
Tobacco Pipe Stem 6/64" Bore	31
Tobacco Pipe Stem 7/64" Bore	49
Tobacco Pipe Stem 8/64" Bore	19
Tobacco Pipe Stem 9/64" Bore	1
Creamware	11
Stoneware- White Slat-Glazed	1
Pearlware	16
Ironstone	4
Whiteware	21
Refined Earthenware	1
<b>Vessel Glass</b>	<b>39</b>
Wine Glass	1
Wine Bottle	13
Small Bottle	6
19 <sup>th</sup> Century medicine	1
Hurricane Chimney	1
Machine-Made Bottle	15
Glass Slag	1
Sandwich Glass	1
<b>Fuel By-Products</b>	<b>334</b>
Charcoal	327

Coal	7
<b>Faunal Remains</b>	<b>361 Bone/ 26 Shell</b>
Mammal	2
Small Mammal	1
Swine	42
Sheep	35
Medium Mammal	204
Cattle	50
Large Mammal	12
Chicken	1
Large Bird	1
Medium-Sized Bird	13
Unidentified Shell	2
Slipper Shell	1
Oyster	9
Quahog	8
Soft-Shell Clam	4
Surf Clam	2
<b>Procurement Items</b>	<b>7</b>
Gunflints	4
Flint Fragment	1
Gun Fragments	2
<b>Husbandry Items/ Tools</b>	<b>25</b>
Silver Horse Tack Cap	2
Horseshoes	7
Horse Bit	2
Horseshoe Nails	8
Silver Spur	1
Harness Buckle	1
Ax	1
Hook	1
Pitchfork	1
Wedge	1

<b>Hearth Items</b>	<b>12</b>
Hearth Chain	3
Kettle	4
Spoons	3
Knives	4
<b>Personal Items</b>	<b>4</b>
Thimble	1
Belt Buckle	1
Cuff Link Silver	1
Mouth Harp	1
Iron Other	10
Cuprus Other	2
<b>Total</b>	<b>6686</b>

artifacts made up the majority of those found (73.1%)

Research questions for farmstead archaeology seek to examine patterns of farm development; the variety of farm sizes, buildings, dates of construction and arrangement of buildings; typicality in terms of size, wealth, and resources of each farm; the incremental fashion in which most farms achieved this organization; the rearrangement of farm buildings; and the recurring patterns of spatial organization and activity usage (Beaudry 2001-2002: 130). At rural homesites focus can be placed on landscape archaeology research questions as well, such as those proposed by Adams (1990). These include studying such things as when and if forests were cleared, why and where were roads built, what subsistence farming practices, if any, were used, were draft animals used for manual labor, what changes to the woodlots of the farm occurred once coal and oil became widely used, and what crops were planted (Adams 1990: 93). Rural homesite archaeology can examine the larger question of what was happening at rural homesites in an age when agricultural economics was being replaced by industrial economics, market dependence, and a potential decline in rural self-sufficiency. Homesites, like farmstead sites, represent the culmination of years of occupation, adaptation and change and should be thought of in these terms (Catts 2001-2002: 145). Beaudry advocates a system where we stop thinking in terms of potsherds and start thinking in terms of landscapes, to not think of just individual features at a site, but to think of the entire feature system (Beaudry 2001-2002: 139). This view goes hand-in-hand with the views of other archaeologists such as Wade Catts who see nineteenth century rural places as needing to be examined for evidence of long-term change through the development of land use histories for the entire farm (Catts 2001-2002: 150). One noticeable improvement to the Water St. dwelling was the construction of the ell at the rear of the house.

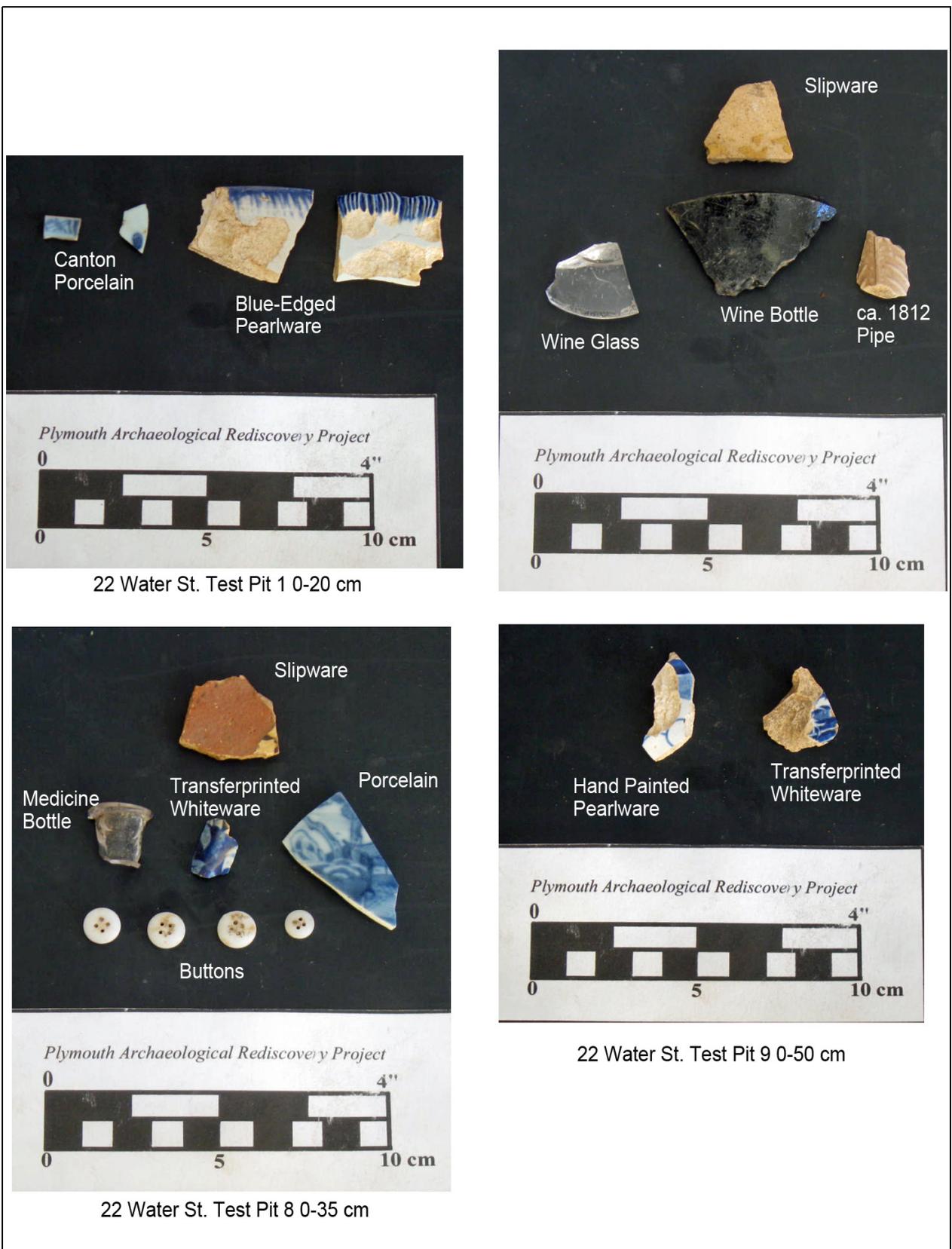


Figure 21. Late eighteenth and nineteenth century artifacts from 22 Water St.

Other important areas for research include looking at long term change within the rural homesite as a reflection of the changes that occurred within the larger society. Klein and Baugher came up with a potential framework for identifying, evaluating, testing and preserving nineteenth century farmstead sites, and their approach can be extended to any type of rural homesite. They advocate first developing historic contexts by identifying the theme, time period, and geographic limits of the site, and defining the type of site. Archaeological investigations should involve survey and testing of all components of the site, excavating large areas within the entire site, using remote sensing within areas outside of the core, giving equal attention to areas with and without large artifact densities, and using the full range of historical sources, including literature, paintings, agricultural journals and publications, and oral history (Klein and Baugher 2001-2002: 168-169).

One of the research questions for this project involves the degree to which this family was involved with the local market economy. This question revolves partially around the unknown occupant's degree of self-sufficiency. The nature and degree of rural inhabitants be they farmers or laborers, self-sufficiency rests not on economics but on attitudes. Rural inhabitants could and did often produce their own food, fuel, and furniture but no one really believes that they were totally self-sufficient. The stereotypical New England Yankee, self-sufficient, independent, relying on no one but themselves, the view that has been often presented for colonial farmers, is more of a romantic notion of the idealized American. Rural inhabitants in the nineteenth century, especially those who lived only a few miles outside of the center of town must have sold agricultural products to pay their taxes and procure the range of high utility commodities such as imported ceramics. Food, firewood, and clothing do not survive well archaeologically and the most common artifacts we are generally left with to investigate socio-economic position are often those which specifically had to be produced at the markets- glass, ceramics and metal items. In many ways this does not make consumer goods purchased at the market a good indicator of the overall standard of living enjoyed by the people who used them. Overall, it has been found that consumer produced goods accounted for only a small percentage of total household expenditure in the nineteenth century (Friedlander 1991; Klein 1991). However, if the purchase of consumer goods, thus relatively lower degree of self-sufficiency, was a high priority for inhabitants of any economic level, then this should be reflected in a high occurrence of such items in an assemblage. If, on the other hand, the purchase of matched sets of ceramics or of the finer or finer looking tea sets was not a high priority of the inhabitants, if they were more interested in helping their families or in having time to spend in communal projects, then the percentage, quality and types of market-produced goods present at a site may reflect this.

Stewart-Abernathy, in his study of the nineteenth century Ozark farmsteads, hypothesized that the choices of manufactured goods present at an archaeological site reflects the support of a family version of social reality and that they indicate an allegiance to the local community and to the world in terms that kept the local community strong (Stewart-Abernathy 1986: 102). It as also been suggested that the acquisition of consumer goods is the common thread that has held Americans together from its founding (Carson 2006).

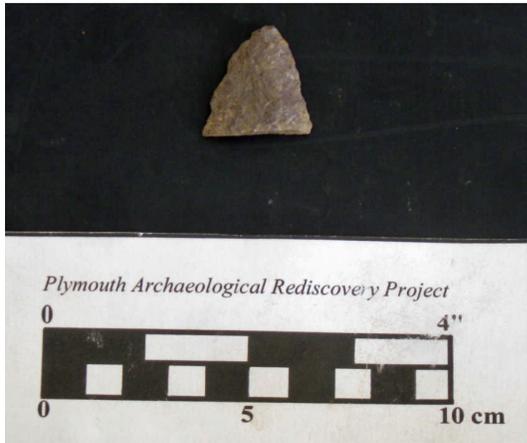
Housing, as opposed to clothing and other more perishable elements of culture, is usually well represented and more visible archaeologically, and some see housing as the most sensitive indicator of class in 19th century America (Soltow 1992: 131). Other classes of material culture, ceramics, glass, faunal remains, etc., can be used to better understand the lifestyles of the inhabitants versus their use as status indicators. Catts and Custer (1990: 227) found that 450 square feet formed a convenient dividing line between the houses of the poor and those of the middle class. The Water St. house floor size was

218 square feet for the main house with an additional 144 feet being added in the ell making the total 352 square feet, well below the dividing line between middle class and poor. The examination of the size, structure and layout of the Water St. house, can provide insight into the social class and real status of this early agricultural family. Conversely, some investigators see status as best indicated by social status followed by the quality of the house or residential area (neighborhood) (Spencer-Wood 1984: 35).

### **Prehistoric Artifacts**

The majority of the 96 prehistoric artifacts consisted of waste material that resulted from the reduction of larger pieces of material to create smaller, finer tools (**Figure 22**). This waste material represented all stages of the manufacture of tools such as knives or projectile points, tools called bifaces for the fact that they have two faces that have been sharpened. Waste types present included flakes and flake fragments, shatter, one split cobble and one core. Flakes are thin, sharp-edged pieces of stone that exhibit evidence that identified them as having been intentionally removed from a larger stone through the use of force. The force can be applied by means of another stone, called by archaeologists a hammerstone, or an antler hammer, called a billet, forcefully striking the target stone, or through the use of applied pressure by the tip of an antler. The production of a tool such as an arrowhead proceeds in several stages with each stage resulting in waste material bearing different types of evidence. By examining even the smallest piece of waste material, archaeologists can discover what stages of lithic production occurred at a site. This is important because this sort of evidence helps us to understand the use of a site and the types of activities that occurred there.

Lithic reduction, the process of changing a common rock into a tool like an arrowhead, begins with the acquisition of a raw material. Raw materials can come from three main sources: quarries, cobbles, and trade blanks. Quarried stones result from a person traveling to a location where large outcrops of a good raw material occurs and then spending time removing a smaller piece from the larger outcrop. This smaller piece can either be removed from that quarry site in its raw form, but more often it was reduced to a roughed out shape, called a blank, prior to leaving the quarry site. Reducing a quarried piece at the quarry results in a raw material that is lighter and which has had some of its potentially fatal flaws (cracks or mineral inclusions- imperfections that make stone tools break during production or use) discovered and removed prior to spending much time on the final product. There is nothing more heartbreaking for a knapper than discovering a fatal flaw when you are close to finishing a piece, and then having the almost finished break so close to the end. At an archaeological site, evidence of quarried pieces can take the form of large roughly shaped pieces of raw material or large lithic flakes that lack any evidence of having come from any other source. Quarries that were often used by Native



Point Tip Unit 2 0-20 cm



Drill Tip S9.5 W5 10-20 cm



Levanna Point S9.5 W4 SW Ext 20-30 cm



Hammerstone S9.5 W4 Sw30-40 cm

Figure 22. Prehistoric artifacts from the Knoll House Site

people in the Eastern Massachusetts have been identified in and around the Blue Hills and to the north of Boston and in the Mount Hope Bay area of southeastern Massachusetts and Rhode Island. Lithic types that are commonly quarried at these sites include hornfels and rhyolite from around Boston and the Boston Basin, and argillite from Mount Hope Bay.

Another source of raw materials are pieces of rhyolite, quartz or quartzite that have been removed from their original parent location by the glaciers and were subsequently tumbled and rolled into rounded cobbles. Cobbles can be found on beaches, in river and stream beds and banks and in the subsoil of the glacial drift that underlays much of eastern Massachusetts. The first step in reducing a cobble is to create a flat plane, or platform, from the edges of which more pieces can be removed. This is usually accomplished using a hammerstone to remove one edge along the periphery of the cobble or by splitting the cobble in half. Following the creation of this plane, the outer rind of the stone, the weathered and often friable cortex, is removed. When pieces of this cortex is recovered from an archaeological site, it is strong evidence that cobbles were used as a raw material at least in some cases.

Following the acquisition of the raw material and the initial reduction, smaller pieces are removed. These pieces are called flakes. A flake has very specific characteristics and shapes that allows them to be identified as flakes and not just thin, sharp, natural rocks. When flakes are created the object, the hammerstone, billet, or antler tine, that strikes the target material, imparts energy into the stone. If that energy is strong enough and is applied at the right angle, a flake will be struck off. The flake is essentially a fossil of the force that was applied to the stone. The point where the hammerstone, billet, or tine struck the raw material, creates a striking platform that reflects the point of impact where the target was struck. This platform is usually fairly flat and may have a crushed appearance. As the force begins to travel into the raw material, it leaves a thicker bulb-shaped area just inward of the striking platform. This is termed the "bulb of percussion" and is a hallmark of a flake versus a natural rock. As the energy from the strike dissipates into the raw material, it spreads out like a wave and creates ripples through the stone that spread outward towards the edges before the force runs out and the terminal edge of the flake is reached and the flake pops free from the raw material. All of this happens in a fraction of a second when the raw material is struck. The angle of attack on the raw material, the type of striker and the amount of force used results in flakes with different characteristics of platform angles, thickness, width and length. All of these characteristics are recorded by archaeologists and are used to help examine what people were doing with the raw materials at a site. Many times the flake breaks during the transference of energy and one finds flake fragments versus flakes. The raw material from which the flakes are being struck is called the core, or if it is in the process of being reduced to a pointed tool it is called a preform. Other times the initial strike is less controlled or fractures and imperfections are present in the stone and chunks versus flakes are struck from the raw material. These are termed shatter versus flakes. Shatter can be thick and angular and/or blocky, or thin and flat depending on the material and the imperfections.

When a lithic assemblage is analyzed, the following pieces of data are collected and compared:

- the identification of the material types
- the identification of the waste or tool type
- the lengths, widths and thicknesses of artifacts
- the angle of the striking platform
- the width of the striking platform
- the recording of the presence of cortex

By looking at angle of the striking platform and the size of the flakes, the stage during the reduction process will be identified. By doing this, it can be determined if the entire reduction process occurred at the site or if just portions happened. If small flakes with sharp striking platform angles are present, it is more likely that either preforms were brought to the site and finished there or that tool maintenance (sharpening, reworking) occurred versus tool manufacture. If shatter, cores and larger flakes with cortex more acute angles are present then it is more likely that less finished raw materials were brought to the site and that tool manufacture but not final reduction took place. If there is a mixture of larger and smaller flakes and acute and obtuse platform angles, then it is likely that all stages of reduction occurred.

### **Lithic Materials Recovered**

A limited number of material types were recovered from the testing with quartz and rhyolite being the most common. Below, brief descriptions of the common types of materials that were identified

#### **Argillite**

Argillites are fine grained sedimentary rocks (like mudstone and slate) that have been metamorphosed to varying degrees. As a result, these stones are harder than their original sedimentary rock and thus suitable for limited stone knapping to produce tools. Unfortunately, argillites still maintain a degree of sedimentary platyness and have a tendency to flake in layers, making them somewhat difficult to work. Types of argillite include Black (originating in the Delaware River Valley of New Jersey and Pennsylvania), Maroon (originating from the Chicopee shales in western Massachusetts), Blue-Gray, Tan, Gray (all originating from either the Cambridge slates in the Boston basin or Barrington, Rhode Island), Green Platy (originating in Barrington, Rhode Island and also occurring in glacial drift deposits in the Taunton River Basin), Banded (originating in the Cambridge slates in the Boston basin) and Coarse grained green (Originating in Hull, Massachusetts). Argillites are common in glacial drift deposits in many locals in eastern Massachusetts and occur predominantly in the Late Archaic, although they were also used to a lesser degree in other time periods.

#### **Felsites/ Rhyolite**

The term felsite and rhyolite are used interchangeably by archaeologists, leading to heated discussions about which is the correct one. Both terms can be used to describe the same lithic type, basically intrusive volcanics formed by the rapid cooling of granite magma. Felsite/ rhyolites are fine grained with dark or light crystals (phenocrysts), essentially bits of volcanic crystals, embedded within the matrix. They can have no visible phenocrysts (aphenytic felsite/ rhyolite) or have large, prominent ones (porphyritic felsite/ rhyolite). The phenocrysts may be large or small and banding may also be present. Felsite/ rhyolites commonly occur in glacial drift deposits and are often encountered as rounded cobbles on beaches. The original parent source of these stones appears to have been in the northeastern quarter of Massachusetts.

Felsite/ Rhyolites include Black with white phenocrysts (originating in the Newbury Volcanic Complex), Green Fine-Grained, a dark green felsite lacking visible phenocrysts (originating in the Lynn Volcanic Complex in Melrose, Massachusetts), Maroon/ Purple/ Red (originating in the Lynn Volcanic Complex in Marblehead, Massachusetts), Gray with dark small phenocrysts (originating in the many volcanic complexes), Blue-Gray with dark phenocrysts (originating in the Blue Hills Complex in Braintree, Massachusetts), Cream and Rust Stained coarse grained Gray green to tan with pyrite crystals (originating in the Mattapan Volcanic Complex in the Sally Rock Quarry in Hyde Park), Red

Banded with dark red to pink fine banding or swirls on a light red, tan or cream matrix, also called Mattapan Red Felsite (originating in the Mattapan Volcanic Complex on the Neponset River), Red to Maroon Porphyritic with dark red or white phenocrysts (outcropping in Hingham, Massachusetts), Green porphyritic visible dark glassy and white phenocrysts (outcropping at Mount Kineo on Moosehead lake in Maine), Red light red to pink with a coarse texture phenocrysts may or may not be visible but are pink or tan feldspar or translucent silica glass, banding may occur in same composition as phenocrysts, also known as Attleboro Red Felsite (outcropping in Attleboro, Massachusetts), Banded and Other Porphyritic.

### **Crystalline Silicates (Quartz and Quartzites)**

This class includes quartz and quartzites. Quartz may include Crystalline, Milky or smoky. Quartz is a vein forming mineral that was deposited in the fissures in other rocks. Quartzite, a metamorphosed sedimentary rock that originated as ancient beaches with a coarse grained texture and no phenocrysts of banding, commonly occurs in glacial drift deposits. Sources for quartzite have been identified in Westboro in the Sudbury and Assabet Drainages and Worcester at the South Bay quarry. Quartzite that has been highly metamorphosed is called metaquartz or mylonite. These are extremely fine grained occasionally with a glassy texture ranging from green to light green to white. These have been identified from the Concord/ Sudbury and Ware/ Quaboag drainages and may outcrop in Central Massachusetts.

### **Hornfels**

Hornfels are dark Gray to black metamorphosed lithics formed by the baking of sedimentary deposits by cooling bodies of magma and are found in quarries in the Blue Hills outside of Boston.

Rhyolite and quartz made up the majority of the assemblage (Table 6) and they also had

Table 6. Prehistoric artifact counts

<b>Artifact</b>	<b>Rhyolite</b>	<b>Quartz</b>	<b>Hornfels</b>	<b>Argillite</b>	<b>Quartzite</b>
<b>Flake</b>	16	3	4		1
<b>Flake Fragment</b>	15	6	2		1
<b>Shatter</b>		32			
<b>Core</b>	2	1			
<b>Uniface</b>	2	1			
<b>Point</b>	1	1		1	
<b>Point Tip</b>	1				
<b>Drill</b>	1				
<b>Biface</b>	2				
<b>Total</b>	<b>40</b>	<b>44</b>	<b>6</b>	<b>1</b>	<b>2</b>

the widest variety of artifacts present. The majority of the tools present were also made of these two materials. The variety of quartz and rhyolite lithic refuse present shows that all stages of reduction

occurred at the site. The higher occurrence of quartz shatter is the result of the crystalline nature of the quartz and the fact that it has a tendency to shatter into unusable pieces. Cortex was found on two pieces of quartz, one piece of quartzite, and one piece of rhyolite debitage. The striking platform angles also support the complete reduction of raw materials, especially for rhyolite (Table 7). The steeper the angle the earlier

Table 7. Platform angles

Platform Angle	Rhyolite	Quartz	Hornfels	Quartzite
<b>30-45</b>	7			
<b>50-65</b>	7	1	1	2
<b>70-85</b>	4	1	4	

in the reduction process, the shallower the angle the later in the process. These findings indicate that biface and uniface production with limited finishing was occurring at the site. The presence of one rhyolite projectile point tip, also indicates production of projectile points versus the repair of tools. This deduction is due to the fact that tip are most likely to break off during production or use as projectile points. If the tip had broken off during use, like when an arrow or spear misses a target and strikes the ground or a tree, the broken tip is not retrieved and only the shaft, with the intact base and midsections returned to camp for replacement.

Quartz and rhyolite were also used to produce unifaces, with three of these being recovered. A uniface is a tool that has been worked on only one side, usually for use as a scraper.

Rhyolite debitage was recovered in 15 distinct colors, indicating the likelihood that a variety of individual raw materials were brought to the site in various stages of reduction. Materials that occurred in a limited quantity may have been initially reduced on site and finished elsewhere, as these tended to have shallower platform angles, indicative of earlier stage reduction (Table 8). For the most part the

Table 8. Rhyolite colors

Color	Count	Tool	PA 30-45 *	PA 50-65	PA 70-85
<b>Black</b>	1				1
<b>Dark Gray</b>	8		1	3	1
<b>Gray</b>	13		4	3	1
<b>Light Gray</b>	2				
<b>Very dark purple Gray</b>	1	Uniface			
<b>Dark Purple Gray</b>	2	Core			
<b>Purple Gray</b>	6	Drill, Levanna, Point Tip	2		
<b>Light Purple Gray</b>	4	Biface, Core		1	
<b>Maroon Purple</b>					
<b>Maroon Brown</b>	1	Uniface			

Color	Count	Tool	PA 30-45 *	PA 50-65	PA 70-85
Maroon					
Light Tan Gray	1				1
Tan Gray	1	Biface			
Mottled Tan and Dark Gray					

\*PA- Platform Angle

tools that were identifiable, tended to be made out of the most common colored rhyolites, indicating more intensive utilization and reduction of these varieties. The most common colors that were present, the grays, green grays and dark grays, likely originated in Lynn volcanic complex sources, or generally throughout the Boston Basin. The presence of cortex on one piece of rhyolite indicates that at some of the material was derived from glacially transported cobbles, possibly having been initially reduced elsewhere. The distribution of quartz and rhyolite debitage and tools shows that quartz was more widely distributed and that the rhyolite was concentrated in the north half and in the southwest corner of the house (**Figure 23**). These difference in the distributions between the quartz and rhyolite may be the result of temporal differences related to separate occupations between the Late Archaic and the Late Woodland periods. The overlapping distributions of both materials may indicate that the areas where the materials were recovered are geographically or topographically significant areas, areas that for whatever reason, such as proximity to raw materials, water, trails or the situation on a flat and slightly elevated area, make them conducive to temporally separate occupation and use of the area. Hornfels, a material associated most commonly with Middle to late Woodland occupation, was concentrated in the northeast portion of the site. The rhyolite Levanna point that was recovered during the initial testing came from this same general area indicating a Late woodland occupation focus here.

A limited variety of lithic tools were recovered. Three uniface, indicate that quartz and rhyolite were used to produce utilitarian scrapers which could have been used to process a variety of faunal or floral resources. Quartz was also used for one Late to Transitional Archaic projectile point- Small Stemmed point. The rhyolite and argillite bifaces and the rhyolite projectile point tips, indicate that rhyolite was used for points and also either for preforms to later make other points or for cutting tools. The presence of two Late Woodland Levanna points indicates utilization of rhyolite during this period.

In summary, the prehistoric cultural material recovered indicates that this site was used as a camp where a variety of lithic materials were reduced to produce projectile points and scrapers. The most intensively reduced materials consisted of quartz and rhyolites, with other materials making up a much smaller percentage of the total. The artifact assemblage indicates that occupation occurred during the Late Archaic and Late Woodland periods. The lack of a wide variety of tools and the fact that no features were encountered indicates that this was not a permanent base camp location but appears to have been more of a short term stop over camp, possibly with a focus on the stream to the west. The site may have served as a hunting camp where people watched for animals coming to the stream to drink.

#### **Architectural Class**

This class of artifacts is composed of artifacts related to the construction kitting out of the structures that stand or have stood on the site. It consists of the following sub-classes: brick, mortar, nails, window glass, window leads, and iron hardware.

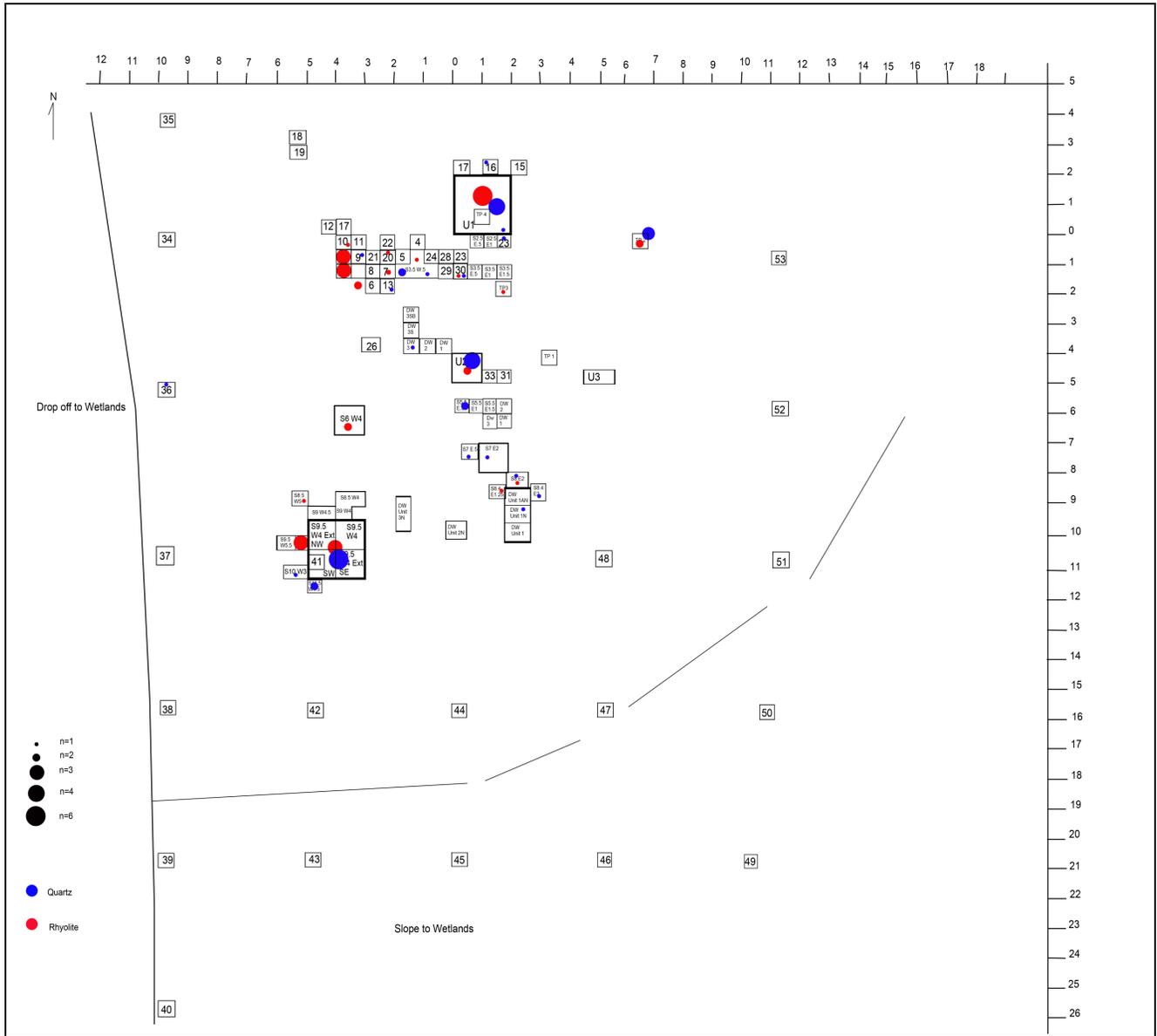


Figure 23. Distribution of quartz and rhyolite artifacts at the Knoll House Site

## Brick

While bricks are often used for foundations and walls, at the Water St. house the bricks recovered appear to have come from the chimney and hearth stack. The dimensions of seventeenth and eighteenth century bricks were legally regulated. As early as 1625 there was a law in England stating the dimensions for bricks being 9" by 4 1/2" by 3" high (22.9 x 11.4 x 7.6 cm), which was very similar to the 1700 dimensions for statute (a.k.a common) bricks which was 9 x 4 1/2 x 2 1/4" (22.9 x 11.4 x 5.7 cm)(Cummings 1979:118). The Massachusetts bay Colony set regulations on brick sizes in 1679, stating that the molds for bricks must be 9" long, 4 1/2" wide and 2 1/4" high, but, as William Leybourn observed in 1668, molds of such size seldom produced bricks of such size due to drying and burning (Cummings 1979:118).

The firing of a single brick clamp results in three different types of bricks: Clinker- those that lie closest the fire which have a glaze on them; those that lie next in the clamp which are of second quality; Samuel or Sandal-bricks- those that lie at the outside of the clamp and which are soft and will dissolve in the weather (Neve 1736).

The bricks used for the Water St. house were likely made locally. As early as 1629, clamps were established in Salem, Massachusetts for the manufacture bricks and roof tiles, while in the same year there is a singular, unique record of 10,000 bricks being imported into the colony (Cummings 1979:119).

Measurable bricks from the Allerton Cushman Site in Kingston, Massachusetts (c1650-1690), ranged in width from 9 to 11.5 cm , 4.8 to 6.1 cm in height, and 17 cm long. The single measurable brick from the the Ezra Perry II (Aptucxet Trading Post Museum Site) in Bourne (c. 1670-1720) measured 10 cm wide, 6.35 cm high, and 20 cm long. Later sites, such as the Lot Harding House in Truro, Massachusetts (1746 to present) had bricks measuring 8.6 to 10.9 cm wide, 4.3 to 5.7 cm high and 18.2 to 18.8 cm long and the Duxbury Second Meeting House (1708-1785) bricks were 8.5 to 11 cm wide, 4.3 to 6.2 cm high, and 14 cm long. All of these bricks roughly fit within the known seventeenth and eighteenth century brick regulations. The bricks recovered from the Wing Fort House averaged 16.5 to 19.7 cm long (6.5 to 7.7 inches), 7 to 11 cm wide (2.7 to 4.3 inches) and 3.7 to 6 cm high (1.5 to 2.4 cm). As a point of comparison, bricks from the nineteenth century Samuel Fuller House site in Kingston, Massachusetts measured between 18.2 to 18.8 cm long, 8.8 and 10.9 cm wide, and 4.3 to 5.5 cm high, very similar to the Lot Harding bricks

A total of 149 of the fragments recovered from the Water St. house were measurable in at least one dimension (length, width, or height) . They averaged 9 to 10.7 cm wide ( inches) and 4 to 6 cm high (1.5 to 2.4 cm) (Table 9). Large bricks fragments were concentrated in the northeast Unit 1 area where it is believed that they were discarded when the chimney and hearth were removed in the late eighteenth to early nineteenth century.

Table 9. Measurable bricks from the Water St. House

Width (cm)	Count	Thickness	Count
9	2	4	5
9.5	10	4.2	6
9.7	7	4.3	4

<b>9.8</b>	2	4.4	1
<b>10</b>	18	4.5	12
<b>10.1</b>	4	4.6	6
<b>10.2</b>	5	4.7	10
<b>10.5</b>	6	4.8	2
<b>10.7</b>	1	5	24
<b>NA</b>	NA	5.1	2
<b>NA</b>	NA	5.2	4
<b>NA</b>	NA	5.3	4
<b>NA</b>	NA	5.5	7
<b>NA</b>	NA	5.6	2
<b>NA</b>	NA	5.7	3
<b>NA</b>	NA	6	2
<b>Totals</b>	<b>55</b>		<b>94</b>

When compared with the bricks recovered from the other sites discussed above (Table 10) it can be seen

Table 10. Comparison of brick sizes between 17<sup>th</sup> to 19<sup>th</sup> century sites

<b>Site</b>	<b>Average Length</b>	<b>Average Width</b>	<b>Average Height</b>
<b>Water St. House (ca. 1650-1670)</b>		<b>9-10.7 cm</b>	<b>4-6 cm</b>
Allerton/ Cushman Site (1650-1690)	17 cm	9-11.5 cm	4.8-6.1 cm
Ezra Perry II (1670-1720)	20 cm	10 cm	6.35 cm
Lot Harding Site (1746-Present)	18.2-18.8 cm	8.6-10.9 cm	4.3-5.7 cm
Duxbury Second Meeting House (1708-1785)	14 cm	8.5-11 cm	4.3-6.2 cm
Wing Fort House (1640-Present)	16.5-19.7 cm	7-11 cm	3.7-6 cm
Samuel Fuller House (1830-1890)	18.2-18.8	8.8-10.9 cm	4.3-5.5 cm

that the bricks from the Water St. house most closely match those from the Allerton/ Cushman site in Kington, offering support for a mid to third quarter of the seventeenth century date for the construction of the Water St. house.

Bricks such as these were made of local clay mixed with sand, gravel, and even larger pebbles and small rocks to act as aggregates to give strength to the clay. The molding process was begun by drenching a wooden mold into water and then placing it on a table covered with a thin layer of sand. The mold was then filled with a large glob of clay and a board was run either vertically or horizontally across the upper face to level the mold off. The mold was then removed and the brick was paled in the sun to dry before it was fired. Firing bricks involved stacking them up in a specific manner, building

what is referred to as a clamp. Wood was placed within the clamp, around the bricks, and the whole thing was set on fire and allowed to burn until the bricks were hard. Bricks that were fired close to the heat source tend to be blackened on their faces that faced the fire, often bearing a vitrified, glass-like surface finish, while those that were farther from the direct heat were more evenly colored. The bricks that were closest to the flames tended to warp and often deformed to some degree. The bricks from the Fort House bore evidence of the sand covered table on one side (moderate to heavy sand being present), the strike to the opposite face to level the clay (most commonly a horizontal strike and rarely vertical), grass impressions on the struck face (from being placed either on the grass or more probably on a straw covered board to dry, the straw ensuring the brick did not stick to the board), and some vitrification and deformation (resulting in one brick being 3.5 cm thick at one end and 5 cm thick at the other).

### **Mortar**

Associated with the brick were fragments of shell-tempered or shell-lime mortar. The majority of it was found in the area of Unit 1 which is interpreted as indicating that this area was used for removing the mortar from old bricks when the chimney was dismantled and the house was moved in the late eighteenth to early nineteenth century. Local sources of limestone that could be calcined to produce lime, were difficult to find in Massachusetts. Edward Johnson reported in 1650 that “the country affords no lime, but what is burnt of Oyster-shells” (Cummings 1979: 122). As Johnson reported, people burned sea shells to produce lime which was mixed with the clay to produce mortar. Lime was necessary for the mortar to make it waterproof, as without lime, a good rainstorm would wash the mortar out of the masonry and the whole construction would soon come crashing down. The shells that were reduced to lime came from a variety of sources. In 1694 a large storm resulted in a plethora of shells on the beach. Local officials soon declared that none of the shells, nor any of the lime that was subsequently made from the shells, could be shipped out of Lynn under punishment of a fine (Jenison 1976: 22). Shells were also mined from Native American shell middens such as was done in 1667 by Thomas Batt, a Hide tanner in Boston. Batt used a Native shell midden located on the west side of Beacon Hill to create the lime pits he used for dehairing hides (Jenison 1976: 22). Another source of shells were live shellfish beds. This practice was discouraged due to the harm done to the shellfish, as such was the case in 1728 in Providence, Rhode Island where oyster beds were being raided (Jenison 1976: 22). By the early eighteenth century, local lime sources had been discovered and shell lime was less often used, as evidenced by a 1724 decree that mussels in Massachusetts Bay should no longer be used for making lime or anything else except for eating and bait (Fiske 1922: 36).

The presence of shells in mortar should not be taken as absolute proof of the use of shell lime mortar though. Shells may have been added to mortar as a filler or an aggregate, or may have accidentally been mixed into the mortar (Jenison 1976: 24). Many of the shells in the mortar from the second meeting house are burned, indicating with a high likelihood that the mortar was mixed with shell lime.

### **Nails**

#### **Hand-Wrought Nails**

A total of 435 hand-wrought nails or hand-wrought nail fragments were recovered (Table 11). The overall total included nail shank fragments with intact heads and 76 complete hand-wrought nails (Table 11). When compared with the Wing Fort House it can be seen that there was a more limited

Table 11. Hand-Wrought Rose Head Nail Size Distribution

	Water St. House	Wing Fort House
<b>Brad/ 1.5 cm</b>		1
<b>2d/ 2 cm</b>		2
<b>2d / 2.5 cm</b>	2	5
<b>3d/ 3 cm</b>	36	20
<b>3d/ 3.5 cm</b>	6	33
<b>4d/ 4 cm</b>	3	7
<b>5d/ 4.5 cm</b>	2	10
<b>6d/ 5 cm</b>	10	10
<b>7d/ 5.5 cm</b>	4	7
<b>7d/ 6 cm</b>	7	13
<b>8d/ 6.5 cm</b>	2	17
<b>9d/ 7 cm</b>	2	23
<b>10d/ 7.5 cm</b>	1	4
<b>12d/ 8 cm</b>	1	1
<b>16d/ 9 cm</b>	1	1
<b>20d/ 10 cm</b>		1
<b>30d/ 11 cm</b>		1
<b>Totals</b>	<b>76</b>	<b>154</b>

range of nail sizes and occurrences represented at the Water St. House site with the majority being 3 cm long, the size used for shingles and clapboards. The paucity of nail variety at the water St. House is probably due to the fact that the house was not dismantled at the site but was moved whole to its present location, thus the nails found either came from the original construction, the updating to add the ell and a second story, or minor dismantling when it was moved. The Wing Fort house on the other hand saw extensive rebuilding at least twice in its life, resulting in more nails being discarded around the structure.

Nails are designated by their “penny” size, which refers to how much it costs to purchase 100 of each nail size. A two penny nail would cost two pennies to purchase 100 while a 10 penny nail, due to its larger size, would cost 10 pennies to purchase 100. The abbreviation “d” is used for penny, thus a “10 penny” nail is abbreviated “10d”. The “d” used in the abbreviation comes from the Roman word for a coin, denarius, thus the “d”. Fourteen sizes of hand-wrought nails were identified at the site. These range in size from small brads 30d nails. The majority of the nails were of the 3d (1 1/4” long) size. Nail sizes correspond to their uses, with smaller nails used for fastening thinner wood and larger nails used for fastening thicker wood. A modern day rule of thumb is that in fastening sheathing, shingles, clapboard, etc., the nail should be at least three times longer than the thickness of the sheet or board being fastened. This means that the 2d to 6d nails, the majority of those recovered, were being used for fastening wood that was .3 to .6” thick, which would be appropriate for clapboards or shingles. The larger nails would have been used for larger pieces of wood. It is generally recommended that 8d nails

should be used to nail 1” stock, sheathing, rough flooring and window and door trim. The use of 10d nails is limited to toe nailing frames, and framing in general. Other sizes used in framing are 16d, 20d and 60d. Small nails like 3d to 8d are used for nailing clapboards and wood shingles with the smallest size used on lathe as well. Larger stock, such as 2-3” thick pieces, are nailed with 16-60d nails. The paucity of hand wrought nails of 10-30d size may be related to the use of treenails/ trunnels and the vertical plank construction used for the the earliest phases of the house.

Hand-wrought nails were made by specific craftspeople called “nailers” in the seventeenth and eighteenth centuries. Nailers took long thin rods of iron and hand formed each individual nail. The resulting nail is distinctive from later machine-made nails in that the shank of the former is square in cross-section and tapers to a sharp point. The heads of hand-wrought nails are large and broad, often with four distinct blows of the headers hammer visible, giving them a distinctive “rose head” appearance.

A total 38 machine-cut nails were recovered from the Knoll excavations. One hundred and eighty were recovered from the 22 Water St. testing. The shanks of machine-cut nails are rectangular in cross-section, which is a result of the cutting of nail blanks from a flat sheet of iron versus hand hammering each nail. Machine cut nails initially were individually headed but later, by the 1820s, had roughly rectangular machine-stamped heads. While hand-wrought nails and spikes were produced since ancient times, by the late eighteenth century they were replaced by partially machine cut nails between 1790 and 1825, with the machine cutting the nail shanks and a human finisher applying the heads by hand. By 1825 machines had been developed to crudely make the heads and by 1840 the heads and shanks were completely machine-made. Machine-cut nails continue to be produced until the present time. Eventually, by 1890s, round-shanked wire nails, which were first produced in the 1850s, began to dominate the nail market, replacing the machine-cut nails and continuing in use to this day.

Both whole nails, nail shank fragments and nail shanks with heads attached were recovered. A minimum number count of nails based on a count of the whole nails and the nail shanks with heads attached gives a figure of 319 hand wrought nails being present in the collection.

### **Flat Glass and Window Leads**

A wide variety of colors of flat glass were recovered, ranging from clear to dark olive. It is believed that the darker glass (the aqua, dark aqua, light olive, and olive) was used with the older house while the lighter glass (the light aqua and clear) date to after 1800. The range of glass colors is likely related to windows being replaced during the life of the house and to the lack of consistency in color for hand made window glass due to variations in impurities and manufacturing. All of the quarrels, the small diamond-shaped panes used to make a seventeenth to early eighteenth century window, would not have come from the same manufacturer and the salt-box may have reused some of the earlier windows. This would have led to a variety of shades of green being present even in one window.

A total of 244 pieces of flat glass were recovered from around the house. The majority of these were colored dark aqua or aqua. Associated with the glass are nine pieces of lead originally used to hold the diamond-shaped quarrels in place. These window kames are H-shaped in profile and are commonly found on houses dating to the seventeenth to early eighteenth century. They were eventually replaced with casement windows bearing rectangular panes similar to those found in houses today. The window leads were eventually removed and the lead melted as evidenced by the fragments of twisted lead kame that were recovered. Six window leads were recovered from the Ezra Perry II (Aptuxet Trading Post

Museum Site) in Bourne. All of them are of the standard H shape and at least 2 have the following printed on the interior : "W.M. 1675 I.P.". This is the manufacturers printing to insure quality control. These turned leads in generally date from the seventeenth into the first half of the eighteenth century (Hume 1969:233). The leads from the Water St. house were opened and one contained letters and a date of 1677.

One additional architecture related item was a spring from the interior of a door lock. The spring was found at the northeast corner of the house in the demolition debris.

### Glass

Glass artifacts that were expected to be encountered included flat glass from windows, mirrors, picture frames and lanterns, curved glass from bottles and hurricane lamp chimneys, pressed glass from candlesticks, oil lamps, tablewares, and decorative items and buttons. Glass fragments were analyzed in much the same way as the ceramics with vessel types and manufacturing techniques being identified and cross mending within and between contexts being attempted. An low occurrence of patent medicines, fairly ubiquitous artifacts from sites occupied from the middle nineteenth to early twentieth centuries, representing a shift from herbal remedies among rural inhabitants for those provided by medical science, may indicate the degree of reliance on home and local remedies versus the purchasing of quack cures that were mostly alcohol by the inhabitants of the site.

Color can be used as a dating tool for glass (Stelle 2001). Clear lead glass was first produced in the 1770 and continued to the present day. Lead glass was used for table wares such as pressed glass, wine and drinking glasses and lamps. Clear soda-lime glass was first used in 1860 and continues to the present. Soda-lime glass was used for bottles. Solarized glass, glass with a purple, pink or amethyst tint to it (a result of manganese being added to the glass) was first produced in 1880 and continued until 1918. Dark olive green "black" glass, which was only used for wine bottles, was produced until 1870.

Different classes of vessel glass were distributed unevenly, in most cases, around the house (Table 12).

Table 12. Distribution of vessel glass

Type	22 Water St	Knoll	Knoll SE	Knoll SW	Knoll NE
<b>Wine Glass</b>	1	1	0	1	0
<b>Wine Bottle</b>	2	8	0	7	1
<b>Milk Glass</b>	2	0	0	0	0
<b>Small Bottle</b>		8	0	8	0
<b>19<sup>th</sup> Century medicine</b>	5	1	0	0	0
<b>Hurricane Chimney</b>		1	0	0	0
<b>Machine-Made Bottle</b>	9	15	0	12	0
<b>Glass Slag</b>	1	1	0	0	2
<b>Sandwich Glass</b>	1	1	0	0	1
<b>Case Bottle</b>	8	8	0	7	1

Drinking glass fragments from two vessels were recovered, one from 22 Water St. and one from the Knoll. No vessel glass was recovered from the southeast corner of the house while the southwest had

the highest occurrence of machine-made glass due to the presence of several fragments of a modern brown beer bottle. Glass slag, some coming from the Boston and Sandwich Glass Works at Jarvesville, were recovered across the project area.

Hand blown bottles were represented by wine bottles, a small seventeenth century medicine bottle and possible case bottles. Possible case bottle fragments of flat glass were identified by their thickness which was greater than .08". The majority of the flat glass was well under .08" thick, averaging .05" thick. Hurricane lamp chimney glass (post 1859) was found on the knoll. Machine made bottle glass (dating after 1907) was found predominantly in the mot forms around the house at 22 Water St. Nineteenth century mold blown medicine bottle glass was found concentrated around the 22 Water St. house.

A total of 26 hand blown bottle fragments representing a minimum of three vessels were recovered. The body diameters of the wine bottle or bottles was between 12 and 20 cm with an 18 cm diameter base. The small medicine bottle had a base diameter of 8 cm and a body diameter of 10 cm.

Diameters indicate that these bottles date to the seventeenth to early eighteenth century. Case bottles, square bodied bottled that were often shipped and stored in wooden cases with dividers creating separate compartments for each bottle, are often associated with the shipment of refined spirits such as gin (hence their other name "Dutch Gin Bottles"). These date from before 1640 (when globular wine bottles were first produced) to the early nineteenth century. The pharmaceutical bottles are small round bodied bottles used to store any type of liquid medicine or infusion.

### **Fuel Byproducts**

Two types of fuel byproducts were recovered: coal and charcoal. A total of 330 fragments of charcoal were recovered (327 from the knoll and 3 from 22 Water St.). The charcoal was concentrated in the southwest corner of the house. 25 fragments of coal were recovered with most of it (n=17) coming from the house at 22 Water St.

### **Sewing Items**

Two thimbles were recovered, one from the knoll and a more decorated one from the testing around 22 Water St. The one from the knoll probably dates from the seventeenth to eighteenth century but because it was found high up in the stratigraphy, it also could have been dropped by someone at a later time taking advantage of the scenic nature of knoll to do some summer sewing (**Figure 24**).

### **Buttons**

Four nineteenth century milk glass underwear buttons were recovered from the 22 Water St. house testing (**Figure 21**). No buttons were recovered from the Knoll testing.

### **Cufflinks**

One silver cuff link with an engraved letter G on it was recovered from the Knoll in the southeast corner of the house (**Figure 24**). The cufflink that was 1.4 cm diameter. The shape of the cufflink is octagonal and these have been found to date to the first half of the eighteenth century (Noel Hume 1969: 89).



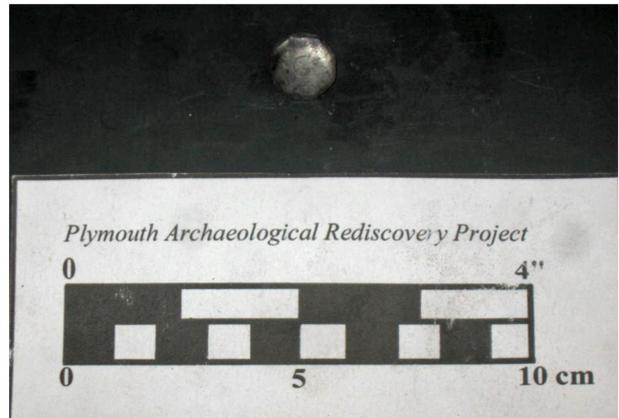
22 Water St TP1 0-20 cm



S9.5 W4 7-10 cm



S9.5 W4 SW Ext 20-30 m



Unit 1N 30 x 6' 0-30 cm repair



Unit 1N 30 x 6' 0-30 cm repair

Figure 24. Personnel items

## **Buckles**

Buckles were used on hats, shoes, knees, belts, and harnesses in the eighteenth century (they were not used on hats until the later seventeenth century). After about 1815, the use of shoe, knee and hat buckles went out of fashion and were then used for belts and harnesses. A total of two buckle and buckle fragments were recovered (**Figure 24**). During the seventeenth and eighteenth centuries the material that your shoe buckles were made of reflected your social class. Cast silver were used by the gentry, brass and copper by those below them, pewter on the those below them, and iron on the simple laborer's feet (Noel Hume 1969: 86). The recovery of a brass buckle from the knoll, which dates to the late seventeenth to early eighteenth century, indicates that the inhabitant was a man of middling wealth. The size of the buckle indicates that it was probably a knee or small belt buckle. The iron buckle is a harness buckle that probably dates to the late seventeenth to eighteenth century.

## **Home Furnishings**

Several metal items related to preparing consumption of meals were recovered. Four possible hearth chain links (three from the knoll and one from 22 Water St.) were recovered. One cast iron kettle leg, one brass kettle repair piece, and two possible bale handle ends were also found on the knoll (**Figure 25**). The kettle leg is cast iron with an apparent molded decoration may date to as late as the nineteenth century. The cast iron kettle leg was recovered from just west of where the hearth and chimney were presumed to be. The other kettle and hearth chain items were found scattered across the excavation area with 2 pieces concentrated in the S9.5 W4 deposit. One additional possible hearth item was a pintle that may have come from a door or from a hearth trammel. This was recovered from S9.5 W4 which contained an appreciable amount of hearth waste. Fragments from four knives were recovered from the S9.5 W4, southeast corner and northeast corners of the house (**Figure 26**). All are of a forged bolster variety. Forged bolster knives, where the blade is forged together with the bolster which fits into a hollow handle, were made from the seventeenth to early eighteenth century.

One iron spoon, dating to the nineteenth century, was found during the 22 Water St. testing. Fragments of three tin-washed latten spoons, one handle and two bowls, were found at the southeast corner of the knoll house (**Figure 26**). The spoons do not have the fig-shaped bowl characteristic of the earlier seventeenth century but are more elongated and characteristic of the later seventeenth to the early eighteenth century. The bowls bowl bear touch marks on the interior close to the junction with the handle. The marks consist of the letters IB on either side of two spoons. This mark was used in the later seventeenth century. One of the bowls bears two drill holes in it indicating that someone attached a presumably wooden handle to a bowl that had been broken from the handle.

## **Mouth Harp**

One iron mouth harp was found in the S9.5 W4 excavation area. Based on the associated artifacts, it dates to the late seventeenth century (**Figure 24**). Mouth harps, also known as Jew's harps, are played by holding the rounded end against the lips or teeth and plucking the thinner metal trip in the middle. They are known worldwide and are called various names such as Gewgaw (England), Maultrommel (Germany), Vargan (Russia) and Guimbarde (France). The name Jew's harp comes from the mis-pronunciation of Gewgaw as Jew harp. Alternately, people have remarked that the name Jew Harp may be a mis-pronunciation of "juice harp" as the uses tends to drool when using it.

## **Tools**

Four tools were recovered- one ax fragment, half of a broken hook, a possible wedge, and a hay or dung fork. The ax fragment may have been reduced after it was broken to be reused for something else.



Figure 25. Kettle and hearth items

The broken hook was found among the chimney demolition debris and may have broken during the pulling down of the chimney (**Figure 26**).

### **Procurement and Husbandry**

This artifact class consists of those artifact that relate to how the people who lived at the site got their food and managed their crops and livestock. It included horse equipment, firearms equipment, faunal remains, floral remains, and shellfish remains.

### **Horse Furniture**

The horse was described by Gervase Markham, the man credited with bringing the Arabian horse to England, as the the “noblest, strongest, and aptest to do a man the best and worthiest services both in peace and war” (Markham 1668:1). The first reference that horse were to be shipped to New England was in 1624 when Mr. Shirley wrote to Governor William Bradford of Plymouth that he had sent “a bull and 3 or 4 jades” from London to the colony but the first evidence that horses were in Plymouth Colony was in 1632 when Governor Winthrop of Massachusetts Bay was afforded the use of Governor Bradford's mare (Phillips 1922: 892). While Bradford's history of Plymouth is silent about the presence of horses in the colony, referencing cattle several times (a term that may lump horses and bovines) he does not mention any horses. The Massachusetts Bay Colony, founded in 1629, arrived with 115 cattle, including 13 horses, and added to their number, up to 60 horses the following year (Phillips 1922: 892). “ 27 Flanders mares” arrived in Massachusetts bay in 1635, leaving Texel and losing none of the stock along the way (Phillips 1922: 893). Flemish horses were large like Clydesdales, being often black, bay, chestnut or gray in color and 16 hands high. These were the strong work horses that carried knights into battle and from which Clydesdales are descended. The stock for the horses shipped to Plymouth and Massachusetts bay were most likely predominantly England and it is known that among the 1629 Massachusetts bay fleet at least three were specifically mentioned as coming out of Leicestershire and the 1635 horses were Flemish (Phillips 1922: 894). Leicestershire horses were another large breed like a Clydesdale from which the Shire horse is descended. Another potential source of horses were Irish hobbies, a small, hardy breed of ponies that were regarded in England as ideal for saddle purposes, the demand resulting in their virtual extinction in their native Ireland by 1634 (Phillips 1922: 894). These may have been the seed stock for the famous Narragansett pacers (Phillips 1922: 895).

Horses were raised free range on colony common land in New England in the seventeenth century. They could be looked after fairly easily if they were placed on islands and necks, but often times the herds ran free throughout more open country, making it difficult to maintain them and identify owners when the horses got into colonial and Native fields. The free-range method also resulted in a deterioration of the quality of the horses through random breeding leading to Massachusetts bay and Plymouth Colony standards of what was an acceptable horse. Massachusetts Bay in 1668, stated that individuals that were allowed to free graze had to be at least 14 hands high. Plymouth and Connecticut set similar limits (Phillips 1922: 896).



Figure 26. Cutlery recovered from the Knoll House Site

Pitchfork S9.5 W4 30-40 SW



Wedge S2.5 E1 40-50 cm



Hook S3 W1 30-40 cm

Figure 27. Tools recovered from the Knoll House Site

By the middle of the seventeenth century horses were common and numerous in the New England colonies, resulting in a gradual drop in the price of a horse over the century, as exemplified by Winthrop's accounting of prices in Massachusetts Bay:

- 1633            £35 for mares (cows £20 to 26)
  - 1635            £34 (for the Flanders mares, £12 for heifers)
  - 1645            £10 (for a costlie horse)
  - 1653            £16
  - 1666            £8 (in Connecticut)
  - 1668            £5 (in Massachusetts Bay)
  - 1677            £3 (for each horse or mare over 3 years old and 40 shillings for 2 year olds)
- (Phillips 1922: 897).

The price drop obviously is a simple case of supply and demand, when supply is low, demand is high. One reason for the great increase in horses was probably the new position the New England found themselves by mid-century- supplier of cattle and horses to the sugar plantations in the West Indies, specifically Barbados. Horses, cattle, timber, boards, staves, and fish were shipped to the West Indies and sugar, molasses, rum, and dye stuffs were shipped to New England (Phillips 1922: 900). Portuguese and Dutch sources exported most of the horses to the plantations before the late 1640s. The exportation of horses from England to the West Indies was especially between 1649 and 1658 and they continued to export them as late as 1667 (Phillips 1922: 902). An increase in the export duty, raised to 20 shillings in 1654, shifted the export from England to New England where the export duty was low (6 shillings in Massachusetts Bay) to entirely absent (Phillips 1922: 902). Winthrop reported that as early as 1647 that “It pleased the Lord to open to us a trade with Barbados and the other islands...which as it proved gainful, so the commodities which we had in exchange for our cattle and provisions, as sugar, cotton, tobacco, and indigo were a good help to discharge our engagements with England.” and in 1648 it is known that 80 horses were shipped to Barbados (Phillips 1922: 903). Massachusetts Bay limited exportation to non-mares and taxing geldings at 6 pence per horse (Phillips 1922: 903). Plymouth had no such restrictions. The Commonwealth Period in England interrupted New England's trade with Barbados, but trade soon picked up after that and continued into the eighteenth century. In Plymouth colony the first occurrence of a horse in a probate record was in 1644 when Edward Foster is recorded as owning a mare. As an aside, Deacon Samuel Fuller was recorded in 1633 as owning the only ass to be found in any Plymouth Colony probate. His ass was worth £10. Few details are available for the types of horses in Plymouth Colony. A survey of hundreds of Plymouth Colony probates revealed the following colors or horses present:

Table 13. Horse colors present in Plymouth Colony

<b>Description</b>	<b>Date</b>	<b>Person</b>	<b>Place</b>	<b>Reference</b>
<b>Bay Mare, Black Mare, White Mare</b>	1659	William Carpenter	Rehoboth	V2:357
<b>Red Colt</b>	1661	Nathaniel Mayo	Eastham	V2: 516
<b>Black Stone Horse</b>	1662	John Browne		V2: 529
<b>White-Faced Mare</b>	1663	Thomas Burman	Barnstable	V2: 542
<b>Gray Mare, White-Faced Horse</b>	1664	Timothy Haterly	Scituate	V2: 439
<b>Black Mare, Bay Horse, Bay Horse</b>	1664	Thomas Lumbert	Barnstable	V2: 419
<b>Gray Horse</b>	1673	Thomas Prence		V3: 60

Markham wrote in 1668 that the best colors for horses were Bay, Dapple-Gray, Roan, Bright-Bay, Black with a white neat foot behind, white for the foot before, white rache, white star, chestnut or sorrel with any of those marks, or dun with a black list (Markham 1668:2). Horses destined for riding by princes or ladies should be milk white with red stains or without or else a fair dapple gray with a white mane and tail (Markham 1668:3). The horse colors recorded in the probates follow Markham's recommendations-bay, black, white, red, gray, and white-faced (presumably either black with white face or bay with white face). One Plymouth probate lists a Hackney saddle. Hackney horses were a breed developed in Norfolk England in the seventeenth century as a riding horse with an excellent trot. The presence of the saddle may mean that Hackneys were also present in Plymouth Colony.

Horses for the coach, called a swift draft horse, a large English gelding and then Flemish mares or frisons were preferred (Markham 1668:4). The horseshoes from the Knoll House Site are fragmentary, but two sizes are present. The smaller size, represented by three pieces, measure 9.5-12.5 cm (3.7-4.9" high) and 10 to 11.7 cm (3.9-4.6 inches) wide. These conform to modern horseshoe sizes of 0 and 00 indicating pony size horses. This pony may have been like a modern Fell Pony or the Irish Hobbies, strong in back but small in size. The other size, represented by two fragments, measure 11 cm (4.3 inches) high and 15 cm (5.9 inches) wide, conforming to modern shoe size 3. This would have been from a Friesen size horse. Friesens originated in the Netherlands and are classified as a light draft horse measuring 14.2 to 17 hands high and being black in color with occasional white marks. They appear to be a multipurpose breed good for harness, or light draft, or riding and originally used in the Early Middle Ages as war horses to carry knights.

The Plymouth Colony probates also help to identify the types of tack associated with horses (**Figures 28**). Saddles, pillions (pillows behind the saddle), pannells (a pad that goes under a horse saddle), bridle, stirrup, horse collars (part of a harness that goes around a horse's neck to distribute a load when pulling a cart or plow), traces (straps or chains that take the stress from the collar to the load), girts (girths, straps that go around a horse's chest), saddle cloth (saddle blanket, similar to a pannell), pack saddle tree (device placed on a horse's back to carry a heavy load), side saddle (woman's saddle), fetters (hobbles for horses designed to restrict movement), spurs, and horseshoes. From the types of equipment present in the probates it appears that horses were being used as draft animals, pack animals, and riding beasts.

Nineteen horse related artifacts were recovered (Table 14 and Figure 29) with the majority

Table 14. Recovered horse related artifacts

<b>Artifact</b>	<b>Location</b>	<b>Count</b>
<b>Bridal Bit</b>	S9.5 W4 SW Ext 20-30 cm	1
<b>Bridal Bit</b>	S9.5 W4 20-30 cm NW	1
<b>Horseshoe Fragment</b>	U1 Shovel test 0-30 cm	1
<b>Horseshoe Fragment</b>	S7 E02 20-40 cm	1
<b>Horseshoe Fragment</b>	S9.5 W4 NW 0-30 cm	1
<b>Horseshoe Fragment</b>	S9.5 W4 SW 30-40 cm	1
<b>Horseshoe Fragment</b>	S9.5 W4 SE Ext 20-30 cm	1

<b>Horseshoe Fragment</b>	S9.5 W4 30-40 cm	1
<b>Horseshoe Fragment</b>	U14 10-20 cm	1
<b>Horseshoe Nails</b>	S9.5 W4 Ext SW 0-10 cm	2
<b>Horseshoe Nails</b>	S9.5 W4 SE Ext 20-30 cm	2
<b>Horseshoe Nail</b>	S5.5 E.5 0-20 cm	1
<b>Horseshoe Nail</b>	S9 W4.5 Level 2	1
<b>Horseshoe Nail</b>	S9.5 W4 SW Ext 20-30 cm	1
<b>Horseshoe Nail</b>	U1BN 0-20 cm	1
<b>Harness Buckle</b>	U30 10-25 cm layer 2	1
<b>Spur Buckle</b>	S9 W4 20-30 cm	1
<b>Domed Harness Stud</b>	U9 10-20 cm	1
<b>Domed Harness Stud</b>	S9.5 W4 SE Ext 20-30 cm	1

(73.7%) coming from the S9.5 W4 area. Horses were used for pulling carriages and for transporting individual riders. Oxen would have been used for the heavy manual labor required to pull wagons, stone sleds, and plows.

### **Firearms Equipment**

A total of four English gunflint and two fragments were recovered from the Knoll House Site. The flint was gray in color, meaning that it likely came from an English versus French source. Gunflints arrived in New England with the first explorers and continued in use until the later nineteenth century when flintlock firearms were replaced by cap fired pieces. The occurrence of a large amount of flint working debris from a colonial site is very unusual. Often times a few flakes, a strike-a-light to start fires or a few gunflints will be recovered from a site, but it has long been assumed that the colonists did not actively work a great deal of flint (Faulkner 1987: 153). The gunflints which resulted from the knapping activity appear to be very basic and crude. Essentially, a flake was struck from the core and then was slightly worked on one edge to straiten it so it would produce a better spark. Flint occurs in Europe most commonly in the form of nodules which erode out of chalk cliffs. The nodules often end up at the bottoms of rivers and beaches at the bases of such cliffs. Nodules which erode out of chalk cliffs and are recovered at the bases of cliffs such as those at Dover, England, maintain a cortex which has a chalky appearance. Nodules which had been water tumbled in a river or on a beach do not maintain the chalky surface on the cortex. The reduction sequence at the site for the production of gunflints, is hypothesized as follows. A suitable nodule was selected and placed on a hard surface such as a table or large block of wood. A hammer was then used to knock off a spall from one edge of the nodule. This spall was then further reduced either by splitting it again with a hammer or merely by trimming the edges into a roughly square shape possibly with pliers. The worker then returned to the nodule to remove another spall and sequence was followed until nothing worth working was left of the core. There are three main types of gunflints which have been reported in the literature. The first is a the bifacial gunflint which has also been called the Nordic gunflint. These are believed to have been manufactured in the Jutland in Denmark and can be identified by the fact that they are flaked on both faces of the flint. Witthoft dates these to 1620-1675



Figure 28. Medieval horse equipment



Figure 29. Horse equipment recovered from the Knoll House site

(Witthoft 1966:22). This is a form which was also used by New World Natives when first producing gunflints. The only other Plymouth Colony site which has yielded a bifacial gunflint is the Allerton-Cushman (C. 1630-1632, 1650-1690) site in Kingston, Massachusetts. Apparently, this being the earliest type of gunflint, it would be associated with early sites.

The second type of gunflint is called the gunspall or Dutch flint. In the 1970s much debate had gone on as to whether or not these were actually produced in Holland as Witthoft states. Stephen White convincingly argued that they were in fact a product of England which was replaced circa 1780 by the blade technology for producing gunflints. Gunspalls result when short flakes are struck either from the concave or convex surface of a flint core. They are bulbous near the point of impact, taper to a feather edge, and have been described as wedge shaped. The flake is usually trimmed about the sides and near the bulb forming a rounded heel while the termination is usually left thin and square. The thin termination strikes the battery. Witthoft feels the Dutch were the main producers of them, and that they date from 1650 to 1700. While Witthoft's assertion that they were produced only by the Dutch as been overruled, the date he gives for their introduction is felt to be essentially correct. These were felt to have replaced the bifacial gunflints as lithic technology became more time efficient in producing a working gunflint in the shortest amount of time. This was the type of gunflint recovered from the Knoll House site.

Using experimental archaeological techniques, that a rough functional gunspall can be produced by a laborer vaguely familiar with flint knapping in approximately 3-5 minutes. It has also been found that when producing gunflints in this manner, little waste remains and cores can be worked down until they are virtually indistinguishable from lithic debitage in an assemblage. The author believes that the advantages to producing a gunflint this way was that a great number could be produced from a single 3 pound flint nodule in a relatively short period of time using relatively unskilled labor. The disadvantages are that this type of flint was found, in replicative studies, to be more damaging to the striking surface of the frizzen and eventually would wear out a frizzen faster than using a professionally produced gunspall would. This is due to the fact that the striking surface of the flints at the Knoll House site, as well as those in the replicative studies were not as straight and smooth as professional flints. As a result they have a tendency to score the frizzen face in certain areas more than others, producing small gouges in the face. Professionally produced spalls, and especially blade flints are found to have a straighter more even surface which strikes the frizzen. This may be one of the reasons the blades eventually replaced the spalls.

The final type of gunflint is the blade or French gunflint. These were in production by 1643 in France, and it is felt that the English adopted the technology in the later part of the 18th century. This technique produces a superior product with less waste than the spall gunflints. The blades are long, prismatic flakes, triangular or trapezoidal in cross-section, which have been struck from a polyhedral core with a hammer. Generally they have one facet on their ventral side and two or three on the dorsal side (Figure 1). Their production began as early as 1643 at Meusnes in France and are generally produced out of tan or blonde flint characteristic of the region (Edeine, 1960). They are believed to have replaced the gunspalls by 1750.

The nomenclature relating to gunflints identifies five main parts to any type of gunflint. The definitions used here are taken from the French mineralogist Deodat Guy Sylvain Tancrede Gratet de Dolomieu, hereto referred to as Dolomieu, who published his nomenclature in 1797:

"The parts of a gunflint which will be referred to in the following discussion are:

Match: ending in a slightly sharp bevel, hits the battery. The match must be 2-3 lines (5-7mm) wide; if larger, it would be too fragile, if shorter, it would give less sparks.

Sides/ lateral margins: are always slightly irregular

Heel: opposite the match, has the full thickness of the flint

Under surface: is uniform and somewhat convex

Seat: The small superior face located between the edge which ends the match, and the heel; it is slightly concave; the jaws of the cock bear upon it to keep it in its place

(Dolomieu 1797: 709).

The most common style of spall gunflint is roughly rectangular in shape and the heel often bears traces of the parent nodule's cortex. This is an unreported style of spall gunflint, and because it does not fit the classic definition of a spall flint, it may have been missed in assemblages from other researcher's sites. It is the author's belief that this represents a gunflint style which only loosely took its precedent from European manufactured flints. This style of flint will heretofore be referred to as advantageous spall style gunflints.

Advantageous flints result when the knapper working the flint core was most interested in producing quantities of serviceable flints as opposed to quality or "classic" spall gunflints. The production of advantageous flints can result from either a conscious effort on the part of the knapper to produce as many gunflints as possible from a limited supply of raw material, they may be the result of the inexperience of knapper in producing gunflints, or they may be a combination of the two factors. The advantageous flints from the Clarke site exhibit fine chipping along the match and often the sides although it is not always present. This chipping is a result of pliers being used to trim the edges to a roughly rectangular shape and to bevel the match. Some of these gunflints appear to be nothing more than a single relatively thin flake struck off the core and trimmed while others are thicker and the exhibit a trapezoidal shape in cross-section. Advantageous gunflints may have been an attempt by a supplier to the military to cut cost and increase profit on a good that they were contracted to supply.

The sizes of all of the classes of gunflints hints at the types of firearms they were intended to serve. The range of sizes (in millimeters) can be seen in figure 5. The smaller size flints, those below 1.7cm (5/8") most likely were made for pistols. The most common size of the flints were between 2.1 and 3.5cm (7/8-1 5/16"). These would fit locks on muskets and fowlers. One very large flint was recovered at the RM/ Clarke site. This advantageous spall type gunflint was 4.2cm (1 8/16") wide on its striking edge. A gunflint of this magnitude would fit only one type of gun in use in the period, a wall gun (**Figure 30**).

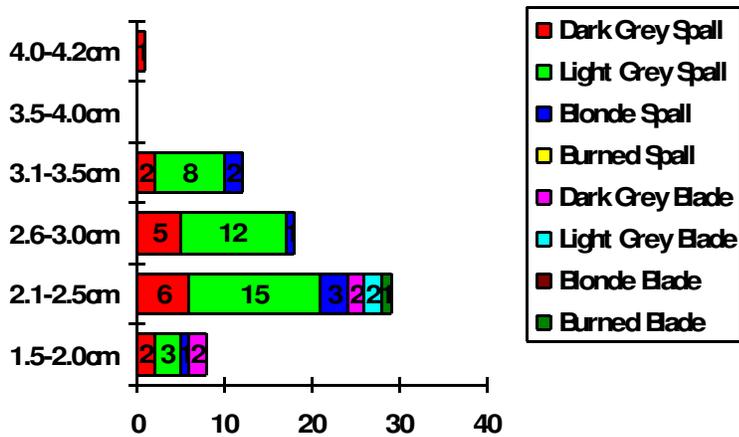


Figure 30. Comparison of spall and blade gunflints from the C-1 site

The gunflints from the Knoll House site measured between 1.8 and 2.5 cm long and 1.2 and 1.7 cm wide (Table 15) (Figure 31). The all fit the size of flints used in muskets and

Table 15. Gunflints recovered from the Knoll House Site

Location	Length	Width	Thickness	Type
S7 E02 20-40 cm	2.5 cm	1.6 cm		Musket
S9.5 W4 Sw 30-40 cm	2.5 cm	1.2 cm		Musket
U51 0-22 cm	1.8 cm	1.7 cm	.9 cm	Musket
S9.5 W4 SE Ext 20-30 cm	Fragment			Unknown

fowlers. Two iron artifacts were recovered that were interpreted as possible bolt to attach the lock to the stock and a possible piece of a lock plate. The bolt may be from a snaphaunce musket, the same type that killed King Philip/ Metacomet effectively ending King Philip's War in 1676.

### Faunal Remains

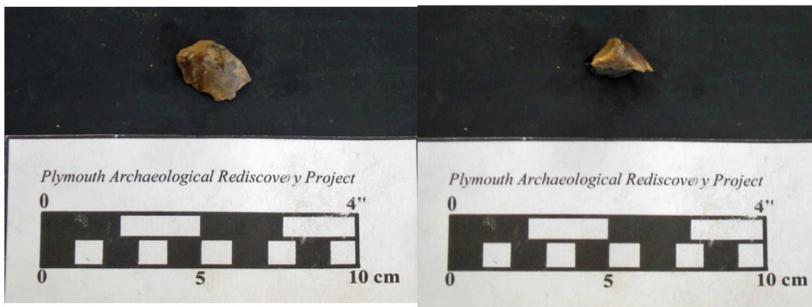
David Landon's study of the seventeenth through nineteenth century provisioning systems in Boston came to the following conclusions regarding urban versus rural butchery, body part representation and kill-off patterns. Landon found broad similarities in the taxonomic representation in all the assemblages with domestic mammals dominating the mammalian portion of the assemblage and a variety of domestic and wild birds and marine resources. It was hypothesized, and verified, that wild fauna may be better represented in the rural assemblages versus the urban ones (Landon 1996:117). Reitz, working in the southeast, found that urban assemblages had a greater range of domestic species, more domestic birds, fewer wild mammals, fewer reptiles, fewer fish



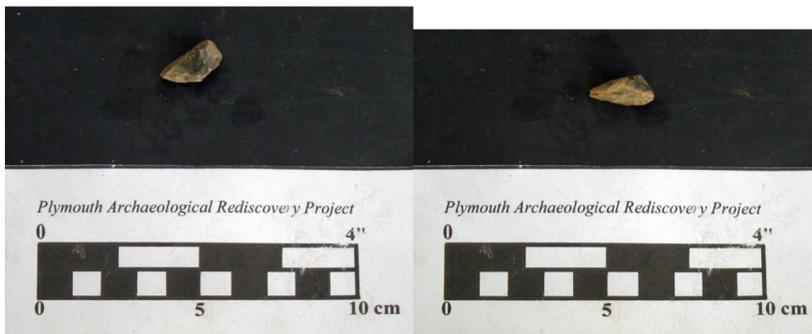
S9.5 W4 SW 30 40 cm



Unit 51 0-22 cm



S7 E2 20-40 cm



S9.5 W4 ext SE 20 30 cm

Figure 31. Gunflints from the Knoll House Site

and a wider variety of commensal species (Reitz 1986:54-56). Landon found that deer and opossum were present in one urban assemblage but many more were recovered from rural assemblages. Twelve different wild bird species were present in the rural assemblages versus only five in the urban ones. Landon's second hypothesis was that urban assemblages would have exotic species present due to trade connections in the city. This hypothesis was not supported as no exotic species were identified. For domestic species, Landon found that sheep were better represented in the urban assemblages than in the rural ones, a finding supported by the body part representation at the urban sites as well. He identified this as an urban versus rural dietary difference, probably the result of small farmers selling excess animals in urban markets.

### **Body Part Representation**

The basic premise of the study of body part representation was that there was a degree of spatial separation of different processing stages in urban areas and this orientation towards the exchange of meat cuts will be evident in the body part representation (Landon 1996:119). If, in a rural context, certain parts were removed from the butchery process early before the animals got to the urban markets, then these elements should be present in the rural assemblage and absent from the urban assemblages. Landon found that this hypothesis was supported for sheep and cattle where metapodials and phalanges were under represented in the urban deposits. The idea that meatier elements would be over represented was also supported by the cattle and sheep remains. For these species, more upper fore and hind limbs were present in the urban deposits. This did not hold true for swine remains. In general though, Landon found that the evidence for differential body part representation between urban and rural contexts was not very strong (Landon 1996:119).

### **Butchery Patterns**

There are three steps to the butchery process: primary, secondary and tertiary. Primary butchery involves the killing, bleeding, evisceration and skinning of the animal. This stage does not show up well on the bones with the only evidence being skinning cuts around the ends of the metapodials. Secondary butchery involves the division of the carcass into major portions. This generally involves removing the head, splitting the carcass into two halves and dividing the halves into cuts. Tertiary butchery is the consumption phase. This may involve smashing bones to remove marrow, chopping the mandible to remove the tongue or cutting meat off of the bones. Landon's hypothesis regarding butchery patterns were that in urban areas animals will be divided into smaller more standardized portions and that there would be clear evidence for the differential use of various body parts, basically that there would be more secondary and tertiary butchery marks in urban deposits (Landon 1996: 120). No evidence was found to support Landon's first hypothesis and no evidence was found to show that urban butchery was more standardized than rural. The types of tools used to butcher was also found to be the same in urban and rural assemblages and variable due to the size of animal butchered. The only difference was found in the butchery marks related to skinning where Landon found the rural assemblages to contain more skinning marks, a possible indicator of greater desire to have a complete skin. The final conclusion relating to butchery patterns was that urban butchers did little in the way of butchery and that most of the carcass division was done on the urban houselot, with only the feet of cattle and sheep being removed by the butcher.

The pattern of butchery from the 17<sup>th</sup> to 19<sup>th</sup> century changed as more standardized meat cuts became commonplace. Essentially new ways of creating certain cuts of meat were introduced and become evident archaeologically on the swine humerus and femur and cattle scapulas.

### Kill-off Patterns

Landon found that seasonal slaughter patterns were similar for both urban and rural contexts (Landon 1996: 122). It is believed that as specialized husbandry to supply meat to urban markets increased, urban assemblages will become dominated by younger individuals. Age profiles including older individuals may show evidence of different husbandry practices with age of slaughter being based on use. Essentially, animals raised for meat are slaughtered before adulthood but after they have attained maximum meat weight, for example 18-24 months for swine. Cattle and sheep remains showed that they were not being raised solely for meat at this time. It does appear that some animals were culled from the herd and sold for urban markets. It would be expected that urban assemblages would contain more young animals and rural ones more older and young. Unfortunately, Landon failed to find any clear evidence of this difference in his study (Landon 1996:123). The cattle all appear to be very old or very young while the swine ages appear to be fairly consistent at approximately 18-24 months with a few younger and older present. Sheep appear to have slaughtered at a wide variety of ages with no real pattern. Seasonally it has been shown by Bowen in her study of the Sheffield, Connecticut husbandry system that slaughter was closely tied to the agricultural cycle. Swine and cattle, both large animals that took time to butcher and preserve, were found to have been killed in the coldest months while lambs and calves were killed in the summer and adult sheep in the late summer and fall. This finding was supported by Landon's study of micro growth patterns seen in the teeth from the various assemblages.

Landon did not find that specialized husbandry designed to supply the urban market by the rural farm was evident archaeologically. The decisions as to which individuals were culled had more to do with rural conceptions of the value and use of domestic animals as opposed to market demands. Essentially it was found that rural values shaped the urban market and not the other way around.

### Shellfish

A total of 213 fragments of shell representing five species were recovered (Table 16). One species was

Table 16. Shellfish recovered

Species	22 Water St.	Knoll House Site
Crepidula		1
Oyster		9
Quahog	12	8
Soft-Shell Clam	4	4
Surf Clam		2
Unidentified		2
<b>Totals</b>	<b>16</b>	<b>26</b>

a gastropod [*Crepidula*] and it was probably not consumed but either arrived at the site attached to other species. The remaining species, oyster, quahog, surf clam and soft-shell clam, are all believed to have been consumed with some possibly having been mixed with the mortar to add temper.

The Northern Quahog (*Mercenaria mercenaria*) is one of the most common shellfish remains from archaeological sites. Quahogs are found within sheltered bays and estuaries with a salinity of at least 10

parts per thousand, preferring to live in a sandy firm bottom that can provide attachment points for its young (Chesapeake 1988: 86). This large bivalve has a dark purple "eye" one inner edge of each shell, and as the quahogs grows and the shell thickens, so too does the eye. Quahogs can attain a maximum length of 10.9 centimeters long (Amos 1986:402).

The Eastern Oyster (*Crassostrea virginica*) is a species with fairly demanding requirements for growth and reproduction. Oysters need a salinity of at least 5 parts per thousand and as a result are found at estuary mouths and even several miles up rivers where there is considerable mixing with seawater (Coke 1983: 37). Along with their salinity requirement, oysters are one of only two bivalves from the site that require firm substrate, preferably one with a minimum of 50 percent clutch to anchor onto. The clutch can be in the form of rocks, shells, gravel, shell hash, or old oyster beds (Chesapeake 1988: 86). They can grow up to 20.5 centimeters long, or longer if you believe the seventeenth century reports, and occur in water intertidally to 12.2 meters deep (Amos 1986 406). Oysters are preyed upon by oyster drills and whelks (Chesapeake 1988: 86).

Soft-shelled clams (*Mya arenaria*) and Surf clams (*Spisula solidissima*) represent the most common bivalve recovered from the site. Both species lives in sandy, sandy-mud or sandy clay substrates of bays and inlets intertidally to depths of up to 9.1 meters, generally preferring stiff sands and mud. Soft-shell clams average from 7-150 millimeters long with most of them being under 100 millimeters and adults can number from six to eight per square foot, burrowing up to 30 centimeters into the sand. Surf clams grow up to 20 cm long and prefer coarse to fine sand substrates. Predators for both include the moon snail, the oyster drill and the blue crab.

## **Vertebrate Faunal Remains**

The first mention of livestock in Plymouth Colony was in March of 1623 when Edward Winslow, one of the leading men in Plymouth Colony, desired to make chicken soup for the ailing Native sachem Massasoit. At this time Winslow sent a messenger back to Plymouth to get a bottle of drink and "also for some chickens to make him (Massasoit) broth" But when the messenger returned with the chickens. "he (Massasoit) would not have the chickens killed, but kept them for breed." (Winslow 1623: 34). In September, Emmanuel Altham was visiting the colony and he noted that "here is belonging to the town six goats, about 50 hogs and pigs and diverse hens." (James 1963: 24).

### **Cattle**

The first cattle did not arrive in Plymouth until the following year when Edward Winslow returned from England with three heifers and a bull (Bradford 1984: 141). It is not known exactly when sheep first arrived in Plymouth, although it is suspected that Myles Standish brought them back from England in 1625. The first reference to sheep is in 1627 in a trade between Standish and Abraham Pierce where Standish traded Pierce two ewe lambs for Pierce's share in a cow (PCR Vol 1 1627: 15). In 1627, the Plymouth Adventure was bought from their Merchant Adventurer backers in London by several of the chief men of the Plantation, afterwards known as the Undertakers. Following this purchase, the colony agreed to stay together for a period of five years to repay the Undertakers. To this end the entire stock of the company was divided. This included the cattle, goats and swine " At a publique court held the 22th of May it was concluded by the whole Companie, that the cattell wch were the Companies, to wit, the Cowes & the Goates should be equall devided to all the psonts of the same company & soe kept untill the expiration of ten yeares after the date above written & that every one should well and sufficiently pvid for there owne pt under penalty of forfeiting the same.

That the old stock with halfe the increase should remaine for comon use to be devidid at thend of the said terme or otherwise as ocation falleth out, & the other halfe to be their owne for ever. " (PCR Vol 1: 9). There were a total of 22 goats and 17 cattle recorded.

The cattle of England were described in very Anglicentric terms by Harrison in 1587 as being the best in all the world with horns that were fairer and larger, spanning three feet tip to tip, than anywhere else. Harrison also stated that the cattle in England were larger than any other with the average ox standing as tall, presumably at the head, as the average man (Harrison 1994: 306). Almost thirty years later, in 1614, Markham echoed these sentiments in a slightly more reserved way when he described the cattle of the seventeenth century. While the concept of "breeds" of cattle was such as the Holsteins, Gurnseys, etc. that we have today was not in use in the seventeenth century, animals from certain areas were noted as being physically different and possessing of different qualities. Markham noted three main types of cattle the black, the red and the pied or spotted. Black cattle were said to be found primarily in Yorkshire, Darby-shire, Lancashire, and Stafford-shire and it was preferred that the black cow be all black, with only the udder being allowably white (Markham 1614:43). Red cattle were found in Somersetshire and Gloucester-shire and pied cattle were found only in Lincoln-shire. The areas above noted were identified as the places where the best cattle came from. The ideal milk cow was identified as having a " stately shape, bigge, round, and well buckled together is every member, short joynted, and most comely to the eye" (Markham 1614: 42). Googe added that cows should be "high of stature, and long bodied, having great udders, broad forehead, faire hornes, and smooth" (Googe 1614:: 121). The ideal draught cattle was to be " exceeding tall, long and large, leane, and thin thighed, strong hooved, not apt to surbaite" (Markham 1614:42). Googe elaborated on this and stated that male cattle, whether they were bulls or oxen should be:

"large, (with) well knit, and sound limbs, a long, and large, and deepe sided body, blacke horned, broad foreheaded, great eyed and blacke, his eares rough and hairy, his calves to be large and wide, his hippes blackish, his neck well brauned and thicke, his dewlappes large, hanging downe from his necke to his knees, his shoulders broad, his hide not hard or stubborne in feeling, his belly deepe, his legges well sette, full of sinewes, and straight, rather short then long, the better to sustaine the waight of his bodie, his knees straight and great, his feete one farre from the other, not broad, not runing in, but easily spreading, the hayre on all his body thicke and short, his tayle long, and big hayred." (Googe 1614: 121). Both authors noted that when breeding a heifer or cow that the bull should be of the same color as the cow, so as not to mix the qualities of the types (Markham 1614: 43)

Cows were seen as having two main uses, for dairy and for breed with red cows being known for their high milk production and black cows for their "ability to bring forth the goodliest calves" (Markham 1614: 44). All types of cows were believed to be most productive from age three to 12 years old with the advice being given that one should not breed a heifer under three, that older cows give more milk and that after 12 years old the cows were no longer good for breeding (Googe 1614: 121). Each year the farmer was advised to sort his stock so that the old cows that were bareine or unfit for breeding could be put away, sold or used for the plow in the same way that oxen were (Googe 1614: 121).

Putting the bull to the cows and heifers was recommended to be done in the fall and it was noted that on average the farmer could expect one bull to be able to service 20 cows and heifers with some towns and small communities having one bull that was used communally by all (Googe 1614: 122). After the cows and heifers have calved in the spring, it was recommended that the calves be sorted into those males that would be brought up as bulls and those to be gelded for steer or oxen and the females which would be brought up for breeding stock and milk and those that would be spayed for service or meat (Markham 1614: 44; Googe 1614: 221). It was recommended that any gelding or spaying to be done be

done in the spring or fall when the flies were dormant and the calves were about three months old (Googe 1614: 122). Training of the gelded males that were to be raised as oxen began at the earliest when they were about three years old but no later than five years (Googe 1614: 123).

The cattle present in 1627 in Plymouth included black, red, white-backed and white-bellied varieties. The black cattle may have been of a breed or similar to those today called Kerrys. Kerry cattle are descended from ancient Celtic cattle and were originally Native to County Kerry Ireland (Christman, Sponenberg and Bixby 1997: 30). While Kerrys were not imported into England from Ireland until the 1800s, the native English breed of black cow may have originated from the same ancient Celtic stock.

The white backed cow and the white bellied calf that were mentioned in the cattle division may be what we consider distinct breeds today, but more likely they are black cattle with white markings. It was once common for black cattle such as the Kerrys to be born with patches. The presence of white on the black cattle is a dominant genetic characteristic and thus shows up fairly regularly. Today for the standardization of the breed, white markings are not accepted for registration of an animal and as a result the presence of white markings on black cattle such as Kerrys is not encouraged. Black cattle in general were believed to be very hardy types that could survive in low forage areas and were prodigious breeders.

The red cattle were probably from the southwestern section of England in the Devon area and to its immediate east. These probably are of the breed today called Milking Devons. Red cattle were believed to be hardy and excellent milk producers.

As the century progressed, other colors of cattle show up in the probate records such as brown, white, pied, staved, brindled and white faced. Some of these may be genetic variants of the initial stock, such as the brown, staved and white faced, while others may be the result of new stock being transported into the colony from England or other colonies. By far the most common color in the 17th century was the black cattle. Cattle were very important to the lives of the dairy loving English and within a decade of their initial arrival, they became an important trading commodity with the Massachusetts Bay Colony. It was determined soon after the arrival of these settlers that a good profit could be made selling them cattle and corn. New meadows were laid out to the north of Plymouth at what is now Marshfield and it appears from the dramatic increase in the number and frequency of occurrence of cattle in the probate records, that many people believed that this would soon prove financially beneficial to any who could raise a few cattle. By 1638 livestock prices had risen dramatically in Plymouth Colony with the average cow selling for between 20-28 lb a piece, a cow calf for 10 lb, a milk goat for 3-4 lb and female kids for 30-40 s (Bradford 1984: 302).

Unfortunately, as is always the case, what goes up must come down, and dramatically so for Plymouth Colony. By the 1640s, the Great Migration to the Massachusetts Bay Colony had been reduced to barely a trickle with the threat of civil war looming in England. With a dramatic decrease in the number of people arriving in New England came a dramatic decrease in the number of cattle and kine that were desired by persons in Massachusetts Bay and as a result, a dramatic drop in cattle prices. By 1640 the price for a cow had dropped to an average of 5 lb while goats were now selling for 8-10 shillings instead of 3-4 pounds (Bradford 1984:310). A good example of this was a cow that belonged to Isaac Allerton which the colony was using to settle a debt. The colony valued the cow at 25 lb initially, but by the time agreement was reached concerning the settlement, the cow was worth 4 pounds 15 shillings (Bradford 1984: 312). This dramatic fall in prices is recorded as having a devastating effect on the economy of Plymouth Colony that appears to have thrown itself full force into supplying Massachusetts Bay.

## Swine

No seventeenth century writer encountered thus far ever took note of any particular area of England as the home of an exceptional or even mentionable breed of swine. It appears that due to their ubiquitous and unexceptional nature, swine specific types of swine deserved no real mention. What were considered worthy of mention were the characteristics of a good swine, their uses and their feeding. Unlike cattle or sheep, swine served on main purpose, to live to die to be eaten.

Markham described the best qualities of the swine as " long and large of body, deepe sided, and deepe bellied, thicke thighes, and short legs, for though the long legged Swine appeare a goodly beast, .... and is not so profitable to the Butcher: high clawe, thicke necke, a short and strong groyne, and a good thicke chine well set with strong bristles: the colour is best which is all of on peece, as all white, or all sanded, the pyed are the worst and most apt to take the meazels, the blacke is tollerable, but our Kindgome through his coldnesse findeth them seldome." (Markham 1614: 88). Summarizing Markham, a good swine should be short and stout of all one solid color such as white or tan.

Swine were well known for their propensity to devour just about everything and to root up the ground in search of roots, tubers and the like. They were also well known for being " greedy, given much to roote up grounds, and teare downe fences, he is very lecherous, and in that act tedious and brutish: he is subject to much anger." (Markham 1614: 88). This tendency for swine to root up ground and tear down fences would later prove to be one of the grievances that the Natives in New England had against the English, but as can be seen it was a problem for the English as well. This led to laws in England as well as Plymouth stating when swine were required to have a ring placed through their nose which was cinched with a twitcher, making it painful for the swine to push its snout forcefully into the ground. For swine that still were a problem even when ringed, yokes were sometimes required. These yokes fit over the swine's neck much like an oxen yoke and made it difficult for the swine to fit through shall spaces between fence pales or under fences. Ringing seems to have been a common practice from September to January while yoking occurred more often in September and February (Stuart :5). Swine were often fed in the morning then brought out either by families or by a hog master who tended a town pack to the either old fields, marshes to feed on sedges, rushes, or berries or in the fall to the mast forests for nuts, during the day and then brought back to the safety of the sty at night (Markham 1614: 89; Harrison 1587: 312).

Sows were ready to be bred at approximately 1 year old and for up to seven years after she will bring forth one to two litters a year (Markham 1614: 89; Googe 140). Bores were mature enough to service sows at six months, but more commonly they began at one year old (Googe 1614: 140). Boars were kept by individual families, but it was also common practice for towns to have community boars in much the same way as was done with bulls as it was felt that one boar could serve 10 sows (Googe 1614: 122).

After farrowing, males and some females (called spayd-guilts) were gelded or spayed because it was felt that these would "make goodly Hogs, which are excellent Bacon and Porke." (Markham 1614:89). The females were also felt to produce more grease in their bodies. This grease could be processed to make lard which "we make some, though very little, because it is chargeable; neither have we such use thereof as is to be seen in France and other countries, sith we do either bake our meat with sweet suet of beef or mutton and baste all our meat with sweet or salt butter, or suffer the fattest to baste itself by leisure." (Harrison 1994: 312). Young shoates, were felt to make the sweetest porke and were often slaughtered at  $\frac{3}{4}$  to one year old (Markham 1614: 89). It was recorded that most slaughtering was started in November and continued through Shrovetide (late February) (Stuart :7).

The meat from slaughtered swine was sometimes eaten green, often smoked and preserved for the rest of the year and, according to Harrison in the late 16th century, was often used to make brawn. Generally tame boars which were fed and cared for up to two years specifically for the purpose, were believed to make the best brawn, but great barrow hogs were also used, producing better meat that was easier to digest (Harrison 1994:312, 314). Brawn was a type of prepared meat that Harrison noted was not generally known to those off the island. It is made with the forepart of the boar which contained a great deal of fat had its bone cut out and each piece was wrapped up with bulrushes or osiers then boiled in a pot or cauldron together until tender. Afterwards they were cooled and put it into a closed vessel with ale or beer mixed with verjuice and salt and let lie until used (Harrison 1994:314). This was commonly eaten from November through February, especially at Christmastime (Harrison 1994: 313).

## Sheep

Sheep were considered by many to be the most cherished type of livestock in all of England to the point that it was made illegal to export any without royal permission (Harrison 1994:311). The first offense for exporting sheep out of the country was the forfeiture of all possessions, one year in prison and the severing of the left hand that was summarily nailed up in market place. Punishment for the second offense was death (Harrison 1994: 310). These were multi-purpose animals with their fleece being used once only for cloth and worsteds, but by the late 16th century for mockadoes, a wool cloth, baize, velures, or velvet, and grograines, a coarse fabric of mohair (Harrison 1994: 309).

Other uses for sheep were for meat, for dung to manure the soil and for milk which was often added to cheese made with cow's milk to make it remain moist and crisp longer (Harrison 1994: 310, 311). Googe summed up their utility when he stated that "Sheepe doth both with his fleece apparrell us, and with his milke and wholesome flesh nourish us" (Googe 1614: 130). Raising sheep was considered a business until itself in England with some sheep masters having over 20, 000 sheep at one time (Harrison 1994: 310).

Like cattle, different regions of England were known for producing different types of sheep. Those with a curious fine wool were found Herefordshire, about Lempster side; those of very little of bone, blacke faces, and able to beare a very little burthen were to be found in Worstershire, joining upon Shropshire. Sheep of better bone, shape and burthen with a courser and deeper stapel were found in the CotsallCotsall hills. Large boned pasture sheep of the best shape and deepest staple wool much courser than others were found in the part of Nottinghamshire, excepting the Forrest of Sherwood. The largest sheep, but ones with not the best Wool, with long and naked legges and bellies and the coarsest staple were found in Lincolneshire, especially in the Salt Marshes. Reasonably big boned sheep, with a rough and hairy staple were found in Yorkshire and Northward. Finally, sheep with very little and the worst staple were found in Wales, these were praised as the sweetest mutton though (Markham 1614: 64-65)

It was recommended that ewes be selected for breed when they were two years old and that any that are past three years should not be meddled with (Googe 1614: 130). The ewe should have a large body, be deep wooled, and thicke over all the body, especially around the necke and the head, and with a good store upon the belly. It was recommended that the necke be long, the belly large, the legs short, although the sheep of England were known to be long legged, and the tail could be short or very long depending on where they came from. (Googe 1614: :130 Best :6). It was also recommended that the ewes, be dodded or hornless either naturally or through burning, because it was felt that dodded sheep were easier for the shepherd to handle, that they brought forth the best lambs with the least amount of trouble and that they were less prone to infestations by lice and other pests (Best 1641:6-7; Markham 66-67).

The ideal ram was described as one large of body in every general part, with a long body, and a large belly, a broad, round, and well rising forehead, a cheerful large eye, straight short nostrils, and a very small muzzle (Markham 1614 66-67). Some authors like Markham, felt that rams should be dodded as well, as this made them better breeders, while others like Googe felt that the ram must have his horns great, winding inward, and bending to the face (Markham 1614 66-67; Googe 130). Googe felt that in places that were wet, stormy and wild, rams with the largest horns were able to defend themselves better against the storm or tempest and possibly predators, as a rule of thumb, Googe stated that therefore in cold and stormy countries, the horned rams were best whereas in mild and gentle climates, the polled or dodded were better (Googe 1614: 130).

Ewes were bred when they reached over the age of two or three and continued to be bred until the reached age eight or ten (Googe 1614: 131; Markham 1624: 68)). Rams began their service after four or five years of age and continued to approximately age seven when they were felt to "decay" and their "mouths breake" (Googe 1614: 131; Markham 1624: 68). The usual ratio of rams to ewes in a flock was recommended at either 25, 30 or even 40 ewes to one ram (Best 1641: 4, 27-28).

Sheep occurred in a significantly smaller percentage of the probates than either cattle or swine. Their occurrence appeared rather sporadic throughout the century as well, beginning in the 1630s at 38.9% then dropping to 8% in the 1640s, rebounding to 29.5% in the 1650s, dropping to 18% in the 1660, achieving their highest level of occurrence in the 1670s at 73.7% before dropping slightly in the 1680s to 65.4%. The erratic nature of their occurrence in the records probably has to do with the nature of sheep raising in the early 17th century in Plymouth Colony. The occurrence of sheep in the probates and the overall use of sheep appear to have been the result of selective raising by those that owned them. Less egalitarian in who owned them than cattle or swine, sheep were raised by a smaller percentage of the population. For example, the only sheep known to have existed in Plymouth Colony in the 1620s belonged to Captain Myles Standish, who may have brought them back of his own particular in 1625, and who traded only two to another resident in the 1620s. Judging by the historical references by Markham, Googe and Harrison, sheep were considered important to those in England as a source of wool first, possibly meat second and milk third. In Plymouth Colony where there were no fulling mills before the later part of the century, people who were raising sheep were doing so more for their own benefit as opposed as part of a larger economy. Unlike beef and pork, lamb and mutton was not salted and preserved for the winter, it was eaten green soon after it was slaughtered. As a result, when looking at the culture of Plymouth Colony in the early part of the century, sheep can be seen as a perishable foodstuff raised by relatively few people who used them for themselves or possibly sold them for meat. By the later part of the seventeenth century and especially into the 18th century, the raising of sheep commercially was viewed as a possible source of revenue for towns such as Plymouth. The towns who wanted to begin to develop a wool market in southeastern Massachusetts soon set aside large pasture lots for the use of any in town who wanted to take invest sheep in this venture.

Sheep were first imported into Plymouth Colony is 1625, presumably by Myles Standish following his 1625 trip to England. Aside from this anecdotal evidence based on his sale of sheep to Abraham Pierce, little other information is available for the use and history of sheep in Plymouth Colony. Royal permission was granted in 1629 to ship 140 cattle, sheep, horses and goats from Southampton, England to Massachusetts Bay and when the Winthrop fleet arrived in 1630 they came bearing sheep. The Winthrop fleet sheep, because the left England at Southampton, were probably what would be considered of the Wiltshire breed today. Wiltshires can be described as being "horned sheep, with large head and eyes, Roman-nosed, long faced, wide nostrils, horns falling back behind their ears, chest wide and deep, back straight, legs long, and bones large" (Salm 1892). They fatten well and are good wool

producers, being the largest of the fine, medium length wool sheep. The next recorded shipment of sheep to Massachusetts Bay was in 1631 when five sheep, eight heifers, and a calf were shipped from Barnstable in Devonshire, England, in 1633 when 34 Dutch sheep were imported, and in 1635 when 88 Dutch ewes arrived (Salm 1892). Dutch sheep were "rather large, white faced, no horns, long legged, and with a light fleece... mixed Holland and English origin, from the lowlands of Holland and the Texel." (Salm 1892). Even distant locations such as Piscataqua and Norridgewock were recorded in 1635 as having 92 sheep (Salm 1892). By 1640 it was recorded that there were 1000 sheep in the whole colony (Salm 1892). Other breeds that were common in New England were the Romney Marsh, the Herefordshire, the Norfolk, and the old Southdown or Sussex sheep.

Wiltshire sheep gave a fleece that was seldom more than two pounds in weight while the beasts themselves weighed between 150 and 200 pounds. The Romney Marsh sheep from southern Kent had long, thick hearts, broad foreheads crowned with a shock of wool, flat-sided and wide at the loin with narrow breasts, large feet with large bones. They thrived in the winter with little additional feed aside from a little hay and were well adapted to harsh conditions. Their wool was long and coarse (Salm 1892). Herefordshire sheep were a small breed weighing an average of 56 pounds with light bones with soft fine wool (Salm 1892). Norfolk and Suffolk sheep were long and slender with black or mottled faces and legs. They had long, thin faces with strait horns on the ewes and wethers and great curling horns on the rams. Their wool was short and fine that could be made into coarse cloth. They could survive on a variety of pastures and were a good mutton sheep. Sussex (Southdown) sheep were dusky or black and small with long, thin necks with fine black wool (Salm 1892).

The English Civil War (1642-1651) essentially cut the colonies off from many of its English suppliers, forcing them to rely on themselves for the goods they needed. In order to encourage the propagation of sheep in the Colony, Massachusetts Bay ruled in 1654 that no ewes or ewe lambs could be transported out of the country under a penalty of 5 pounds a piece and no rams or wethers could be killed until they were two years old (Salm 1892). The courts recognized the fact that the colony could not rely on any other country as a source of cloth goods, and encouraged households to spin wool, cotton, flax and hemp for their own use with the goal be to spin 30 weeks a year and produce 3 pounds per week of linsey, cotton, or woolin under penalty of 12d per pound short (Salm 1892). Selectmen of the towns were empowered to create and order sheep commons and in 1656 sheep were assessed at 10s per head in order to encourage more people to own more sheep (Salm 1892). By the end of the century towns were producing enough homespun cloth that surplus was being created for trade and export (Salm 1892). This was especially true on Nantucket. The first fulling mill in America was erected in Rowley, Massachusetts in 1643. Fulling is the step in the making of woolen cloth that involves cleaning and thickening the wool, essentially producing clean felt at the end. Fulled cloth is smaller, thicker, waterproof and more durable than other cloths. Fulling involves three steps: scouring, milling, and stretching. Scouring involves placing the dirty wool, water, and fuller's earth into a fulling mill, a simple mill consisting of one or more large wooden hammers (fulling stocks) that pounded the wool. The stocks could be of two types, vertical, which just scoured the wool, and hanging or driving stocks which beat the wool at an almost horizontal angle, turning and tumbling the wool as it was beaten. The head of the stock was triangular with notches at the end to help turn the wool. Further pounding milled the cleaned wool and felted it. Felting was used for short staple wool used for woolens but not for the worsteds, which were made from long-stapled wool. Once the felt was removed from the mill, it was stretched on wooden frames called tenters using L-shaped tenterhooks and allowed to dry. Benjamin Nye was granted permission to build a fulling mill at Spring Hill on August 8, 1675 "The Towne hath given Benjamin Nie liberty to build a Fulling Mill upon a river comonly called Spring Hill river,

provided it doth not damnify the country rode. And Benjamin Nie hath liberty to keep up a mill in the said place as long as he shall see cause to keep up a Fulling Mill in the said place." (NFA 1903: 25).

Following the end of the English Civil War, the wool industry in the colonies continued, especially in the production of hats and stockings, but little effort was made to increase flocks or increase production of local homespun products for export. The American Revolution had the affect of making it a Patriotic obligation to wear colonial versus imported woolens and did to promote an increase in wool production in the colonies. On September 5, 1774 the General Congress that the merchants "...to import no more goods, and all the people to use their utmost endeavors to improve the breed and increase the number of sheep by killing as few of them as possible, and not exporting them, but selling on moderate terms to their neighbors who might need them." (Salm 1892). This, and various local recommendations, resulted in 20, 000 less sheep being killed the following year than in 1774 (Salm 1892). Due to the fact that many colonial farmers left the farm to fight in the Revolution, the character of American sheep suffered during this period and resulted in a massive importation of new sheep from abroad following the cessation of hostilities with 229, 904 being imported from a variety of countries (Salm 1892). By 1800 the average New England farmer had the following in livestock: one or two horses, from one to two yoke of oxen, and from ten to twenty sheep (Salm 1892). Sheep fed on grass in the spring to fall and in the winter on hay, corn, turnips, potatoes, carrot, and pods, straw of beans and peas, and cornstalks with the average cost of keeping a sheep was \$1.50- \$2.00 per year and the cost of eight sheep being equal to one cow and the average weight being 12 pounds per quarter (Salm 1892)

At the turn of the century, sheep raising was still focused on the level of the small farmer. Each farmer had a certain number which were sufficient to provide for domestic use and little attention was paid to improvement. Between 1800- 1810 can be seen as a decade of visible progress in American sheep husbandry. Continued hostilities, a virtual Cold War, with England led Americans to rely on themselves to industrialize the woolens industry and begin to produce finer cloths from the same sheep that formerly were used for homespun. Another factor that was limiting sheep production on a larger scale was the lack of an American market for mutton. Tench Coxe recorded in 1794 that mutton was considered fit for "seminaries of learning and poorhouses" but that it was also consumed by the richer classes in the cities and towns but not popular with the mass of the populous (Salm 1892). The greater appreciation of mutton would have to wait until a better breed was introduced that produced both mutton and wool. The breed that eventually did that was the Merino which was first brought to America from Spain in 1785 and was introduced into Massachusetts in 1801 and were being sold at \$30.00 per pair (Salm 1892). Merinos had an average weight of 270 to 300 pounds and produced 3 pounds of wool. It is estimated that by 1810 there were about 7, 000,000 sheep in America with Massachusetts having 399, 182 (Salm 1892).

The War of 1812 and its embargoes caused Americas Woolens industry to both grow and become static. Domestic use increased as less goods were imported but exportation was all but halted by Britain's blockading of various ports where American goods were formerly shipped (Salm 1892). This also caused an increased appreciation for Merino sheep which prices rising from \$100.00 to \$1000.00 for a single animal that could be crossed which a farmers on hand flock (Salm 1892). Wool prices concomitantly rose from \$1.00 to \$2.00 per pound.

Woolen trade with Britain was always an important factor controlling the raising of sheep in America. When trade was good more sheep were raised, when trade flagged, often so too did Americans interest in sheep. The tariff of 1824 encouraged American woolen manufacture and 2,288 Saxony sheep were

subsequently imported in 1826 to improve the American stock (Salm 1892). But the market became flooded and the benefits of the tariff were essentially neutralized with wool and Saxony prices rapidly dropping from \$30.00 per head top as little as \$6.00 (Salm 1892). The Tariff of 1828 revived interest in Saxony again and enterprising farmers threw their efforts into raising sheep versus crops. The result seemed inevitably ironic, wool prices crashed from 45 cents to 29 cents by 1829. This latest crash proved fatal to the Saxony, who never again gained any appreciable amount of popularity. In 1830 there were 350, 082 sheep in Massachusetts, mostly Saxony Merino crosses (Salm 1892). By 1840 there were 378, 226 sheep in Massachusetts and flocks rarely exceeded 200 or 300 head on a farm with most farms having far fewer (Salm 1892). In 1845 there were 105, 428 Merinos and crosses and 33, 875 Saxonies, in 1855 there were 95, 548 Merinos and crosses and only 6,800 Saxonies (Salm 1892). The total value of wool produced in 1845 was \$923, 420 while in 1855 it was \$464, 889 (Salm 1892). This period from 1845 to 1855 also marks the switch from a fine-wool to a coarse-wool and mutton focus in the sheep industry, principally as a result of the 1846 tariff which was disastrous to the fine wool industry (Salm 1892). Before that date American factories were producing broadcloth equal in quality to any from the Old world but America could not compete in terms of labor costs to the established Old World mills and the production of broadcloth was abandoned (Salm 1892). The factories now shifted to making medium and coarse fancy cashmeres which required long, coarse staple wool, thus fine wool sheep were now valued only for their meat and not their wool. The Civil War increased the demand for both coarse and fine wools, thus increasing the value of sheep and their wool and the sheep population in Massachusetts increased from 123,445 in 1860 to 169,442 in 1865 (Salm 1892). After the war there was a demand for a new woolen, combing wool which has long, moderately fine staple and strong fiber. Massachusetts, which never was a strong supplier of wool, suffered from this shift, and by 1875 the sheep population dropped to 55, 140 with most of the required wool now being provided by the West (Salm 1892).

At the same time that the wool market was breathing its last gasps in Massachusetts, the mutton and lamb industry was increasing as consumption of these increased. Southdowns were the preferred breed and Shropshire or Oxford Down rams were crossed to add size and wool without detracting from "the splendid mutton qualities, aptitude to fatten, quiet disposition, and perfection of form for the butcher, with tendency to twins, and great capacity for milk found in properly bred Southdowns" (Salm 1892). Other breeds that were favored were a cross of Cotswold, Leicester, or Lincoln, which provided size of carcass and length of staple. By the 1890s, the most profitable branch of Massachusetts sheep raising was the growing of early lambs for market with lambs being dropped from January 1 to March 15(Salm 1892).

### **Domestic Species in the Probates**

The occurrence of cattle in probates dating between 1630 and 1680 begins with only 50% of the probates showing cattle present in the household in the 1630s but within a decade had doubled to 100%. This was due to trading with the Massachusetts Bay Colony in the 1630s and the resulting collapse in the cattle stock market in the early 1640s. Following the 1640s, the occurrence of cattle remained fairly level for the rest of the century, dropping slightly to 97.1% in the 1650s but then returning to close to 100% in the 1660s.

Neither in England nor New England did swine ever serve any dual purpose. Swine were raised to eat and while some by-products such as bristles and lard were made use of, this does not seem to have occurred on a regular basis. Swine were present in the probate records fairly frequently with the highest incidences being in the 1630s, when they occurred in 88.9% of the probates, and 1670s, when they

occurred in 100% of the probates. The years between the 1630s and 1670s saw the occurrence of swine drop sharply to 60% in the 1640s, rise to 72.3% in the 1660s, and then drop from 1670s 100% to 72% in the 1680s. It is not known why there was such fluctuation in the occurrence of swine in the probates.

The majority of the swine whose ages were either recorded or can be surmised from their designations, such as "shoates", "suckling" or the use of the term "young" in the probates, indicate a preference for pigs under one year old as opposed to those known to be over one year old. This was the case in all decades except the 1630s where older adult individuals occurred at a ratio of 2.2: 1 over 1 year old to under one year old. This may be the result of the early attempts to build up the breeding stock to raise animals for sale to Massachusetts Bay. For the remainder of the seventeenth century, the ratios of under one year to over one year was fairly consistent at 1: .4, except for the decades of the 1650s and 1680s when it rose to 1: .8 and 1 : .7 respectively. The occurrence of so many young individuals indicates that the prime age of slaughter was probably over one year old, possibly closer to the ideal of 18 months. Bowen noted that when single farrowing was common in a husbandry system, then the age of slaughter is usually around 9-10 months. When the sows were double farrowing in the spring and fall, the age of slaughter is closer to 18 to 24 months (Bowen 1986: 26).

The occurrence of poultry, primarily in the form of hens and cocks but also three turkeys and 4 geese, was high in the 1630s but then dramatically dropped off in the succeeding decades. This is probably not the result of a true decrease in the importance of poultry to New England colonists, but is more likely the result of those who were taking the inventory not being concerned with accounting every bit of poultry. They may have been subsumed under the heading "In small things forgotten" which was often used.

To summarize the use of animals in England it can be stated that in terms of livestock, cattle ranked first, with sheep being a close second, swine were numerous and widespread, goats were raised by those who lived in wild places and could not raise cattle. Cattle were raised for meat, milk and as draught animals. The average or recommended ratio of one bull to 20 cows and a cow could be expected to be bred and produce milk from three to 12 years old. The typical English farm, following these practices, would have possibly one bull, several cows or 3 to 12 years old, several heifer or unbred cows under the age of three, and several oxen over the age of five used for labor and steer under the age of five being trained as oxen or raised for meat.

Swine were raised for meat and some lard with sows being bred from one year old to about seven or eight with one boar servicing ten sows. Young swine under one year old were slaughtered for pork and older hogs above two years old were used for brawn. The typical farm would have some sows aged from one to seven, numerous gelded and spayed barrow hogs raised for meat, possibly one boar, and young shoates under 1 year old raised for pork.

Sheep were multi purpose being raised for wool, milk and meat. Ewes could be bred at two years old, but it recommended that one wait until they were over three. They then continued lambing once a year until age eight or ten. Rams were deemed fit for servicing ewes at four to five years old and continued to about seven years old or until their "mouths broke" with one ram servicing 25-40 ewes. The typical number owned by a sheepmaster could number from just a few to over 20, 000 depending on the reason for raising them. Several rams would be present for breeding and wethers would also be present in the flock to determine when the ewes were in heat and ready to be bred. Sheep under 2 years old may have been eaten as well as older sheep raised for mutton.

A limited variety of species were recovered from both sites (Table 17). The highest concentration of

Table 17. Vertebrate Species Comparison by fragment count

Species	22 Water St.	Knoll House Site
<b>Mammal</b>		2
<b>Small Mammal</b>		1
<b>Medium Mammal</b>	10	204
<b>Sheep</b>		35
<b>Swine</b>	1	42
<b>Large Mammal</b>		12
<b>Cattle</b>		50
<b>Large Bird</b>		1
<b>Medium Bird</b>		13
<b>Chicken</b>		1
<b>Totals</b>	11	361

Faunal remains from the Knoll House site were concentrated in Unit 1 and the S9.5 W4 area with other pieces recovered from across the project area with minor concentrations in Unit 2 and Unit 1 North at the south side of the house (Table 18 and Figure 32).

Table 18. Species occurrence by artifact concentration area

Species	Unit 1	S9.5 W4	Unit 1 North	Unit 2
<b>Cattle</b>	19	31		
<b>Large mammal</b>	10	1		
<b>Medium mammal</b>	20	160	7	6
<b>Swine</b>	3	32		1
<b>Sheep</b>	4	30		1
<b>Small Mammal</b>				1
<b>Chicken</b>	1			
<b>Medium Bird</b>	2	8		1
<b>Large bird</b>			1	
<b>Totals</b>	<b>59</b>	<b>263</b>	<b>8</b>	<b>10</b>

David Landon published an extensive study of faunal remains from rural versus urban archaeological sites in and around Boston, Massachusetts (Landon 1996). Landon used collections from four historical sites in Massachusetts which spanned the years 1630 to 1825: the Winslow Site in Marshfield (1650-1700), the Paddy's Alley/ Cross Street (late 17th to early nineteenth century), the Wilkinson Backlot site (1650-1825), and the Spencer-Pierce-Little site (late eighteenth century) (Landon 1996: 19-28).



Figure 32. Examples of recovered faunal remains

Landon's analysis focused on differences in rural versus urban assemblages in terms of butchery patterns, ages and seasons of slaughter and how these differences reflected how fauna were raised, butchered and consumed in and around Boston. Landon focused more on broader patterns of urban supply and distributions versus the ethnicity and socioeconomic examinations commonly carried out with faunal remains (Landon 1996: 2).

The amount of meat consumed by occupants of a site has been found to be reflective of the relative wealth of the occupants of the site (Landon 1996: 1). Unfortunately, the amount of preserved (boneless) meat consumed at a site can not be controlled for though. This has been determined to be a potential source of difficulty in interpreting the amount of meat consumed by the occupants of a site (Landon 1996: 2).

In terms of body part representation, Landon found that the taphonomic history of an assemblage influenced the pattern of body part representation in the assemblage. Taphonomically, the assemblages from the Knoll House Site showed a moderate amount of post-use damage- canine chewing on two bones and rodent gnawing on one. This indicates that the assemblage was rapidly buried and was not available for scavengers.

The evidence of butchery and consumption marks on the faunal remains indicate the occupants raised their own animals. Similar elements showed similar butchery evidence between species. Sawing was not present, consistent with a seventeenth century date for the assemblage. The paucity of cut marks on the elements indicates a likely preference for boiled versus roasted meats. Boiling bone-in meat would relieve the bone of its meat while adding all the fats and grease present in the meat and bone into the stew, broth or soup. As the meat is removed from the bone by means of boiling, there would be a lack of marks caused by knives on the bones.

Landon found in his analysis that the largest (the trunk, consisting of the scapula, ribs, vertebrae, and pelvis) and meatiest elements of the body (humerus, and femur) logically had the highest percentage of butchery evidence (Landon 1996: 61). Saw marks were found to show an increase in frequency of occurrence over time in all of the urban and rural assemblages studied, rising to 75% by the end of the nineteenth century. Landon interpreted this as coinciding with the rise in the production of standardized and discrete cuts of meat that characterized the butchering industry by the end of the nineteenth century and continues today (Landon 1996: 65). The butchery marks present on the bone are all represented by examples from Landon's work as well: chopping of the mandible to remove the tongue and jowl meat; lateral splitting of the vertebral column representing initial subdivision of the carcass and further subdivision into cuts; the subdivision of the scapula to create steaks or roasts; finer scale subdivision of the humerus again into cuts; horizontal sawing of ribs to produce slabs; sawing of the pelvis with the proximal end of the femur possibly articulated as one cut; and the subdivision of the tibia and its possible articulation with the distal end of the femur (Landon 1996 68-95).

Excavations in the early 1970s in downtown Plymouth by Plimoth Plantation on the lot located between Main and School streets (C-13A site), encountered three privies that were filled between 1790 and 1835. Faunal remains from this site indicate a possible shift in the use of domestic species over time. Cattle use remained constant but the use of swine showed a continuous and steady decline in the popularity with an inverse rise in the popularity of sheep (Anonymous 1974). The shift from swine to sheep was interpreted as possibly being a result of the gradual deforestation in the Plymouth area with the result being a shift in husbandry approaches to grazing versus foraging species.

## Domestic Mammals

### Cattle

Fifty fragment of cattle bones representing a minimum of one individual were recovered from around the house. The individual present was over 30 months old. Joann Bowen in 1994 concluded an in depth study of Chesapeake versus Plymouth Colony foodways and found that this was a common pattern in the eighteenth to nineteenth centuries (Bowen 1994:157). Looking at Bowen's 1994 work, this would indicate that either the inhabitants of the house were practicing a livestock management program consistent with a combination dairying and beef production or that they were purchasing meat from a market that was providing such. Dairying practices lead to a selling of young bull calves for veal and of older cows not producing milk whereas beef production sees few veal calves and more animals being killed at the prime age of slaughter, 18-24 months (Bowen 1994:26).

The cattle skeletal elements present in the assemblage at the Knoll House Site indicate that the inhabitants were most probably raising consuming their own cattle verses purchasing cuts of meat from a butcher. The majority of the elements were from the extremities (head, lower limbs) versus from the trunk (the meatiest part) (Table 19). These are the elements that yield the

Table 19. Cattle elements present

Element	Unit 1	S9.5 W4
<b>Extremities</b>		
Mandible		Present
Carpal	Present	
Tarsal		Present
Astragalous		Present
Phalanges	Present	
<b>Trunk</b>		
Thoracic Vertebra	Present	
Lumbar Vertebra		Present
Ribs	Present	
Humerus	Present	
Tibia		Present

least amount of meat and are often discarded during butchery.

Few of the cattle bones recovered showed evidence of either butchery or scavenger modification. Butchery modification was represented by cutting, chopping and sawing. Chopping and sawing represent the initial division of the carcass into two halves along the head to tail midline and subsequent segmenting of these halves into cuts. Saw marks were concentrated on vertebra, ribs and at one humerus head. Sawing is a technique that was widely used in the later nineteenth century and continues to the present day. Generally, cut marks occur throughout the history of people eating meat and the same can be said with chop marks, but sawing only came into widespread use in the late eighteenth to nineteenth centuries, although it is known to have had limited application during the middle to late seventeenth century. Until the modern day there was wide variation in butchery

practices depending on the individual butcher and the animal being butchered.

Chew marks are evidence of carnivore activity at a site. Cats, skunks, dogs, foxes and coyotes often chew bones to digest the upper and lower ends where nutrients are concentrated. The chew marks in the assemblage appear to be from large ones such as foxes or dogs. The presence of chew marks indicates that at least part of the assemblage was exposed to these animals and was not buried. The general absence of canine and rodent chew marks on the cattle bones may indicate that they were buried soon after being deposited.

Two cattle bones were chopped and one was carnivore chewed.

### **Pig**

Forty-two fragments of pig bones representing a minimum of two individuals were recovered from around the house. The two individuals present were under two years old, as evidenced by the degree of tooth eruption and wear. It is believed that both the individuals present were probably approximately 18 months old, the prime age for slaughtering. This may indicate that the sows that bore these pigs had a spring and fall farrowing (Bowen 1994: 26)

The pig skeletal elements present in the assemblage seem to indicate that the consumers in the house were raising their own and slaughtering them. As can be seen in Table 20

Table 20. Recovered swine remains

<b>Element</b>	<b>Unit 1</b>	<b>S9.5 W4</b>
<b>Extremities</b>		
Mandible		Present
Radius		Present
Metacarpal	Present	
Calcaneus		Present
Phalanges	Present	Present
<b>Trunk</b>		
Ribs		Present
Humerus	Present	Present

shows the abundance of Extremity elements versus trunk elements in both assemblages, which is more consistent with butchery versus consumption waste.

Just as in the case of the cattle remains, the higher occurrence of elements such as the head and feet and the somewhat lower incidence of body elements indicates that the consumers in the household were probably raising, butchering and consuming the swine at the site. A few of the pig bones recovered showed evidence of either butchery or scavenger modification with one being chopped, one calcined, one rodent gnawed and one carnivore chewed.

### **Sheep**

Thirty-five fragments of sheep bones representing a minimum of two individuals were recovered. One individual was over 3.5 years old and the other was under 18 months old. This probably represents a lamb and an older ewe or ram that was no longer producing good wool or milk that was slaughtered for mutton.

The sheep skeletal elements present in the assemblage seem to indicate that the consumers in the house were raising their own sheep and then slaughtering them. As can be seen in Table 21, more elements from the extremities were present. Indicating a

Table 21. Recovered sheep remains

<b>Element</b>	<b>Unit 1</b>	<b>S9.5 W4</b>
<b>Extremities</b>		
Mandible	Present	Present
Ulna		Present
Radius		Present
Tibia		Present
Astragalous	Present	
Calcaneus	Present	
Phalanges		Present
<b>Trunk</b>		
Ribs	Present	
Humerus		Present

preference for fore leg (humerus, radius, ulna) in the S9.5 W4 area and a preference for hind leg (astragalous and calcaneum) and ribs in the Unit 1 area.

Two sheep bones were chopped and one was calcined.

#### Chicken

One fragment of a chicken bone was recovered along with several fragment of medium sized bird bone that could be chicken as well. Chickens were probably among the first animals to be brought into Plymouth Colony, arriving along with the Pilgrims and their dogs and possible goats. As early as 1623, the Plymouth colonists described giving chickens to the Pokanoket Sachem Massasoit when he was sick and expected to die. Edward Winslow arrived at the Sachem's house and saw the condition he was in. He then sent a messenger back to Plymouth to get a bottle of drink and "also for some chickens to make him broth" But when the messenger returned with the chickens? "He (Massasoit) would not have the chickens killed, but kept them for breed." (Winslow 1623: 34).

Roosters in the seventeenth century were described by various contemporary agricultural authors such as Markham as "The most manliest, stately and majesticall, very tame and familiar with the Man, and naturally inclined to live and prosper in habitable houses.." (Markham 1614:110). The ideal rooster was described as being "..large and well sised bodie, long from the head to the rumpe, and thicke in the garth feathers would be very long, bright, and shining, covering from head to shoulders, his legs strait, and of strong beame, with large longe spurres, sharpe and a little bending.. and for the generall colour of the dung hill cocke, it would be red, for that is medicinall, and oft used in Cullisses and restoratives" (Markham 1614:110-111). Markham also stated that the colors of the roosters head and neck should match the color of the eyes such as gray with gray, red with red or yellow with yellow. The colors of the most common type of fowl, the dung hill fowl that is often seen in probate records in Plymouth colony, are generally red in the body with the heads and necks of the roosters being gray, red or yellow. Googe further elaborated on this by stating that " the best to be bought for broode, are the dunne, the

redde, the yellow and the blacke, the white are not to be meddled with, because they are commonly tender, and prosper not, neither are they beside fruitfull, and are alwayes the fairest marke in the Hawke, or a Buzzards eye. The best kinde are such as have five clawes, so that they be free from spurres.." (Googe 1614:149).

Because chickens are relatively easy to keep and are prodigious breeders, they made the ideal first domestic animal to be brought to New England by the Plymouth colonists.

### **Faunal Summary**

The faunal assemblage from the site consisted of mostly domestic species with the only possible wild ones being the unidentified bird bone fragments. The cattle, sheep and swine domestic species were raised on site and the deposits represent mostly butchery waste. The age distribution of the the domestic mammal indicates that swine were butchered at the prime age of 18 months while sheep were butchered when they were over two years old and possibly under three years indicating that they were probably raised for meat and wool. The cattle remains indicate that they were being raised for dairy purposes and to a lesser extent for meat.

### **Ceramic Analysis**

#### **Clay Pipe Analysis**

Clay tobacco pipes are, to the archaeologist, two things, one of the most commonly occurring objects on colonial sites and easily dated by their makers' marks and bowl styles. The stem bores of tobacco pipes gradually became smaller over the centuries since they were first produced in England. The stems of the pipes were slowly lengthened over time and as a result the bore of the stems became smaller with those from the 1580-1620 period are predominantly of a 9/64" bore while those of 1650-1680 are predominantly of a 7/64" bore. J.C. Harrington discovered this reduction sequence when he worked with clay pipes from Jamestown in the 1950s and it has been refined over the years.

9/64"	1580-1620
8/64"	1620-1650
7/64"	1650-1680
6/64"	1680-1710
5/64"	1710-1750
4/64"	1750-1800

This dating by stem bores was initially believed to be the answer to the problem of dating sites. Of course, dating artifacts is never as easy as Harrington and Binford felt that it could be. In reality, the dates for the different pipe stem bores represent the specific periods of greatest popularity for those sizes, so there is a degree of over lap with all of these sizes. When the 7/64" were in their greatest popularity, there were still 8/64" being made, and later in their period of popularity there were 6/64" being made. For example, Hume shows a chart on which he estimates the percentages of production at different time periods for different bore diameters:

Date range	9/64"	8/64"	7/64"	6/64"	5/64"	4/64"
1620-1650	20%	59%	21%			
1650-1680		25%	57%	18%		
1680-1710			16%	72%	12%	
1710-1750				15%	72%	13%
1750-1800				3%	20%	74%

These percentages all represent the popularity of the sizes at the median date of production. In the early years of the different size's production there would have been a greater percentage of the earlier sizes bores. As one moves through the production period the earlier sizes would be phased out and the next smaller size would begin towards the middle to end of the period, moving into the next period. But one can assume that there was never any regularity to the production outputs by various producers in the different times for the different bores. What this means is that just because you find a pipe stem bearing a 9/64" stem bore, it does not necessarily follow that the site was occupied between 1580 and 1620, it is just as likely to have been occupied between 1580 and 1650. Pipe stem bore dates are just one tool that the archaeologist uses to date a site, not the only means.

Bearing in mind the imprecision of stem bores as an absolute dating tool, what can be accomplished using these stem bores is to see when the range of activity at the site occurred. Sites with small percentages of 9/64" stems, large percentages of 8/64" stems and a small percentage of 7/64" stems can be assumed to have their maximum period of occupation between the 1620 to 1650 period.

Another method that can be used to help to date a site is the establishment of median dates. By taking the median dates for each of the pipe stem bores, multiplying this by the number of fragments of each bore, adding all of the resultant answers together and finally dividing them by the total number of measurable fragments, the median date of occupation at the site can be hypothesized. This will result in a median date based on the assumption of pipe makers strictly adhering to the changes in pipe length in a given period.

Median dates such as these do help somewhat when attempting to determine if the site dates to a specific possible owner's period of occupation. For example, if one believes that the site is that of a farmer who the documents say lived at his home from 1635-1687, the median occupation date of the site based on the documents is 1661. If one looks at the pipe stems and uses the formula and the median date is 1740, then the researcher becomes suspicious of the plausibility of the site being that specific farmer's house. Of course, a good archaeologist is not merely going to look only at the clay pipes to interpret or date a site, they will look at all the artifacts from the site and then be more confident in assigning a specific site to a specific occupant.

The bowl styles which would date to this period are outlined by Hume (Hume 1969:302) (**Figure 33**). The styles from England have been studied extensively by Adrian Oswald in his monumental work on the Bristol pipe makers (Oswald 1975). The pipe bowls from this period would be characterized by a diminutive size, but not as small as those from the 1580-1620 period. Their bowls tilt forward away from the smoker and they usually have rather larger heels which are the portions of the bowls on the underside. Later bowls became larger and the heels shrunk until late in the seventeenth century they sometimes have disappeared altogether. The clay pipes from a site dating from 1635-1650 would be expected to be composed of large bored stems mainly of the 8/64" variety and small sized bowls

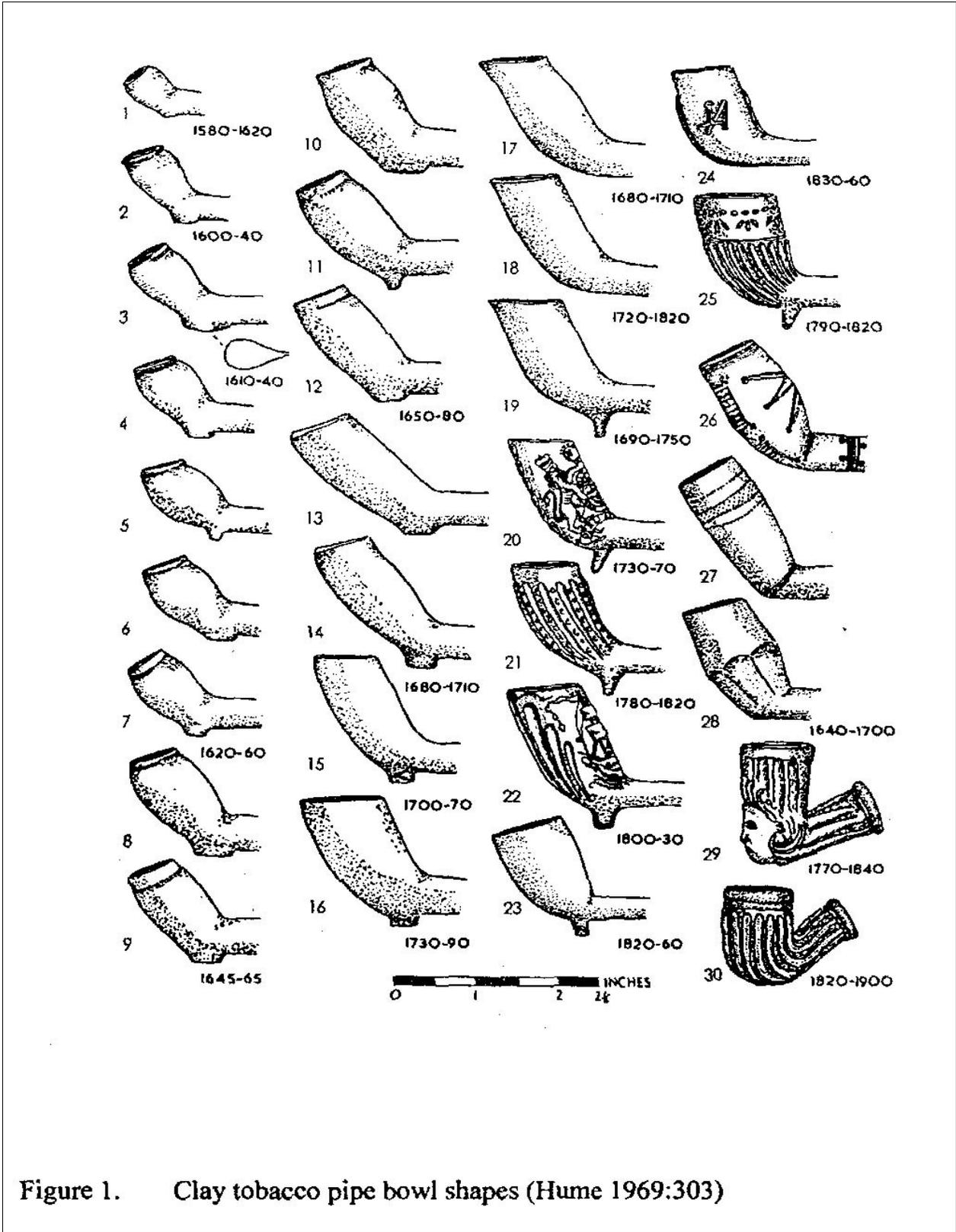


Figure 33. Hume pipe bowl shapes

similar to those shown in Hume’s work. Using his work, the various bowls and many bowl fragments found at a site can be used to support or refute the chronology of the site or features based on the stem bore diameters. In its most basic sense, clay pipe bowl sizes increased throughout the seventeenth century. Along with the increased bowl size went a change in shape. The earliest bowls are small bulbous “belly” bowls with relatively narrow bowl openings. Over time the bowls remained bulbous but then grew larger and the diameter of their bowl openings increased.

The distribution of clay pipes across the site (Table 22) show a concentration of pipe

Table 22. Overall site pipe stem distribution

Size	Count	% of Occurrence	Median Date	Sum	Estimated Median Date
9/64” 1580-1620	1	0.90%	1600	1600	
8/64" 1620-1650	19	16.20%	1635	31065	
7/64" 1650-1680	49	43.30%	1665	81585	
6/64" 1680-1710	31	27.40%	1695	52545	
5/64" 1710-1750	10	8.80%	1730	17300	
4/64" 1750-1800	3	2.70%	1775	5325	
<b>Total</b>	113	100.00%		189420	1676.3

stems measuring 7 and 6/64”. This indicates that the most likely period of occupation was roughly between 1650 and 1710 with occupation continuing into the late eighteenth century, as evidenced by the smaller pipe stem bores also present. When the distribution of the stem bores is compared with other Plymouth Colony site (**Figure 34**) it can be seen that the Knoll House site dates later than the sites initially occupied in the 1630s but earlier than the sites occupied initially in the very late seventeenth to early eighteenth century. The distributions from various contexts across the site show that various deposits and activities occurred at different times, which supports the idea that the house was occupied before the third quarter of the seventeenth century and that it was removed in the late eighteenth century (Tables 23 and Figure 35). The pipe stems from the

Table 23. Clay Pipe Distribution

Pipe Stem Bore	Overall Occurrence	Knoll House Unit 1	Knoll House S9.5 W4	Knoll Site Southeast Corner
9/64” 1580-1620	0.90%			
8/64" 1620-1650	16.20%	0	17 22.1%	0
7/64" 1650-1680	43.30%	3 50%	26 33.7%	5 62.5%
6/64" 1680-1710	27.40%	0	27 35.1%	2 25%
5/64" 1710-1750	8.80%	3 50%	6 7.8%	1 12.5%
4/64" 1750-1800	2.70%	0	1 1.3%	0
<b>Totals</b>	113 100.00%	6 100%	77 100%	8 100%

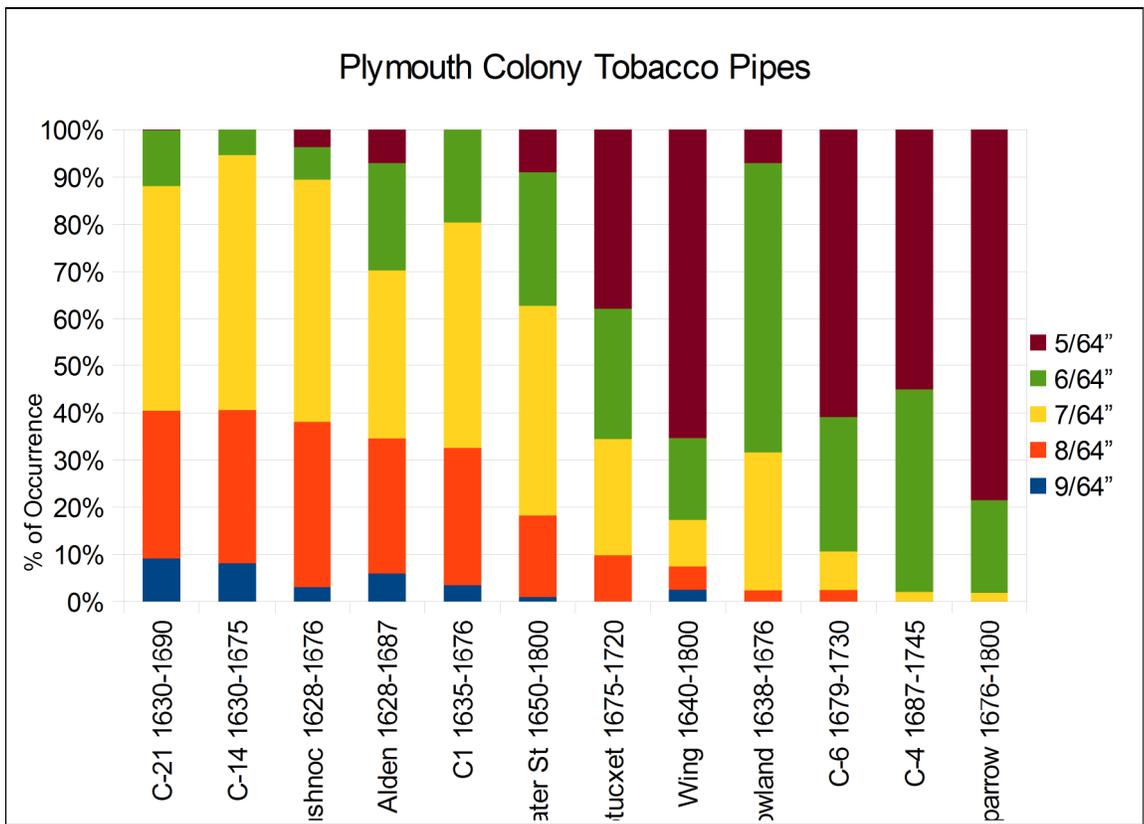


Figure 34. Serration of pipe stem bores from various Plymouth Colony Sites

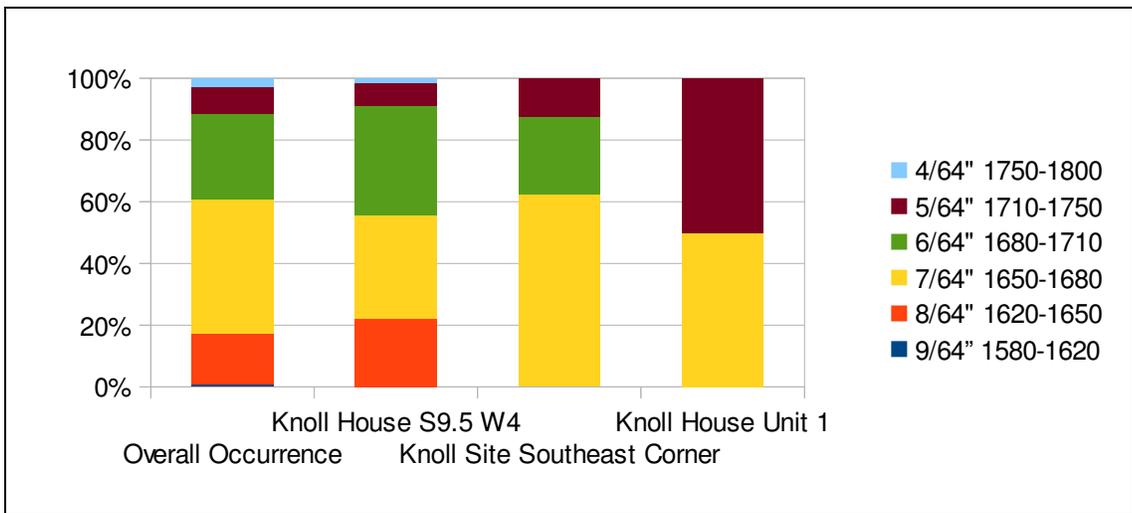


Figure 35. Pipe stem distributions between various deposits at the Knoll House site.

deposit at S9.5 W4, dated to the late seventeenth century based on pipe bowl styles and ceramics, had a serration similar to the overall site serration with a slightly greater occurrence 8/64" stems and a lower occurrence of 5 and 4/64" stems. The deposit from the southeast corner of the house showed a lack of 8/64" stems and an abundance of 7/64" and 6/64" stems, dating it later than the S9.5 W4 deposit. The

demolition debris from Unit 1 showed an emphasis on 7 and 5/64” stems, which supports the use of this area during site occupation and the middle to late eighteenth century demolition of the chimney and presumably the removal of the house to its present location at 22 Water St. The pipe bowl styles supported data from the pipe stem bore serration (Table 24 and Figure 36).

Table 24. Pipe bowl styles recovered at the Knoll House site

<b>Pipe Bowl</b>	<b>S9.5 W4</b>	<b>Unit 1</b>	<b>Southeast Corner</b>
<b>Heelless Funnel 1680-1710</b>	2	1	1
<b>Large Belly Bowl 1650-1680</b>	3		
<b>Small Belly Bowl 1645-1665</b>	1	1	
<b>LE/ Evans 1661-1689</b>	2		
<b>19<sup>th</sup> century</b>		1	1
<b>Heeled 1680-1740</b>			1

### **Ceramic Analysis**

Ceramic analysis focused on functional and temporal analysis of the recovered wares. Functional analysis includes the identification of the types of vessels present as well as how the wares can be used as socio-economic indicators. Ceramics in general have the potential to yield information on market distribution systems, food processing, preparation, consumption and other aspects of foodways behavior. Ceramics were also used for status display and possibly ideological statements (Spencer-Wood 1984: 33). The ceramics recovered from nineteenth century sites are assumed to largely have been acquired from those that were available at the local market economy with some percentage possibly being acquired as gifts, heirlooms or through some form of secondary recycling. The ceramics that are recovered archaeologically are the result of consumer choices of goods available in the market and the loss and selective discard patterns of the past inhabitants of the site (Spencer-Wood 1984: 33, 34). The types and styles of ceramics used by a household are influenced by an indeterminate number of interrelated factors including site location, availability of goods, occupation, ethnicity, economic level, social status, family status, religious and political affiliation and individual preferences (Spencer-Wood 1984: 34).

As a way of understanding the interrelationships between features and anomalies identified during the field work attempts were made to cross-mend sherds of vessels from various contexts across the site. Assemblages recovered from intact feature contexts were analyzed to determine a likely date of deposition for the material and to determine their probable function as part of the working household. It was hoped that enough feature contexts can be identified to examine the changing nature of the household overtime and to compare these changes to larger local, regional, and national trends.

In general, extraneous material comforts such as decorative, although not necessarily expensive, pressed glass, floral painted versus undecorated ceramics and the presence of tea wares indicates an economic expenditure towards indulgence, something more than just the penultimate basic needs, versus subsistence or utility. One can easily do with wooden bowls and no tea, so the presence of items such as fashionable decorated ceramics and tea wares must indicate a desire for something more than the basic necessities of life by the inhabitants of a site. For example, in the 1840s hand-painted pearlwares were nearly twice as expensive as undecorated pieces and transfer-printed wares were over



Figure 36. Tobacco pipes from the Knoll House Site

twice as expensive (Miller 1991). By purchasing transfer-printed wares versus undecorated wares, the inhabitants (especially the women who were the primary purchasers of such goods) may have been trying to say something about their real or perceived status. The expenditure of household funds on items such as the latest in consumer goods is difficult to reconcile with a desire for self-sufficiency during the Victorian Age, it was not possible to aspire to be both self-sufficient and socially respectable.

### **Ceramics in Plymouth Colony**

In an attempt to move beyond mere description when reporting ceramic occurrences from archaeological excavations (e.g. "15 pieces of creamware, 4 pieces of pearlware and one piece of ironstone were recovered") to an explanation of why they occurred, Dr. James Deetz formulated a series of propositions regarding the use and distribution of ceramics in Plymouth Colony between the years 1620 and 1835 (Deetz 1972). Deetz's propositions were based on ceramics recovered from numerous excavations he directed while at Plimoth Plantation in the 1950s to late 1960s. He stressed the relationship between behavior and its material products and how the acquisition, use and ultimate disposal of artifacts such as ceramics, all resulted from certain aspects of the lifeways of their owners (Deetz 1972: 15). Deetz's propositions were as follows:

- 1) Ceramics are a functional component of a cultural system
- 2) Three successive cultural systems were operative in New England in the period 1620-1835
- 3) In all three cultural systems the presence of ceramics is a function of four factors: availability, need, function, and social status
- 4) Ceramics in Plymouth will exhibit a threefold division in time, corresponding to the three successive cultural systems in operation in New England (1620-1660, 1660-1760, 1760-1835), and within each time period there will be greater internal consistency than between time periods.
- 5) The pattern of ceramic use for the first period will reflect ceramic usage of the Stuart yeomen foodways subsystem as well as that of the first settlers of Plymouth.
- 6) Ceramics of the second period will show differences in terms of use and type, reflecting divergences from the parent culture. They will also exhibit strong conservative tendencies in stylistic and functional trends.
- 7) Ceramics of the third period will show a greater homogeneity and will reflect a more structured pattern of use than those of the earlier period 1760-1835 shows major shift in pottery types
- 8) There will be a marked increase in the rate of change in ceramic types during the third period, and domestically produced ceramics will decrease in relative quantity.

The colonists who settled in Plymouth arrived with the baggage of their medieval heritage and their Stuart yeoman ways. They were not totally representative but were basically less prosperous Stuart yeomen and husbandmen. They were conservative, potentially self-sufficient, and greatly influenced by religious attitudes. This way of life continued relatively unchanged and unchallenged for nearly a generation until the Puritan Revolution in the 1640s led to dramatic reduction in emigration. This led to depressed economic conditions, shortages of imported goods and a cultural isolation that led to a slow but steady divergence from the earlier yeomen lifeways.

The century between 1660 and 1760 saw the isolated New Englanders develop a distinctive Anglo-American folk culture that was different from the English culture in the motherland. After 1760 and

until 1835, American culture was impacted by the emergence of a Georgian tradition, which was Deetz's third period.

The Georgian tradition was characterized by symmetrical cognitive structures, homogeneity in material culture, progressive and innovative world view, and an insistence on order and balance that permeates all aspects of life and contrasted sharply with earlier medieval tradition (Deetz 1972: 18). This Georgian tradition was truly the first popular culture in America and served to dissolve regional boundaries and reanglicized the American culture.

Three general groups of ceramics were identified by Deetz as having been excavated in Plymouth Colony:

Group 1 Fine imported wares

French stoneware, scraffito, delftware, marbled slipware, trailed slipware, mottled ware, agateware, Wheelton type wares, Jackfield type wares, porcelains, creamware, pearlware

Group 2 coarse imported, undecorated wares

Borderware, North Devon gravel-tempered wares, undecorated redwares

Group 3 Coarse domestic redware

undecorated and later slip-painted and trailed types

Deetz's first period (1620-1660) was characterized by a low occurrence/ minimal need for ceramics within the Stuart yeoman foodways system. Wares that occur during this period were limited to Group 1 French stonewares, Group 2 Borderwares and undecorated redwares. Ceramics were limited to their use in dairying and as drinking vessels.

Deetz's second period (1660-1760) saw a marked increase in the occurrence of fine imported ceramics of Group 1 (delftware, combed slipware, Westerwald stoneware predominantly, supplemented by mottled ware, dipped white stoneware, North Devonshire scraffito ware), a decrease in Group 2 Borderwares with a concomitant increase in North Devon Gravel Tempered wares, and a growing increase in the use of Group 3 domestically produced redwares. Ceramics were still used for dairying, but by 1650 there was a marked shift in balance of power from the clergy to the merchants at which was indicative of growing trend toward secularization of certain aspects of the growing aspects of culture (Deetz 1972: 27). Supplies were arriving in renewed quantities after the 1660 Restoration, and a greater variety of European ceramics being used in the colonies is not surprising. Another change was the increasing reliance on ceramics as flatwares, dishes and plates, versus their earlier use as hollowares

Finally, the third period was characterized by a complete replacement of all the earlier types by the developing English refined earthenwares- creamware and then pearlware. The Georgian world view was of a more orderly relationship between man and his artifacts could account for it as well possibly creating a situation where there was now one plate, one cup, and one chamberpot relationship per person. Ceramic usage now conformed more closely to conform more closely to our 21<sup>st</sup> century concepts of the place of ceramics in culture (Deetz 1972: 32).

## **Method**

Analysis began with the identification of the ware (creamware, whiteware, pearlware, redware, etc.). Minimum vessel counts will be generated for each class and a functional analysis of the types of

vessels (cups, bowls, saucers, etc.) were carried out. Additionally, the types of decorations (undecorated, hand-painting, transfer printing, etc.) present on the wares were examined and compared to determine if any matched sets are present or if the vessels present appear to be mis-matched sets. The presence of matched sets over mis-matched pieces may help to better assess the socio-economic status of the household over time. Matched sets may indicate a desire by the inhabitants to own proper service sets and likely indicate that the individuals purchased the pieces specifically for the motif and with the desire to have a matched set. Mis-matched vessels may indicate that the pieces were either purchased with no real desire for the order and propriety implied by matched sets, that the pieces were purchased piece meal over an extended period of time, which may have resulted in the inability to find matching pieces when the time came to purchase another piece. Alternately, mis-matched sets may be a sign that the pieces were donated to the family and were not purchased at all. This would be especially true if the pieces were found to show a time lag between the occupation of the site and the types of ceramics present (i.e. older ceramics donated to a poorer family from a middle class family after that style had gone out of fashion).

There are three general classes that ceramics fall within, being distinguished by the amount of time that they have spent in the kiln. These are earthenwares, stonewares and porcelain with each being higher fired and thus more water-resistant. Earthenware and stoneware were recovered from the Site Examination testing. No porcelain was recovered, possibly reflecting the lower class status of the inhabitants of this site. Earthenwares can be characterized as being a ceramic class composed of glacial or alluvial clays that have been fired in a kiln at temperatures not exceeding 1200 degrees Celsius. Before the firing, the body may be, but was not always, covered with a powdered or later, a liquid lead oxide glaze. This glaze fused to the body and created a waterproof, glass-like surface.

Different paste textures, decorative techniques, and glazes produced different types of earthenware identified by the distinctions: redware; tin-enameled; slipware; North Devon gravel-tempered and gravel-free wares, slipware, and refined earthenwares such as creamware, pearlware, whiteware and ironstone. Some of these varieties have distinct temporal ranges, while others continued in production virtually unchanged for centuries.

The ceramic forms were identified following Beaudry's Potomac Typological System (Beaudry 1988). Milk pans are over 10" in diameter and are similar in shape to the pans and were used for cooling milk, as wash basins and probably for cooking (Beaudry 1988:65). Mugs are single handled, strait sided drinking vessels, taller than wide, and ranging from 1 gill (1/4 pint) to over 2 quarts (Beaudry1988:60). Cups differ from mugs mainly in their size, being only of a pint in capacity. Pots, also called butter pots, are large cylindrical or slightly convex-sided vessels, taller than wide, with some of their possible uses being for souring cream, storing butter and lard (Beaudry 1988:66). A basin is defined as an open vessel with convex sides of greater width than depth, having a brim or everted lip and used for washing, shaving and dining, was found almost complete (Beaudry 1985:63).

Ceramics made up the second largest category of artifacts from both the 22 Water St. testing and the testing at the Knoll House site (Table 25).

Table 25. Distribution of ceramic remains

<b>Ceramic Type</b>	<b>Date Range</b>	<b>Knoll Site</b>	<b>22 Water St.</b>
<b>Redware</b>	<b>1620-1860</b>	488	25
<b>North Gravel-Tempered</b>	<b>1675-1775</b>	7	0
<b>English Buff-Bodied</b>		1	0
<b>Slipware</b>	<b>1675-1775</b>	48	2
<b>Tin-Glazed</b>		58	1
<b>Stoneware-Bellarmino</b>	<b>1620-1700</b>	5	0
<b>Stoneware- English Brown</b>		1	0
<b>Stoneware- Westerwald</b>	<b>1620-1775</b>	5	0
<b>Creamware</b>	<b>1762-1805</b>	11	10
<b>Stoneware- White Salt-Glazed</b>	<b>1720-1775</b>	1	0
<b>Pearlware</b>	<b>1790-1830</b>	16	0
<b>Porcelain</b>		0	24
<b>Ironstone</b>	<b>1813-1900+</b>	4	6
<b>Whiteware</b>	<b>1820-1900+</b>	21	55
<b>Refined Earthenware</b>		1	1
<b>Totals</b>		<b>667</b>	<b>124</b>

## **Earthenware**

### **Redware**

Redware is the largest and most commonly occurring type of earthenware encountered on European Colonial sites. Redware itself has not received a great deal of careful and scholarly work to tightly date them. Apart from Laura Watkins' paramount work and Sarah Turnbaugh's 1985 treatise on the subject, there has not been much follow up work done to continue the scholarship. As a result, while redware makes up the greatest percentage of the assemblages looked at, they can not be closely dated, and must be given limited weight to the amount they can contribute to the identification of an early seventeenth century site. What can be said about them relates primarily to their glaze colors.

Studying the English ceramic traditions which formed the precedent for colonial potters work, Turnbaugh identified 12 redware traditions in England which she felt were perpetuated by New England potters (Turnbaugh 1985:216-217). Her date ranges for wares made in England date from ca. 1200 to 1795, and those in New England from ca. 1650 to 1815. Turnbaugh identified seven types of decorative styles, based on post-firing glaze color and decoration, with several sub-types for four of the larger types (Table 26).

Table 26. Turnbaugh redware types

Type	Color Munsell	Decoration	Date
<b>1a Yellow to Red Glazed</b>	2.5YR3/6 to 5YR 4/8-5/8 to 7.5YR 5/6-5/8 (Dark red to yellow red to strong yellow brown)	Glaze Only	1650-1800
<b>1b Yellow to Red Glazed Slipware</b>	Same as 1a	Yellow slip decoration Metropolitan Style	1685-1800
<b>1c Yellow to Red Glazed Slipware</b>	Same as 1a	Yellow/ dark yellow slip with copper specks Wanfried Style	1685-1800
<b>1d Yellow to Red Glazed Slipware</b>	Same as 1a	Yellow slip limited to bands at rim and base Astbury Style	1763-1800
<b>2a Olive Glazed</b>	2.5Y 5/4- 4/4 to 5Y 7/6 to 5/6 (Olive brown to olive yellow)	Glaze Only	1650-1800
<b>2b Olive Glazed Slipware</b>	Same as 2a	Yellow Slip Decoration	1685-1800
<b>3a Ferruginous Black Glazed</b>	10YR5/1-3/1 (reddish gray to dark reddish gray)	Cistercian Style	1685-1735
<b>4a Black Glazed</b>	5YR2/1-2/2 to 7.5YR2/0 - 2/1 (black to very dark reddish brown)	Jackfield Style	1685-1715
<b>4b Black Glazed Slipware</b>	Same as 4a	Yellow slip Wrotham Style	1685-1735
<b>5a Mottled Glazed</b>	2.5YR4/6 -2/0 (mottled red to dark reddish brown to dusky red to black)	English Manganese Mottled Ware Style	1725-1815
<b>6a Bright Green Glazed</b>	10GY5/4-4/4 (Yellowish green)	Tudor Green/ Borderware Style	1650-1750
<b>7a Yellow Glazed Slipware</b>	2.5Y4/6 -7/6 (light olive brown to yellow)	yellow slipware with sponge-splashed brown design elements	1763-1800

Several Charlestown potters are known including John Parker, who, in 1750, is known to have sold to Barnstable and Harwich as well as Duxbury and Daniel Parker Jr. in 1832 (Watkins 1968: 45). Additionally it is known that Noah Bradford, son of Noah Bradford, potter, of Kingston, Massachusetts, operated a pottery in Barnstable from 1819-1830 that he had bought from Prince Nye (Watkins 1968: 45). People on Cape Cod also received pottery from Long Island in New York (Watkins 1968: 27).

A total of 513 fragments of redware, representing 13 vessels were recovered (**Figure 37**). The majority of these fragments were recovered from the Knoll House site. In both the areas of excavation, redware made up the majority of the total ceramic assemblage. Vessels forms included flowerpots and a pan at 22 Water St. and pans, pots, and cups at the Knoll House site. The periods of use for the various glaze colors was limited at the Knoll House site to Turnbaugh Type 1a 1650-1800 with none of the later post 1685 glaze colors present.

### **Tin-enameled**

Tin-enameled wares (also called tin-glazed, or delftware) were produced in Spain, France, Portugal, Holland and England. At present it seems that wares from England comprise the vast majority of these wares found on early seventeenth century English colonial sites. Tin-enameled wares are semi-soft bodied earthenwares that were decorated with blue, orange, green and yellow painted glaze and were covered with a tin glaze or a lead glaze with tin added. This gave a white glaze to the vessel



Figure 37. Redware recovered from the Knoll House site

reminiscent of oriental porcelain, which they appear to have imitated. The most common vessels for the early seventeenth century are chargers, flat broad platters, with floral or pomegranate decorations in the center and blue dash decoration along the rims (Hume 1969:108). These were made from ca.1620 to 1720. As with other ceramic types that lasted for a long period, the decoration of this ware degraded throughout the century as demand and availability of them increased. Apothecary or drug pots were also made in England. These were rather tall and narrow vessels painted in bands on the exterior, often in blue, orange and purple (Hume 1969:205). These were produced from ca. 1580 to 1640. They were replaced by plain white pots of a squatter shape later in the century.

A total of 59 fragments of tin-enamelled representing three vessels were recovered (58 from the Knoll House site and one from 22 Water St.) (**Figure 38**). One fragment was from a large medicine pot. The upper portion of the pot had been broken away and the edges were filed to effectively create a coaster or trivet out of the pot base. Most had buff colored pastes while six had pink pastes. Vessel forms were limited to one medium to large apothecary pot and flatware such as plates or platters and possibly chargers. Decoration was limited to blue hand painting, including one possible bird design, and one piece that was decorated in purple and blue hand painting. The Purple and blue piece may be Portuguese. Pendery (1999) identified two Plymouth Colony sites that yielded Portuguese ceramics—the RM site and the Joseph Howland site. The former dates from ca 1635 to 1676 and the later from 1650 to 1700. Portuguese ceramics may have arrived in Plymouth via the horse and lumber trade with the West Indies. These ceramics occur on New England sites between 1650 and 1700.

### **Slipware**

Slipwares are ceramics with an earthenware base and coated with a yellow lead glaze which is decorated with brown trailed or combed decoration. This ceramic type was produced first by the Romans but became popular during the reign of Charles I (1630-1685). Slipware produced in the Staffordshire region of England were exported to the North American colonies from the late seventeenth century until the American Revolution (c.1675-1775). It is a thin, buff-bodied ware coated with slips and decorated with trailed, combed and marbled designs. By the late seventeenth century, exported slipware was generally used by less affluent classes of society (poor to middle class) as well as in taverns and as a general rule, finely executed decorated examples date earlier than more coarsely decorated ones. Vessel forms included drinking vessels (cups, tygs, mugs, posset pots, puzzle jugs) and dishes/ plates, as well as a wide variety of other forms that are less commonly recovered archaeologically (bowls, drug jars, honey pots, teapots, jugs, candlesticks, chamber pots) (Noël Hume 1970) A total of 50 fragments (2 from 22 Water St. and 48 from the Knoll House site) of slipware representing three vessels were recovered (**Figure 39**). The majority of these fragments were from one slipware cup on the knoll with most of the pieces coming from the S9.5 W4 excavations. One other cup, covered partially with a brown glaze, was also recovered At 22 Water St. fragments of a slipware dish, more distinctive of the later eighteenth century, were recovered

### **North Devon Gravel Tempered**

North Devon Gravel Tempered Ware was produced in the North Devon region of England. It is identified by its heavy gravel temper (15-30% of the paste) and its thick, compact paste which is generally red to pink in color, often with a gray core. Vessels are often glazed with an apple green to mottled yellow-green lead glaze. Vessels of a wide variety of forms were produced including milk pans and butter pots, which are the most common form recovered archaeologically. It was produced from the early seventeenth century into the nineteenth century, but commonly appears on North American sites in the third quarter of the seventeenth. It disappears from American sites c. 1750 to 1750. North



Figure 38. Tin-glazed ceramics recovered from the Knoll House Site

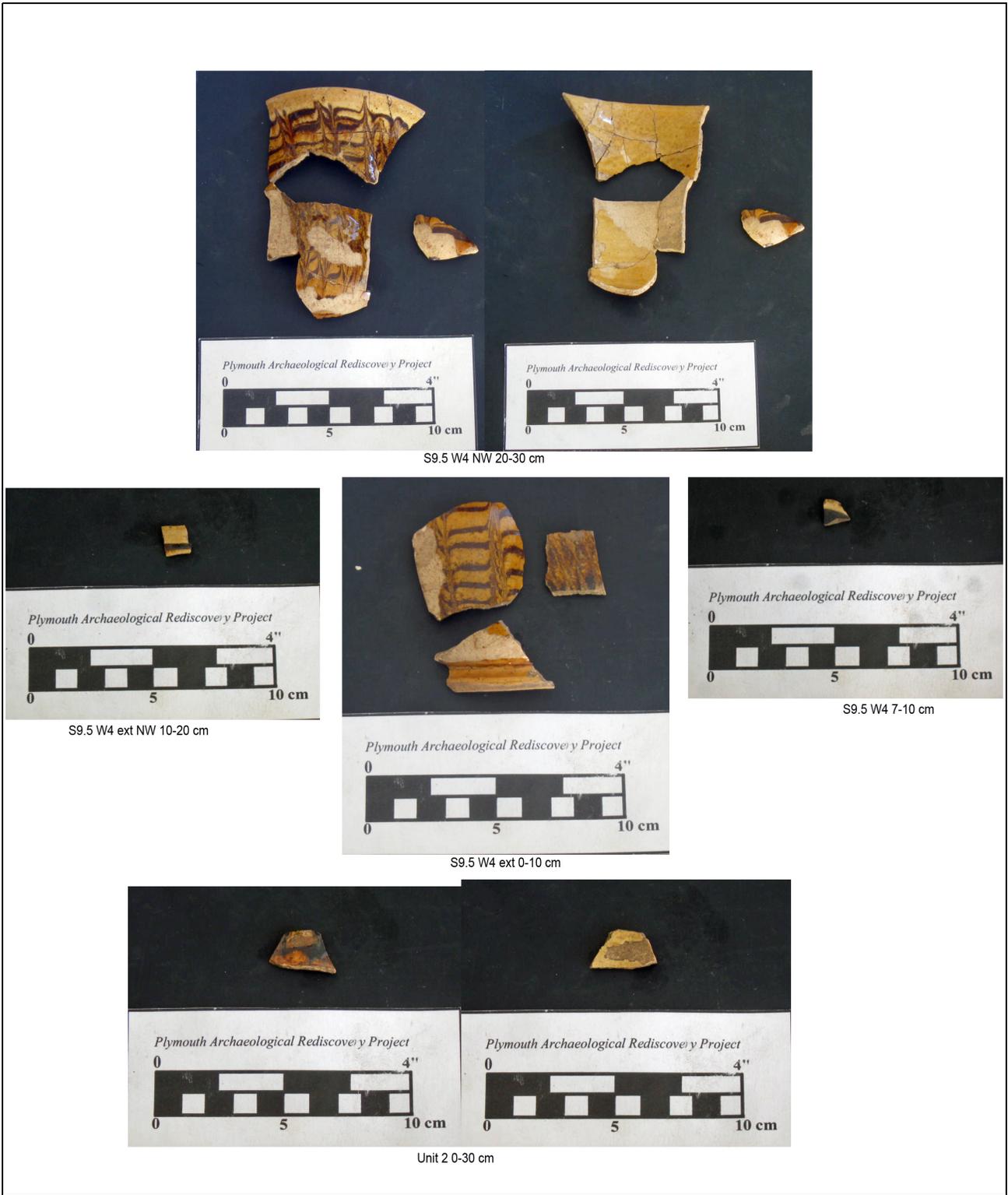


Figure 39. Slipware recovered from the Knoll House Site

Devon merchants from Bideford and Barnstaple succeeded in making this ware the most common utilitarian and dining wares in many areas of Britain and the New World. North Devon wares were eventually eclipsed by Buckley-type earthenwares in the eighteenth century. A total of three fragments of North Devon gravel-tempered ware representing one vessel were recovered from the Knoll House site (**Figure 40**). Vessels form was limited to one possible chamberpot, a form rarely found in New England.

### **Staffordshire Mottled ware**

Staffordshire mottled ware is a buff bodied English earthenware with a mottled colored exterior glaze and a light colored interior glaze that dates to the early eighteenth century. One fragment from a holloware vessel was recovered from the Knoll House site.

### **Creamware**

While English folk and Colonial settlers were content to use redwares for their utilitarian needs, there was always a market for “white wares”, beginning with the importation of Oriental porcelain. But porcelain was expensive and the availability was limited, which led to the development of tin-glazed soft-bodied delft wares which copied the motifs and forms of the more expensive porcelains. By the middle eighteenth century, the English’s quest for a less expensive light-glazed ware similar to Chinese porcelain was brought one step closer by Josiah Wedgwood’s perfection of Creamware in 1762 (Noel Hume 1970:125). This ceramic type was not pure white, but had a light to deep yellow tint to the glaze and pooled green in the crevices of the vessels. Creamware was produced until 1820 and was generally replaced by a whiter “pearlware” that began production in the late 18<sup>th</sup> century. Early Creamware had a deep yellow tint which, by 1775, was refined to a lighter yellow by the use of kaolin clays in the manufacturing process. Decoration on Creamware was limited to some molding, and hand painting and transfer printing to a much smaller degree. Miller and Hunter (1990) summarized Creamware edge treatments thus:

1750-1775 Molded Whieldonware  
1766-1790 Queen's ware  
1766-1820 Royal Pattern  
1765-1790 Feather edge

A total of 21 fragments of creamware representing three vessels were recovered. The fragment count was split between the Knoll House and the 22 Water St. site, offering evidence of a period of temporal occupation overlap during the late eighteenth century, between the two sites. Vessel forms were limited to a plate and holloware at the Knoll House site and a plate at 22 Water St.

### **Pearlware**

Pearlware is said to be the most common type of ceramic encountered on early 19<sup>th</sup> century sites (Noël Hume 1970:130). Whereas when the glaze of creamware pooled green in the crevices of the foot ring on the bottoms of vessels, pearlware pooled blue. Pearlware was used on a wide variety of forms from chamberpots to eggcups but it is most frequently encountered in the form of plates and saucers decorated with blue or green shell edging around their interior rims. Decoration on Pearlware also took the form of cup and mugs decorated with annular bands on the exterior. These “annular wares” were produced from approximately 1795-1815 (Noël Hume 1970:131).

Decorative techniques used on Pearlware, and eventually Whiteware, are more temporally sensitive than the wares themselves. Blue or green shell edge-decorated wares first appear in Wedgwood's 1775



Figure 40. North Devon gravel-tempered possible chamberpot from the Knoll House Site

and Leeds' 1783 pattern books and became one of the standard products of the Staffordshire potteries in the nineteenth century. This is believed to be due to the fact that they are the least expensive decorative table ware available (Miller and Hunter 1990). Initially both green and blue were used on the edges, but by 1840 green-edged had become rare with blue shell-edged remaining in production until the 1860s. By the later part of the nineteenth century the production of shell-edged wares had discontinued but blue-edging, edging that was just blue but that lacked the earlier molded edging, continued until the 1890s. Miller and Hunter summarized the production of blue and green edging in 1990:

1780-1810 Rocco Style, irregular scalloped rim and undecorated center

1800-1840 Evenly scalloped Shell Edge

1820-1840 Embossed Edge

1840-1870 Unscalloped Shell Edge with impressed pattern

1850-1890 Unscalloped and unmolded Shell Edge

Three pearlware plates were recovered that had blue or green edges- blue edged from 22 Water St. and blue and green edges from the Knoll House site. The edge treatment present consisted of a deep scallop and deep feathering of the Evenly scalloped Shell Edge variety (1800-1840).

Pearlware, and later whiteware, were also decorated by hand-painting. Two general types were used: thin-lined and broad-lined (Price 1979). Prior to 1835 polychrome hand-painted designs were executed in mustard yellow, mocha brown and burnt orange, but after 1835 brighter colors such as grass green, golden yellow, red and powder blue were used. The singular use of blue painted designs, intended to mimic porcelain designs, occurred on earthenware from 1775-1840 and was eventually replaced by transfer printing by 1815. After 1820 until approximately 1830, blue floral designs were executed with a bolder stroke and are easily distinguished from the earlier technique.

A total of 11 fragments of blue hand painted pearlware representing three vessels, two saucers and one cup were recovered. Most of the fragments (10 of 11) came from 22 Water St.

A total of four fragments of polychrome hand painted pearlware representing two vessels were recovered. Three of the fragments were recovered from 22 Water St and one was from the Knoll House site. Vessels were limited to one cup and one saucer.

### **Whiteware**

Pearlware was replaced in approximately 1820 by a very white refined earthenware commonly called whiteware. Whiteware continues to be produced today. Plain, undecorated whiteware was produced throughout the century, starting after 1820 and was considered the cheapest version of this type of whiteware. Blue and black florals covering most of the decorated surface predominated on hand-painted whitewares in the first quarter of the nineteenth century. Slightly later, a finer sprig pattern in either monochromatic or polychromatic forms was produced until around 1890 with polychromes more popular, but less common, from 1830 to 1850 (Miller 1987). Blue edging, similar in execution and design to that used on pearlware, continued on whitewares most commonly with unscaloped unmolded or impressed rims, overall much simpler than the earlier pearlware versions.

Transfer printing was the decorative technique that replaced hand-painting after the 1830s (Table 27). This technique was first used in 1797 with the first colors being blue, black and sepia and was followed by red, yellow in 1848 and then brown and green in 1852 (Miller 1965). The earliest patterns were Chinese until 1805 when the development of copper plate engraving allowed the creation of finer lines and more variation in color tone. After 1830 the quality of design and color intensity declined and multicolor underglazing was developed in 1848. Color is considered the most temporally sensitive property of this decorative technique. The following table (compiled by Stelle:2001) outlines the temporal changes in transfer printing in the nineteenth century (as described by Miller 1987, Esary 1982, Sonderman 1979, and McCorvie 1987):

Table 27. Transfer-printing color date ranges and periods of maximum popularity.

<b>Type</b>	<b>Date Range</b>	<b>Maximum Popularity</b>
<b>Dark Blue</b>	1820-1860	1820-1830
<b>Light Blue</b>	1826-1831	1827-1828
<b>Blue and Painted</b>	1840-1860	
<b>Red</b>	1829-1850	1829-1839
<b>Brown</b>	1829-1850	1829-1839
<b>Green</b>	1829-1850	1829-1839
<b>Black</b>	1830-1850	
<b>Purple</b>	1829-1860	1829-1839
<b>Purple and Painted</b>	1840-1860	
<b>Gray and Painted</b>	1840-1860	
<b>Red and Green</b>	1832-1838	
<b>Scenic Flow Blue or Black</b>	1840-1860	1840-1849
<b>Flowery Flow</b>	1870-1879	

A total of 76 fragments of whiteware were recovered (55 from 22 Water St. and 21 from the Knoll House site). Decoration was limited to light and dark blue transferprinting on plates and cup and one blue edged plate with a very debased decoration.

### **Ironstone**

Ironstone is a high-fired earthenware that approaches, but never quite reaches the hardness of stonewares. Ironstone was developed to compete with the whiteware market. With the final development of thin whiteware, the thicker ironstone was relegated to products such as plates, pitchers and bowls, chamber pots and other heavy utilitarian wares. Ironstone was first introduced by Charles Mason of Staffordshire, England in 1813 and was shipped to American markets by 1842. Ironstone was decorated in the same ways as Whiteware. Additionally it was often left plain or molded with leaves, ribs, or flowers. Plain wares were produced for the entire time span of Ironstone production, whereas molded ironstone with sharp angles, and hexagonal or octagonal body forms were popular from the 1840s through the 1880s. After 1860 embossed plant elements became popular and in the 1860s and 1870s, luster decorated “tea leaf” patterns were popular (Kovel 1973).

Four fragments, including one molded paneled cup, were recovered from the Knoll House site and six fragments of undecorated ironstone were recovered from 22 Water St. Flatware and a cup came from the Knoll House site and a cup was recovered from 22 Water St.

### **Stoneware**

Stoneware can be described as a ceramic type that is made of alluvial or glacial clays which is fired in a kiln at temperatures of 1200 to 1400 degrees Celsius. Firing the clays at these temperatures produces a dense, vitrified, waterproof body of a gray, brown or buff color. Vessels were often glazed by throwing handfuls of salt into the kiln at the peak of firing. This imparted a salt glaze, giving the exterior surface a waterproof glaze with an orange peel like texture.

Stoneware products often took the form of heavy, utilitarian objects such as mugs, jugs, crocks, churns, pitchers, inkwells and oil lamps. Four general types of surface treatments can be present on stoneware: Unglazed/Plain, Salt-Glazed, Albany-Slipped and Bristol. Unglazed stoneware is considered relatively rare (Stelle 2001). Salt glazing was commonly used in all periods of production and was often used in combination with Albany Slip, with salt glazing generally being less popular after the 1860s (Zilmer 1987:35). Albany Slip is described as a hard, chocolate brown glaze produced by natural clays found in the Albany region of New York (Stelle 2001). Bristol glaze consists of a white to off-white hard and glossy glaze often used in combination with Albany slip on the exterior of “whiskey” jugs before 1920, but also was used on jars and crocks. It was common after 1890.

### **Bellarmino**

Brown slip covered salt glazed stoneware had been produced in eastern Europe since at least the 1400s and was used chiefly for shipping and storing commodities (Turnbaugh 1985:16). Primarily these were produced in two centers in the Rhineland of Germany; Frenchen and Westerwald. The Frenchen region mainly produced wares with a distinctive iron oxide stained slip with a salt glaze on a brown stoneware body. The best known of these was the Baartmannkrug or Bellarmino bulbous jugs produced since the early 16th century. The Baartmannkrugs are noted for the medallions on their bodies, often with a coat of arms identifying where they were produced, and a molded bearded mask on the neck. Over time the medallions became completely abstract, no longer referring to any region but being merely decorative and the masks became grotesque caricatures of their original selves. A site dating to the early

seventeenth century would contain Baartmannkrugs with well-molded medallions of specific cities and naturalistic masks. This region also produced plain globular jugs of various capacities.

A total of five fragments of French stoneware, Bellarmine, representing at least three bottles were recovered (**Figure 41**). These fragments were recovered from S6 W4, S10 W3, Unit 2, Unit 7, and Unit 54. The fragments present are from the lower body, mid body, shoulder and neck with one piece bearing a fragment of the beard of the face on the Bellarmine. Body diameters were 16 cm in all cases.

### **Westerwald**

The second type stoneware common in the eighteenth century were German ceramics produced in the Westerwald region. These were most commonly made in the form of jugs that were decorated with cobalt blue and a salt glaze on a gray stoneware body. Over time the finely executed decorations and lines on Westerwald vessels became degraded. By the late seventeenth and especially the eighteenth century, they were distinctly debased. After approximately 1660 manganese was also used in conjunction with cobalt in the decoration of these vessels (Hume 1969:281). German stoneware is found on American sites dating to the eighteenth century before the American Revolution.

A total of five fragments of Westerwald Stoneware representing three vessels were recovered (**Figure 41**). Four of these fragments came from two jugs with applied circular rosettes on the exterior. The other vessel was probably a mug with cobalt and manganese decoration. The fragments from the rosette jugs were recovered Unit 1, Unit 2, Unit 30, and S7 E2 while the cobalt and manganese mug, dating to after 1660, was recovered from S9.5 W4.

### **White Salt-Glazed Stoneware**

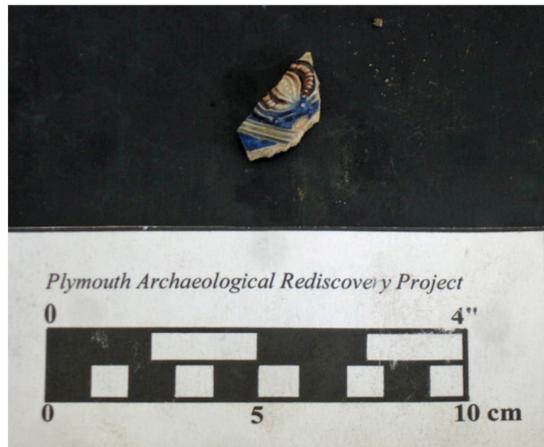
While Germany was the best known stoneware producer in the 17<sup>th</sup> and 18<sup>th</sup> centuries, other countries, especially England, began to try their hand at this craft as well. The most important development in England's stoneware industry was the perfection in 1720 of a thin bodied white salt-glazed stoneware. This ware became common tableware by the middle 18<sup>th</sup> century and soon took away much of the trade from the tin-enameled producers (Noël Hume 1970:115). Common shapes included plates with molded rim decorations and cup and saucers with a scratch blue decoration. This later decorative technique became popular in the mid 18<sup>th</sup> century, especially in the third quarter.

One fragment of white salt-glazed stoneware representing one vessel was recovered from the Knoll House site. The vessel form was unidentified.

### **English Brown Stoneware**

The English stoneware type that truly kicked off Britain's entry into the stoneware market was produced by John Dwight of Fulham England in 1671. It is believed that Dwight was modeling his stoneware on the products of Germany's Rhineland and his best known products were small drinking mugs with reeded necks (Noël Hume 1970:112). Ceramics of this type of brown English stoneware continued to be made in England and America until circa 1775.

A total of one fragment of English Brown/ Fulham Stoneware representing one vessel was recovered from the Knoll House site. The vessel form was a mug.



S9.5 W4 NW 20-30 cm

Top: S7 E2 7-20cm; Right: Unit 2 0-20 cm;  
 Bottom: Left to Right- Unit 30 0-25 cm, Unit 1 SW 55 cm



Top: S6 W4 10-20 cm; Middle: Left to Right- Unit 7 13-23 cm, S10 W3 10-20 cm; Bottom: Unit 2 0-20 cm

Figure 41. Stoneware recovered from the Knoll House Site

## **Porcelain**

Porcelain is the final class of ceramic. Porcelains are ceramics that have been fired to such high temperatures, over 1400 degrees Celsius, that they vitrify or become glass like. Ceramics of this type were produced in China as early as 1000 B.C.. It was not until 1708/09 that a porcelain industry was developed in Europe (Turnbaugh 1985:19). In lieu of the scarcity and high price of Chinese porcelains, many potters began experimenting with other ceramic type, such as tin-enameled, creamware, pearlware and white-salt-glazed stoneware, that mimicked porcelains whiteness and decorative techniques. Three pieces of canton porcelain, dating to the early nineteenth century were recovered from 22 Water St.

## **Ceramics Summary**

A narrow range and occurrence of ceramics were recovered from the Knoll House site. The assemblage found fits well with Deetz's first and early second period while those from 22 Water St. fit well with his third period. The first period (1620-1660) was characterized by a low occurrence/ minimal need for ceramics within the Stuart yeoman foodways system. Wares that occur during this period were limited to Group 1 French stonewares, Group 2 undecorated redwares. Ceramics were limited to their use in dairying and as drinking vessels.

Deetz's second period ceramics at the site (1660-1760) included a marked increase in the occurrence of fine imported ceramics of Group 1 (delftware, combed slipware, Westerwald stoneware) with a concomitant increase in North Devon Gravel Tempered wares, and a growing increase in the use of Group 3 domestically produced redwares. Ceramics were still used for dairying. Supplies were arriving in renewed quantities after the 1660 Restoration, and a greater variety of European ceramics being used in the colonies is not surprising. Another change was the increasing reliance on ceramics as flatwares, dishes and plates, versus their earlier use as hollowares

The third period was characterized by a complete replacement of all the earlier types by the developing English refined earthenwares- creamware and then pearlware. The Georgian world view was of a more orderly relationship between man and his artifacts could account for it as well possibly creating a situation where there was now one plate, one cup, and one chamberpot relationship per person. Ceramic usage now conformed more closely to our 21<sup>st</sup> century concepts of the place of ceramics in culture (Deetz 1972: 32). This period is best represented at the 22 Water St. site.

The ceramic collection that has already been recovered gives us important insight into the occupants of the house. They used locally produced redware for dairying and food storage and purchased wares imported from England, Portuguese, and Germany for drinking and display purposes. While no porcelain, a sign of extreme wealth in the period, was recovered, the recovery of appreciable amounts of French and Westerwald stoneware and tin-glazed ceramics indicates that the inhabitants were not living a hand to mouth existence but were upper middle class to lower upper class.

The expense of tin-glazed ceramics has lead many researchers to use them to indicate degree of wealth as they were more expensive than plain earthenware (Pope 1986: 195-198). Looking at various seventeenth century sites in Virginia, Maryland, and Newfoundland, as compared with the Knoll House site (Table 28) it can be seen that the Knoll House Site falls at the upper end of the economic scale with

Table 28. Tin-glazed ceramic occurrence comparison

Site	Date/ Character	Vessels Total	% Tin
Renews	ca. 1640-1670, Domestic	n=45	4.00%
Martn's 100B	ca. 1620-1640, Domestic Unit	n=194	8.00%
Ferryland B L3	ca. 1630-1640, forge	n=32	9.00%
Ferryland D	ca. 1675-1696, Domestic Unit	n=287	11.00%
Martin's 100 H	ca. 1620-1622, Domestic Unit	n=95	11.00%
Exeter Sites	ca. 1640-1670 Urban Sites	n=329	12.00%
Plymouth, Castle Street	ca. 1550-1750, Urban Sites	N=1,072	14.00%
Ferryland B R 143/145	ca. 1650-1700, Domestic Unit	n=182	14.00%
<b>Knoll House Site</b>	<b>ca. 1660-1800</b>	<b>n=39</b>	<b>15.00%</b>
Martin's 100 A	ca. 1625-1645, Gentry Residence	n=126	17.00%
Ferryland B L2b, 2f	ca. 1640-1670 Secondary Deposit	n=78	18.00%
St. Marty's St1-23	ca. 1638-1660, Gentry Residence	n=90	40.00%

just over 15% of the ceramic assemblage being composed of tin-glazed vessels (two apothecary pots, three flatware, and one holloware) also support the upper middle class to lower upper class identification.

A total of 39 vessels were identified in the assemblage:

Table 29. Ceramic vessels present in the Knoll House site assemblage

Redware	Pan: 12, Pot: 5, Cup: 2, Holloware: 2
Slipware	2 Mugs
Frenchen Stoneware	3 bottles
Westerwald Stoneware	2 jugs, 1 mug
English brown Stoneware	1 mug
English mottled ware	1 holloware
Tin-glazed	2 apothecary pot, 1 holloware, 3 flatware
North Devon Gravel tempered	1 chamberpot, 1 Milk pan

A wide range of classes of vessels were present:

Table 30. Classes of ceramic vessels present in the Knoll House Site assemblage

Class	Types of Vessels Included	Vessels in Assemblage
Storage	Pots, bottles, apothecary pot	5 pots, 1 med cup, 2 bottles, 3 stoneware bottles
Preparation	Colanders, bowls	0
Dairy	milkpans	13
Cooking	cooking pots, skillets, dripping pans	0
Food Service	chafing dish, salt, plate, bowl, jugs	3 plates, 2 jugs, 1 salt
Beverage Service	cup, wine glass, mug, beer bowl, plate	2 cups, 2 mugs, 1 mug
Hygiene	urinal, chamberpot	1

When compared with other sites of similar age (Table 31) the Knoll House Site appears to show a

Table 31. Comparison of Knoll House Site Ceramic Class Assemblage

Site	Storage	Prep	Dairy	Cook	Food Serve	Bev Serv	Health	Other	Total
<b>Knoll House Site c. 1660-1800</b>	<b>28</b>	<b>0</b>	<b>33</b>	<b>0</b>	<b>15</b>	<b>13</b>	<b>3</b>	<b>8</b>	<b>100</b>
Martin's 100H, c. 1620-22	23	1	14	16	26	16	4	0	100
Martin's 100B, c. 1620-1640	12	8	12	14	34	13	7	0	100
Martin's 100A, c. 1625-1645	13	4	23	15	22	15	7	1	100
Exeter Sites c. 1600-1650	13	18	2	11	16	20	8	10	98
St. Mary's ST1-23, c. 1638-1660	10	7	21	9	42	7	3	1	100
St. Mary's ST1-13, c. 1667-1680	13	9	9	1	33	34	1	1	101
HMS Sapphire, 1696	17	10	9	14	20	25	5	1	101
Renews, ca. 1640-1670	42	0	0	16	11	24	7	0	100
Ferryland Area B, L3	36	3	0	18	12	30	0	0	99
Ferryland Area B, L2	26	4	7	13	20	29	1	1	101
Ferryland Area B, E 143/145	32	7	3	8	20	30	1	0	101
Ferryland Area D, c. 1675-1696	38	4	4	10	12	22	3	6	99

pattern that focused on dairy activities to a greater degree than the other sites it was compared. This may represent a uniquely New England pattern where planters focused more on dairying and so the equipment used for it was more common in their assemblages. There was also a notable lack of ceramic cooking and preparation vessels, possibly another uniquely New England or perhaps a later seventeenth century trend.

The low occurrence of ceramics at the Knoll House site may be a result of the 2011 excavation's focus on the identification of the house outline versus an extensive examination of the area around the house. few artifacts are expected to be found within the house outline and encountering the refuse deposits at the northeast, southeast and southwest corner was unexpected. As a result of the structural focus of the excavations, most of the artifacts recovered dated to the late seventeenth to early eighteenth century and if the house remained on the site into the late eighteenth century as is believed, then more artifacts from the later occupation should occur somewhere either on or adjacent to the property. It is possible that refuse disposal patterns changed from the seventeenth to eighteenth centuries and as a result refuse that was distributed close to the house in the seventeenth century was disposed of farther away in the eighteenth. Further testing with closely spaced test pits (2 meters apart) may help to locate other refuse deposits and areas of waste disposal.

## VIII. CONCLUSION AND RECOMMENDATIONS

What began as a simple house renovation soon, through a series of fortuitous turns, became an important architectural find when the nineteenth and twentieth century interior facade was removed from a nondescript house in Sandwich. Luckily, the contractor who was remodeling the house recognized the potential import of the hand-hewn beams that he had uncovered and told the homeowner. The homeowner contacted an architectural archaeologist who contacted another and who also contacted a local archaeologist. The house was found to be very small, measuring 12'4" by 18' with a 12' x 12' ell on the northern side, an example of a plank frame cottage of a type perhaps typical of the housing used in Plymouth Colony from its first settlement. Cottages were most probably very common, being permanent housing of the lower to middle class and temporary housing for even the well-off when they first arrived in the New World. As far as is known, this is the smallest example of seventeenth century architecture to survive in what was once the Plymouth and Massachusetts Bay colonies, an possibly the only surviving one in New England.

When certain facts about the house did not add up, including its proximity to the street and its orientation, the homeowner graciously allowed the researchers to excavate a series of test pits in the yard around the house to try and answer their questions. The test pits failed to find any evidence of seventeenth century occupation. Evidence was found that indicated that the house was first occupied in the late eighteenth to early nineteenth century. The researchers reached the conclusion that the most logical conclusion was that the house was moved to its present location from somewhere else. The question now was, where did it come from. Fortunately, the homeowner had also purchased the land to the immediate north of the 22 Water St. property and architectural archaeologist David Wheelock saw that on this parcel was a knoll that overlooked Shawme Lake. The perfect location for a seventeenth century homesite and the homeowner was kind enough to let us excavate some test pits there as well.

Test pitting on the knoll immediately yielded positive evidence of seventeenth century occupation. Subsequent excavation revealed a well-preserved 50 cm wide wall that formed the north wall of the ell attached to the original house. Searching for the other walls revealed that they were probably not set as deeply in the ground as the north wall, which was on a downward slope to the lake, and that they had been completely removed. Significant trash deposits were found at what were interpreted as the southeast and southwest corners of the house. Artifacts recovered date the house to at least the late seventeenth century and possibly as early as the 1660s. This property does not show up as being occupied on the 1667 property survey of the town of Sandwich (as reconstructed by Lovell 1984) possibly indicating a construction date after this time. One window lead was found to bear a date of 1677 while other artifacts such as the latten spoon bowls, the silver cufflink, and the slipware all support a post 1675 date. It is not known at this time who owned the property. A piece of hand-hewn timber with the initials WA was found beneath the house at 22 Water St. and a cufflink spots the letter G. The WA may relate to the owner of the house, the builder or even some unrelated person. The piece bearing the initials was found sawn off a timber from an unknown location, obviously arriving at the site either when the house was moved or after during construction activities at the house. It may have even been a piece of reused lumber that was part of the timbers used to transport the house and may not relate to the extant house at all. The cufflink with the G may also not even be directly related to the occupants of the house, it could be a family last name initial, a first name initial, an heirloom from someone else, or may have been lost by someone who was only visiting the home.

From the archaeological and the historical record, it can be stated with certainty that the family living at

the Knoll House site had a standard of living that average to slightly better off than most of their neighbors during the late seventeenth century. They owned at least two different types of horses, one larger one that was probably used for riding and smaller ponies that could be used to carry sacks and goods into and from the markets or mill. Their ceramics they used were imported from England, Portugal, and Germany as well as probably coming from local kilns. They raised cattle, sheep, swine and chickens and owned at least one musket or fowler for which they may have knapped their own flints or purchased locally knapped ones. They were not so well off that they were above reusing and repairing broken pieces, such as the spoon bowl with the holes drilled in the handle to attach a replacement handle, the brass kettle that had been repaired with a patch, and the tin-glazed pot that was reused as a trivet, coaster, or even inverted and used as a salt cellar. At some point they felt the needed to enlarge their house by means of an attached northern ell that was probably used as a dairy, an activity also evident by the several milk pans present in the ceramic assemblage.

The excavations that have been carried out to date have allowed a unique glimpse into the unrecorded lives of this unknown family. It is recommended that in the future care should continue to be exercised whenever any earthmoving activities, even activities as simple as planting gardens, trees or erecting fencelines, are to be carried out. A trained archaeologist should be secured to conduct the initial testing in the areas scheduled for development and improvement. The Keyes family is in possession of a unique, significant, and fragile historical resource and every effort should be made to protect what lays beneath the land at the Knoll House site. There is a strong possibility that evidence of some type of outbuilding such as a barn or animal housing and pens exist around the house and efforts should also be undertaken in the future to locate those traces and determine their potential and the best way to protect and preserve them.

## REFERENCES CITED

- Amos, William H. and Stephen H.  
1994 *The Audubon Society Nature Guides: Atlantic and Gulf Coasts*. Alfred A. Knopf, New York.
- Anonymous  
1974 *Archaeological Report on the Faunal Remains from C-13*. On file at Plimoth Plantation.
- Arnold, James  
1897 *Vital Record of Rehoboth 1642-1896*. Narragansett Historical Publishing Co, Providence, RI.
- Barber, John Warner  
1839 *Historical Collections*. Dorr, Howland & Co., Worcester, MA.
- Barbour, Harriot Buxton  
1972 *Sandwich The Town that Glass Built*. Augustus M. Kelley Publishers, Clifton, New Jersey.
- Barbour, Philip L.  
1986 *The General History of Virginia, the Somer Isles, and New England. In The Complete Works of Captain. John Smith (1580-1631) Vol 2*. The University of North Carolina Press for the Institute of Early American History and Culture, Williamsburg, VA
- Barnwell, P.S. and Malcolm Airs  
2006 *Houses and the Hearth Tax*. CBA Research Report 150.
- Baker, James W.  
1996 "As Time Will Serve" The Evolution of Plimouth Plantation's Recreated Architecture. *Old Time New England*. Spring, pp 49-74.
- Baxter, James Finney  
1893 *Christopher Levett of York, the pioneer colonist in Casco Bay: The Pioneer Colonist in Casco Bay*. Printed for the Gorges Society.
- Baxter, James Phinney and Robert Trelawny  
1884 *The Trelawny Papers. Collections of the Maine Historical Society, Second Series in History of the State of Maine* Volume 3. Hoyt, Fogg, and Donham, ME.
- Best, Henry  
1641 *Rural Economy in Yorkshire*. London
- Bigelow, Henery B. and William C. Schroeder  
1953 *Fishes of the Gulf of Maine*. Fishery Bulletin 74. Fishery Bulletin of the Fish and Wildlife Service, Vol. 53. United States Government Printing Office, Washington.

Binford, Lewis R.

1980 Willow Smoke and Dogs' Tails: Hunter-Gatherer Settlement Systems and Archaeological Site Formation. *American Antiquity* 45:4-20.

1962 A New Method for Calculating Dates from Kaolin Pipe Stem Fragments. *Southeastern Archaeological Conference Newsletter*. Vol 9 (1): 19-21.

Bowen, Joanne

2000 Faunal Remains and Urban Household Subsistence in New England. In *The Art and Mystery of Historical Archaeology: Essays in Honor of James Deetz*. CRC Press, Boca Raton, Florida.

1986 Foodways. In *The African Meeting House Boston, Massachusetts Summary Report of Archaeological Investigations 1975-1986*. Edited by Beth Anne Bower. Submitted to The Museum of African American History, Boston, MA.

Bower, Beth Ann, and Sheila Charles

1982 Report on the 1975 through 1978 Excavations at the African Meeting House, Boston: Artifact Processing and Analysis. Report on file at the MHC.

Bradford, William

1984 *Of Plymouth Plantation*. Alfred A. Knopf, New York.

Bragdon, Kathleen J.

1996 *Native People of Southern New England 1500-1650*. University of Oklahoma Press, Norman, Oklahoma.

Braun, Esther and David Braun

1994 *The First Peoples of the Northeast*. Lincoln Historical Society, Lincoln, Massachusetts.

Bronson, Henry

1858 *History of Waterbury, Connecticut*. Waterbury, Bronson brothers.

Brown, Dona

1995 *Inventing New England: Regional Tourism in the 19th Century*. Smithsonian Institution Press, Washington, D.C.

Bussey, Stanley D., James M. Briscoe, Marsha K. King, Edna Feiner, and Duncan Ritchie

1992 Archaeological Reconnaissance Survey and Soils Inspection of Hanscom Air Force Base. Prepared by The Public Archaeology Laboratory, Inc. Pawtucket, Rhode Island, for Hanscom Air Force Base, Bedford, Lexington, and Lincoln, MA.

Cake, E. W. Jr.

1983 *Habitat Suitability Index Models: Gulf of Mexico American Oyster*. U.S. Fish and Wildlife Service Biological Report 82.

Candee, Richard

- 1967 Folk Architecture and Vernacular Building in Plymouth Colony 1620-1700. Unpublished, on file at Plimoth Plantation.
- 1969 A Documentary History of Plymouth Colony Architecture. *Old-Time New England*. Ser No 218.

Chartier, Craig

- 1995 The Aptuxet Trading Post: Fact, Fiction, and a study in 20th Century Myth Creation. Prepared for the Bourne Historical Society, on file at the Massachusetts Historical Commission, Boston.

Chesapeake Executive Council

- 1988 Chesapeake Bay program. Habitat Requirements for Chesapeake Bay Living Resources.

Christman, Carolyn J. , D. Philip Sponenberg and Donald E. Bixby

- 1997 *A Rare Breeds Album of American Livestock*. The American Livestock Breeds Conservancy, Pittsboro, North Carolina.

Clark, Rainbird

- 1935 The Flintknapping Industry at Brandon. *Antiquity*. Vol. 10. 38-56.

Cook, Louis A.

- 1918 *History of Norfolk County*. S. J. Clark Publishing Company, New York, NY.

Cross, John R.

- 1996 The Paleo-Indian Period (ca 11,500-9000 B.P.). In *History and Archaeology of the North Atlantic Region: A Context for Cultural Resource Management*. U.S.Department of the Interior, National Park Service, Washington, DC.

Cummings, Abbott Lowell

- 1979 *The Framed Houses of Massachusetts Bay, 1625-1715*. Belknap Press/Harvard University Press

Curran, Mary Lou and Dena Dincauze

- 1977 Paleoindians and Paleo-Lakes: New Data from the Connecticut Drainage. In *Amerinds and their Paleoenvironments*. In *Northeastern North America*, edited by W. S. Newman and B. Salwen, pp.333-348. Annals of the New York Academy of Sciences, Vol. 288, Albany, NY.

Davis, Wendell

- 1802 *Description of Sandwich in the County of Barnstable*. Volume 8 in the Collections of the Massachusetts Historical Society, Munroe and Francis, Boston, MA.

Davis, William T.

- 1908 *Bradford's History of Plymouth Plantation*. Charles Scribner's and Sons, New York, NY.

- Deetz, James F.  
 1972 Ceramics from Plymouth 1635~1835: The Archaeological Evidence. In *Ceramics in America*. Ian M. G. Quimby ed. Winterthur Conference Series, University Press of Virginia, Charlottesville.
- Deetz, James F. and Patricia Scott  
 2001 Vernacular House Forms in 17th Century Plymouth Colony. Plymouth Colony Archive website, <http://www.histarch.uiuc.edu/plymouth/seminar.html>
- Deyo, Simeon L  
 1890 *History of Barnstable County, Massachusetts*. New York: H. W. Blake & Co
- Dincauze, Dena F.  
 1974 An Introduction to Archaeology in the Greater Boston Area. *Archaeology of Eastern North America* 2:39-66.  
 1975 The Late Archaic Period in Southern New England. *Arctic Anthropology* 12 (2):23-34.  
 1976 *The Neville Site: 8,000 Years at Amoskeag, Manchester, New Hampshire*. Peabody Museum of Archaeology and Ethnology, Monographs No.4. Harvard University Press, Cambridge, MA.  
 1980 Research Priorities in Northeast Prehistory. In *Proceedings of the Conference on Northeastern Archaeology*, edited by J. Moore, pp. 29-48. Research Reports 19, Department of Anthropology, University of Massachusetts, Amherst, MA.
- Dincauze, Dena and Judith Meyer  
 1977 The Archaeological Resources of East-Central New England U.S. National Park Service. Report on file at the Massachusetts Historical Commission, Boston, MA.
- Dincauze, Dena and Mitchell Mulholland  
 1977 Early and Middle Archaic Site Distributions and Habitats in Southern New England. In *Amerinds and Their Paleoenvironments in Northeastern North America*, edited by W. S. Newman and B. Salwen. *Annals of the New York Academy of Sciences* 288:439-456.
- Di Zerega Wall, Diana  
 1991 Sacred Dinners and Secular Teas: Constructing Domesticity in Mid-19th-Century New York. *Historical Archaeology* 25 (4): 69-81.
- Doucette, Dianna  
 2005 Reflections of the Middle Archaic: A View from Annasnappett Pond. *Bulletin of the Massachusetts Archaeological Society*. Vol. 66 (1).
- Dow, George Francis  
 1922 Building Agreements in Seventeenth Century Massachusetts. *Old-Time New England*. Volume 11, pp. 135-139.
- Dudek, Martin  
 2005 The Whortleberry Hill Site: An Early Holocene Camp in Dracut, MA. *Bulletin of the Massachusetts Archaeological Society*. Vol. 66 (1).

Dunford, Frederick

1992 Conditional Sedentism: the Logistical Flexibility of Estuarine Settlements in Circumscribed Environments. Paper presented at the fifty-seventh annual meeting of the Society of American Archaeology, 8-12, April, Pittsburgh, PA.

Esary, Mark Edward

1982 Archaeological Geographical And Historical Comparison. Eleven Nineteenth-Century Archaeological Sites Near Belleville. M.S.thesis. Illinois State University. Normal, Illinois.

Forrest, Daniel T.

2000 Population Movement and Lithic Technology During the Early Archaic of Southern New England Paper presented at the annual Conference on New England Archaeology, May 20, 2000, at Sturbridge, MA.

Funk, Robert F.

1972 Early Man in the Northeast and the Late Glacial Environment. *Man in the Northeast* 4:7-39.

Googe, Barnaby

1614 The Whole Art and Trade of Husbandry. London.

Haggett, Peter, Andrew D. Cliff; and Allen Frey

1977 *Locational Analysis in Human Geography*, 2nd edition. Wiley, New York, NY.

Hamilton, T.M.

1965 Recent developments in the use of the Gunflints for dating and Identification. *Diving into the Past*. Helmquist and Wheeler. Minnesota Historical Society, Saint- Paul.

Hanawalt, Barbara

1986 *The ties that bound: peasant families in medieval England*. Oxford Univeristy Press, New York.

Handsman, Russell

1981 Early Capitalism and the Center Village of Canaan, Connecticut: A study of Transformation and Separations. *Artifacts* 3.

Harrington, J. C.

1954 Dating Stem Fragments of Seventeenth and Eighteenth Century Clay Tobacco Pipes. *Quarterly Bulletin of the Archeological Society of Virginia*. Vol 9(1):10-14.

Harrison, William

1994 Description of England. Edited by Ceorges Edelen. Joint Publication of The Folger Shakespeare Library, Washington, D.C. and Dover Publications, Inc. New York.

Hasenstab, Robert

1999 Fishing, Farming, and Finding the Village Sites: Centering Late Woodland New England Algonquians. In *The Archaeological Northeast*, edited by Mary Ann Levine, Kenneth E. Sassaman, and Michael S. Nassaney. Bergin & Carvey, Westport, CT.

- Hasenstab, Robert, M. Mulholland, and R. Holmes  
 1990 Archaeological Investigations at Prehistoric Site 19-HD-109, Westfield Massachusetts. Report on file at the Massachusetts Historical Commission, Boston, MA.
- Heath, Dwight  
 1963 A Relation or Journal of the proceedings of the Plantation Settled at Plymouth in New England. In *Mourt's Relation*. (London 1622).
- Henretta, James A.  
 1978 Families and Farms: Mentalite in Pre-Industrial America. *William and Mary Quarterly* 35: 3-32.
- Higgs, E.S. and C. Vita-Finzi  
 1982 Prehistoric Economies: A Territorial Approach. Papers in Economic Prehistory: Studies by Members and Associates of the British Academy Major Research Project in the Early History of Agriculture. ed. E.S. Higgs. Cambridge University Press, Cambridge, England.
- Hoffman, Curtis  
 1998 Pottery and steatite in the Northeast: A reconsideration of origins. *Northeast Anthropology* , no. 56.
- Hurst, John  
 1972 *Deserted Medieval Villages Studies*. Lutterworth Press, Guildford and London.
- James, Syndey V.  
 1997 *Three Visitors to Early Plymouth: Letters about the Pilgrim Settlement in New England during its First Seven Years, by John Pory, Emmanuel Altham, and Isaack de Raisieres*. Applewood, Bedford, MA.
- Jenison, Paul  
 1976 The Availability of Lime and Masonry Construction in New England 1630-1733. *Old-Time New England*, ser 245-246 (Summer-Fall).
- Johnson, Eric S., and Thomas F Mahlstedt  
 1984 Guide to Prehistoric Site Files and Artifact Classification System Massachusetts Historical Commission, Boston, MA.
- Johnson, Frederick  
 1942 The Boylston Street Fishweir. Papers of the Robert S. Peabody Foundation for Archaeology, Vol.2. Andover, MA.  
 1949 The Boylston Street Fishweir II: A Study of the Geology, Paleobotany, and Biology of a Site on Stuart Street in the Back Bay District of Boston, Massachusetts. Papers of the Robert S. Peabody Foundation for Archaeology 4(1) Andover, MA.
- Johnson, Susan A. and Russell G. Handsman  
 1996 Histories and Archaeology in the Near Interior Region of Southern Rhode Island. University of Rhode Island, Kingston, R.I.

- Keene, Betsy D.  
1975 *History of Bourne from 1622 to 1937*. Bourne Historical Society and Wm. S. Sullwold Publishing, Taunton, Massachusetts.
- Kenyon, Victoria B. and Patricia McDowell  
1983 Environmental Setting of Merrimack River Valley Prehistoric Sites. *Man in the Northeast* 25.
- Kerber, Jordan E.  
1988 Where are the Late Woodland Villages in the Narragansett Bay Region? *Bulletin of the Massachusetts Archaeological Society* 49(2): 66-71.
- Kimball, Fiske  
1922 *Domestic Architecture of the American Colonies and of the Early Republic*. Metropolitan Museum of Art
- Klein, Terry H.  
1991 Nineteenth-Century Ceramics and Models of Consumer Behavior. *Historical Archaeology*. 25 (2): 77-91.
- Klein, Terry H. And Sherene Baugher  
2001-2002 Addressing an Historic Preservation Dilemma: The Future of Nineteenth-Century Farmstead Archaeology in the Northeast. *Northeast Historical Archaeology*, Vol. 30-31, pp 167-180.
- Knowles, Francis H.S. and Alfred S. Barnes  
1937 Manufacture of Gunflints. *Antiquity*. Vol. 12, p. 201-207.
- Kulikoff, Allan  
1989 The Transition to Capitalism in Rural America. *William and Mary Quarterly* 46: 120-144.
- Landon, David  
1996 Feeding Colonial Boston: A Zooarchaeological Study. *Historical Archaeology* Vol. 30: 1.
- Lee, Ruth Webb  
1947 *Sandwich Glass: The History of the Boston & Sandwich Glass Company*. Published by the Author, Northborough, MA.
- Lovell, R.A.  
1984 *Sandwich: A Cape Cod Town*. Sandwich Archives and Historical Center. Sandwich, Massachusetts.
- Luedtke, Barbara E.  
1988 Where are the Late Woodland Villages in Eastern Massachusetts? *Bulletin of the Massachusetts Archaeological Society* 49(2): 58-65.

Markham, Gervase

1668 *A Way to Get Wealth*. London

1615 *The English Housewife*. 1994 edition ed. by Michael R. Best. McGill-Queen's University Press, Buffalo.

1614 *Cheap and Good Husbandry*. London.

Massachusetts Historical Commission (MHC)

1984 Reconnaissance Survey Report: Sandwich. Massachusetts Historical Commission, Boston, MA.

Massachusetts Historical Society

1815 *Topography and History of the Town of Wareham*. Little, Brown and Company, Boston, MA.

McCorvie, Mary R.

1987 The Davis, Baldrige, And Huggins Sites Three Nineteenth Century Upland South Farmsteads In Perry County Illinois. *Preservation Series 4*. American Resources Group, Ltd. Carbondale, Illinois.

McManamon, Francis P.

1984 Prehistoric Cultural Adaptations and Their Evolution on Outer Cape Cod. In *Chapters in the Archaeology of Cape Cod*, Vol.2, edited by Francis P. McManamon, pp.339-417. Cultural Resources Management Study No.8. Division of Cultural Resources, North Atlantic Regional Office, National Park Service, Boston, MA.

Meltzer, David

1988 Late Pleistocene Human Adaptations in Eastern North America. *Journal of World Prehistory* 2:1-52.

Miller, George L.

1980 Classification and Economic Scaling of 19th-Century Ceramics. *Historical Archaeology* 14:1-40.

1991 A Revised Set of CC Index Values for Classification and Scaling of English Ceramics from 1787 to 1880. *Historical Archaeology* 25(1):1-25.

Miller, George L. and Robert R. Hunter, Jr.

1990 English Shell Edged Earthenware: Alias Leeds Ware, Alias Feather Edge. Paper presented at the 35th Annual Edgewood Seminar.

Miller, Henry M and Robert W. Keeler

1986 *An Analysis of Gunflints. Tools and Flint Debitage from the St. John's Site (18 ST1-23) in St. Mary's City*. St. Mary's City Research Series No. 2.

Morrison, Samuel Eliot

1952 *William Bradford, Of Plymouth Plantation*. Knopf, New York, NY.

Morton, Nathaniel

1855 *New England's Memorial*. Congregational Board of Publication.

Mulholland, Mitchell T.

1984 *Patterns of Change in Prehistoric Southern New England: A Regional Approach*. Unpublished Ph.D. dissertation, Department of Anthropology, University of Massachusetts, Amherst, MA.

Nanapashamet

1996 *Wampanoag Subsistence Cycle*. Wampanoag Indian Program Training Manual. Plimoth Plantation.

New England Historical and Genealogical Register (NEHGR)

1856 *Scituate and Barnstable Church Records*. Volume X.

Nicholas, George P.

1990 *The Archaeology of Early Place; Early Postglacial Land Use and Ecology at Robbins Swamp, Northwestern Connecticut*. Unpublished Ph.D. dissertation, University of Massachusetts, Amherst. University Microfilms, Ann Arbor, Md.

Noel Hume, Ivor

1992 *Martin's Hundred*. University Press of Virginia, Charlottesville, VA.

Nye Family Association (NFA)

1903 *The Nye Family of America Association: Proceedings of the First Reunion at Sandwich, Massachusetts August Fifth, Sixth, and Seventh 1903*. E. Anthony and Sons, New Bedford, MA. Online at Google books

Oswald, Adrian

1975 *Clay Pipes for the Archaeologist*. British Archaeological Report Series no. 14. Oxford, England.

Parker, George Kinship

1968 *Sailor's Narratives of Voyages along the New England Coast 1524-1624*. Burt Franklin Press, New York.

Paynter, Robert

1982 *Models of Spatial Inequality: Settlement Patterns in Historic Archeology*. Academic Press, New York, NY.

Pendery, Stephen

1999 *Portuguese Tin-Glazed Earthenware in Seventeenth-Century New England: A Preliminary Study*. *Historical Archaeology* vol. 33(4): 58-77.

Peterson, Harold L.

1947 *Military Equipment of Plymouth and the Bay Colonies 1620-1690*. *The New England Quarterly*. Vol. 20, 197-208.

Phillips, Charles

1856 *History of Plymouth Plantation*. Privately Printed, Boston, MA.

- Phillipes, Phillips  
1922 *Horse raising in colonial New England*. The University, Ithaca, New York.
- Pope, Peter E.  
1987 *Ceramics from Seventeenth Century Ferryland, Newfoundland*. Unpublished Master's Thesis, Memorial University.
- Price, Cynthia R.  
1979 *Nineteenth Century Ceramics in the Eastern Ozark Border Region*. Center for Archaeological Research, Monograph Series 1. Southwest Missouri State University.
- Prince Society  
1865 *Wood's New England's Prospect*. John Wilson and Son, Boston, MA.
- Proceedings of the Massachusetts Historical Society (PMHS)  
1885 *Samuel Maverick's Account of New England in 1630*. Second Series, Volume I, Boston, MA.
- Ritchie, William A.  
1969 *The Archaeology of Martha's Vineyard*. Natural History Press, Garden City, NY.
- Rowlandson, Mary  
1682 *The True History of the Captivity & Restoration of Mrs. Mary Rowlandson*. London, England
- Root, Dolores  
1978 *Predictive Model of Prehistoric Subsistence and Settlement on the Outer Continental Shelf*. Institute for Conservation Archaeology, Peabody Museum, Harvard University, Cambridge, MA.
- Salm, D. E.  
1892 *Special report on the history and present condition of the sheep industry of Massachusetts*. Bureau of Animal Industry.
- Shaw, Leslie C.  
1996 The Middle Woodland Period (ca. 2000-1000 B.P.) In *History and Archaeology of the North Atlantic Region: A Context for Cultural Resource Management*, edited by Eric S. Johnson pp. 84-100. North Atlantic Region, National Park Service, Boston, MA.
- Shaw, Leslie C., and H. James Merrick  
1982 Phase I, Step 1 Archaeological Reconnaissance for the Route 25 and Route 28 Ingersoll Alignment, Plymouth and Barnstable Counties, Massachusetts. Report on file at the Massachusetts Historical Commission, Boston, MA.
- Skehan, James  
2001 *Roadside Geology of Massachusetts*. Mountain Press Publishing Company, Montana.
- Slotkin, Richard and James K. Folsom  
1978 *So Dreadfull a Judgement: Puritan Responses to King Philip's War 1676-1677*. Wesleyan University press, University Press of New England, Hanover.

Smith, C. S.

1960 Two 18th Century Reports on the Manufacture of Gunflints in France. *Missouri Archaeologist*; Vol. 22 40-69.

Snow, Dean

1980 *The Archaeology of New England*. Academic Press, New York

Soltow, Lee

1992 Inequalities in the Standard of Living in the United States, 1798-1875. In *American Economic Growth and Standards of Living Before the Civil War*, ed. By Robert E. Gallman and John Joseph Wallis, 121-171. University of Chicago Press.

Sonderman, Robert Charles

1979 Archaeological Explorations of the Jesse Lindall and Twiss Hill Historic Sites St. Clair County Illinois. M.S. thesis. Illinois State University. Normal, Illinois.

Spargo, John

1926 *The Potters and Potteries of Bennigton*. Houghton Mifflin Company. Boston, Massachusetts.

Spencer-Wood, Suzanne and Scott D. Heberling

1984 Ceramics and Socio-Economic Status of the Green Family, Winsor, Vermont. *Northeast Historical Archaeology*, 13: 33-52.

Stelle, Lenville J.

1988 History, Archeology, and the 1730 Siege of the Foxes. Paper presented at the 33rd Annual Meeting of the Midwest Archaeological Conference. Champaign, Illinois.

Stewart-Abernathy, Leslie C.

1986 Urban Farmsteads: household Responsibilities in the City. *Historical Archaeology* 20 (2), pp.5-14.

Stone, B. D. and H. W. J. Borns

1986 Pleistocene Glacial and Interglacial Stratigraphy of New England, Long Island, and Adjacent Georges Bank and Gulf of Maine. In *Quaternary Glaciations in the Northern Hemisphere*, edited by V. Sibrave, D.Q. Bowen, and G.M. Richmond, pp.39-52. Pergamon Press, Oxford, UK.

Stuart, Rob

1995 *Shepards and Sheep 1580-1660*. Stuart Press, Bristol, England.

Taylor, William

1976 A Bifurcated Point Concentration. *Bulletin of the Massachusetts Archaeological Society* 37 (3-

4):36-41.

Thorbahn, Peter

- 1988 Where are the Late Woodland Villages in Southern New England? *Bulletin of the Massachusetts Archaeological Society* 49(2): 46-57.
- 1984 Survey and Planning Project Completion Report, Prehistoric Land Use Zones Along the Taunton River. Report on file at the Massachusetts Historical Commission
- 1982 Settlement Systems in Prehistoric Southern New England: Final Report on the I-495 Data Recovery Program, Volume I. Report on file at the Massachusetts Historical Commission, Boston, MA.

Thorbahn, Peter F., and Deborah C. Cox

- 1984 Survey and Planning Project Completion Report, Prehistoric Land Use Zones Along the Taunton River. Report on file at the Massachusetts Historical Commission, Boston, MA.

Thorbahn, Peter, Leonard W. Leopard, Deborah C. Cox and Brona Simon

- 1980 Prehistoric Settlement Processes in New England: A Unified Approach to Cultural Resource Management and Archaeological Research. Report on file at the Massachusetts Historical Commission, Boston, MA.

Towle, Linda A.

- 1986 Investigating the Fox Creek phase on Cape Cod. *Bulletin of the Massachusetts Archaeological Society*. Vol. 47: 1 pp 28-33.

Turnbaugh, Sarah P.

- 1985 Imitation, innovation and permutation: The Americanization of Bay Colony lead glazed redware. In: *Domestic Pottery of the Northeastern United States 1625-1850*. Sarah Peabody Turnbaugh ed. Academic Press Inc. Orlando, Florida.

Walker, Iain C.

- 1977 *Clay Tobacco Pipes, With Particular Reference to the Bristol Industry*. History and Archaeology, nos. 11A-D. Parks Canada, Ottawa.

Watkins, Laura

- 1968 *Early New England Potters and their Wares*. Archon Books, New York.

Whitaker, John and William John Hamilton

- 1998 *Mammals of the Eastern United States*. Cornell University Press.

White, Stephen W.

- 1975 On the Origins of Gunspalls. *Historical Archaeology* 9: 65-73.

Winslow, Edward

- 1841 *Good Newes from New England. In Chronicles of the First Planters of the Colony of Massachusetts Bay from 1602 to 1625*. Little and Brown, Boston, MA.

Witthoft, John

1966 A History of Gunflints. *The Missouri Archaeologist*. Vol. 22, 29-39.

Wood, Joseph

1978 The Origin of the New England Village Unpublished Ph.D. dissertation, Department of Geography, Pennsylvania State University, Altoona, PA.

Woodward, A.

1960 Some Notes on Gunflints. *Missouri Archaeologist* Vol 22; 29-39.

Wright, Carroll

1875 *The Census of Massachusetts 1875: Volume II Agricultural Products and Property*. Albert J. Wright State Printer, Boston, MA.

Yentsch, Anne

1988 Legends, houses, families, and myths: Relationships between material culture and American ideology. In: *Documentary Archaeology in the New World*. Mary Beaudry ed. Cambridge University Press.

Young, Alexander

1846 *Chronicles of the First Planters of the Colony of Massachusetts Bay*. C.C. Little and J. Brown, Boston, MA.

Zimler, Dana L.

1987 A Socioeconomic Indexing of 19th Century Illinois Farmsteads. Manuscript on file. Department of Anthropology. University of Illinois. Urbana, Illinois.

## Appendix A

### 22 Water St. House Measurements

South Side of House  
Second floor joists  
West to East: Spacing  
35.5"  
33"  
43"

West to East: Size  
6 x 3.5"  
6 x 3.75"  
5.5 x 4 5/8"  
5.75 x 3.5"  
5.76

Wind braces  
West: 32" high  
4" width  
52" long  
East: 34" high  
4" wide  
52" long

Attic Joists  
West to east: Spacing  
40"  
36"  
35.5"  
35.5"  
17.75"  
15.25"  
37"

West to East: Size  
5.5 x 5"  
4.5 x 5.5"  
5 x 5.25"  
5.25 x 5 5/8"  
5 x 5.25"  
5 x 4.75"  
5 x 5 1/8"

Rafters  
West to East: Spacing  
0 to 9'  
9'-18'

West to East: Size  
3.5 x 6.5"

3 1/8 x 5 5/8"

97" long

Purlins:

48.25" up from end 3.25 x 1"

Ridge pole

3 x 3"

Second Floor Gunstock Post: 7" wide at top tapers to 6.5"

Second Floor Wind Brace

32.5" high

44" long

Roof:

97" long

58.5" high

40° angles 10/ 12

Appendix B  
Artifact Catalog

Catalog #	Unit 1	Depth	Count	Class	Material	Description
22	Water St					
Water St 2011-1		1 0-20 cm	2	ceramic	Brick	
Water St 2011-1		1 0-20 cm	1	ceramic	whiteware	Undecorated
Water St 2011-1		1 0-20 cm	3	Faunal	Bone	medium mammal flatbone calcined
Water St 2011-1		1 0-20 cm	2	Glass	curved	machine made
Water St 2011-1		1 0-20 cm	1	Glass	curved	mold blown
Water St 2011-1		1 0-20 cm	1	Glass	curved	mold blown
Water St 2011-1		1 0-20 cm	1	Glass	curved	mold blown
Water St 2011-1		1 0-20 cm	1	Glass	Flat	Window Glass
Water St 2011-1		1 0-20 cm	1	Glass	Flat	Window Glass
Water St 2011-1		1 0-20 cm	3	lithic	coal	
Water St 2011-1		1 0-20 cm	1	lithic	coal	burned
Water St 2011-1		1 0-20 cm	1	Metal	Cuprus	Thimble
Water St 2011-1		1 0-20 cm	6	Metal	iron	Wire nails
Water St 2011-1		1 0-20 cm	1	Metal	iron	Hinge
Water St 2011-1		1 0-20 cm	3	Metal	iron	Machine-cut nail
Water St 2011-1		1 0-20 cm	1	Metal	iron	electical box slug
Water St. 2011-2		2 0-15 cm	3	ceramic	Brick	fragments
Water St. 2011-2		2 0-15 cm	1	ceramic	creamware	undecoated
Water St. 2011-2		2 0-15 cm	4	Metal	iron	Hand-wrought nail
Water St. 2011-2		2 0-15 cm	1	Metal	iron	thick piece
Water St. 2011-2		2 0-15 cm	1	Metal	Lead	flat triangular piece
Water St. 2011-3		3 0-20 cm	14	ceramic	Brick	
Water St. 2011-3		3 0-20 cm	6	ceramic	ironstone	undecoated
Water St. 2011-3		3 0-20 cm	1	ceramic	kaolin	Pipe
Water St. 2011-3		3 0-20 cm	3	ceramic	redware	unglazed interior and exterior
Water St. 2011-3		3 0-20 cm	3	Faunal	shell	soft shell clam
Water St. 2011-3		3 0-20 cm	2	Glass	curved	machine made
Water St. 2011-3		3 0-20 cm	1	Glass	curved	white milk glass
Water St. 2011-3		3 0-20 cm	3	Glass	Flat	Window Glass
Water St. 2011-3		3 0-20 cm	2	lithic	coal	fragments
Water St. 2011-3		3 0-20 cm	1	Metal	Cuprus	handle ferrule
Water St. 2011-3		3 0-20 cm	1	Metal	iron	shutter hardware
Water St. 2011-3		3 0-20 cm	2	Metal	iron	Wire nails
Water St. 2011-3		3 0-20 cm	20	Metal	iron	Machine-cut nail
Water St. 2011-4		4 0-25 cm	6	ceramic	Brick	fragments
Water St. 2011-4		4 0-25 cm	4	ceramic	creamware	Undecorated
Water St. 2011-4		4 0-25 cm	1	ceramic	kaolin	stem
Water St. 2011-4		4 0-25 cm	1	ceramic	pearlware	interior blue TP
Water St. 2011-4		4 0-25 cm	3	ceramic	redware	interior and exterior unglazed
Water St. 2011-4		4 0-25 cm	1	ceramic	slipware?	Interior and extior yellow
Water St. 2011-4		4 0-25 cm	9	ceramic	whiteware	Undecorated
Water St. 2011-4		4 0-25 cm	1	Faunal	Bone	medium mammal flatbone calcined
Water St. 2011-4		4 0-25 cm	7	Faunal	shell	quahog
Water St. 2011-4		4 0-25 cm	1	Glass	curved	mold blown
Water St. 2011-4		4 0-25 cm	1	Glass	curved	mold blown
Water St. 2011-4		4 0-25 cm	1	Glass	curved	hand blown
Water St. 2011-4		4 0-25 cm	1	Glass	Flat	Window Glass
Water St. 2011-4		4 0-25 cm	2	lithic	coal	burned
Water St. 2011-4		4 0-25 cm	1	lithic	Rhyolite	Flake fragment
Water St. 2011-4		4 0-25 cm	14	Metal	iron	Machine-cut nail
Water St. 2011-4		4 0-25 cm	10	Metal	iron	Machine-cut nail
Water St. 2011-5		5 0-30 cm	8	ceramic	Brick	fragments
Water St. 2011-5		5 0-30 cm	1	ceramic	pearlware	Blue edged even scalloped edge deep scallop deep feathers
Water St. 2011-5		5 0-30 cm	3	ceramic	pearlware	blue interio HP floral
Water St. 2011-5		5 0-30 cm	1	ceramic	pearlware	undecorated bluish tinge to glaze
Water St. 2011-5		5 0-30 cm	2	ceramic	Porcelain- canton	Interior and exterior blue HP brown on rim
Water St. 2011-5		5 0-30 cm	1	ceramic	redware	interior and exterior surfaces missing
Water St. 2011-5		5 0-30 cm	14	ceramic	whiteware	Undecorated

Water St. 2011-5	5 0-30 cm	1	ceramic	whiteware	blue edged strait rim painted feathers
Water St. 2011-5	5 0-30 cm	3	Faunal	Bone	medium mammal longbone calcined
Water St. 2011-5	5 0-30 cm	8	Glass	Flat	Window Glass
Water St. 2011-5	5 0-30 cm	2	lithic	coal	burned
Water St. 2011-5	5 0-30 cm	1	Metal	iron	Hand-wrought nail
Water St. 2011-5	5 0-30 cm	16	Metal	iron	Machine-cut nail
Water St. 2011-6	6 0-10 cm	2	ceramic	redware	interior and exterior unglazed
Water St. 2011-6	6 0-10 cm	1	Metal	iron	Machine-cut nail
Water St. 2011-6	6 0-10 cm	2	Metal	iron	Machine-cut nail
Water St. 2011-6	6 0-10 cm	1	Metal	iron	Machine-cut nail
Water St. 2011-6	6 0-10 cm	6	Metal	iron	Machine-cut nail
Water St. 2011-6	6 0-10 cm	1	Metal	iron	Machine-cut nail
Water St. 2011-6	6 0-10 cm	1	Metal	iron	Machine-cut nail
Water St. 2011-6	6 10-30 cm NW	3	Metal	iron	Machine-cut nail
Water St. 2011-6	6 10-30 cm NW	1	Metal	iron	Wire nails
Water St. 2011-6	6 10-30 cm NW	1	Metal	iron	Machine-cut nail
Water St. 2011-6	6 10-30 cm NW	1	Metal	iron	wood screw
Water St. 2011-7	7 0-30 cm	14	ceramic	Brick	
Water St. 2011-7	7 0-30 cm	7	ceramic	redware	interior and exterior unglazed
Water St. 2011-7	7 0-30 cm	16	ceramic	whiteware	undecorated
Water St. 2011-7	7 0-30 cm	1	Faunal	Bone	medium mammal longbone calcined
Water St. 2011-7	7 0-30 cm	1	Faunal	shell	soft shell clam
Water St. 2011-7	7 0-30 cm	2	Floral	Charcoal	
Water St. 2011-7	7 0-30 cm	1	Glass	curved	machine made
Water St. 2011-7	7 0-30 cm	9	Glass	Flat	Window Glass
Water St. 2011-7	7 0-30 cm	1	Metal	iron	Machine-cut nail
Water St. 2011-7	7 0-30 cm	3	Metal	iron	Machine-cut nail
Water St. 2011-7	7 0-30 cm	2	Metal	iron	Hand-wrought nail
Water St. 2011-7	7 0-30 cm	1	Metal	iron	horseshoe nails
Water St. 2011-7	7 0-30 cm	9	Metal	iron	Machine-cut nail
Water St. 2011-7	7 0-30 cm	1	Metal	iron	Hand-wrought nail
Water St. 2011-7	7 0-30 cm	1	Metal	iron	Machine-cut nail
Water St. 2011-7	7 0-30 cm	2	Metal	iron	Machine-cut nail
Water St. 2011-7	7 0-30 cm	2	Metal	iron	thick fragments
Water St. 2011-7	7 0-30 cm	4	Metal	iron	Wire nails
Water St. 2011-8	8 0-35 cm	8	ceramic	Brick	
Water St. 2011-8	8 0-35 cm	5	ceramic	creamware	Undecorated
Water St. 2011-8	8 0-35 cm	6	ceramic	pearlware	Interior and exterior dark blue transferprinted floral
Water St. 2011-8	8 0-35 cm	3	ceramic	pearlware	Undecorated
Water St. 2011-8	8 0-35 cm	1	ceramic	Porcelain- canton	exterior blue handpainted
Water St. 2011-8	8 0-35 cm	1	ceramic	redware	Interior unglazed exterior glazed
Water St. 2011-8	8 0-35 cm	5	ceramic	redware	Exterior unglazed interior surface missing
Water St. 2011-8	8 0-35 cm	1	ceramic	Slipware	Interior glazed exterior unglazed
Water St. 2011-8	8 0-35 cm	1	ceramic	whiteware	Undecorated
Water St. 2011-8	8 0-35 cm	4	Glass	buttons	4-hole underwear
Water St. 2011-8	8 0-35 cm	1	Glass	Cur	Bottle mold blown
Water St. 2011-8	8 0-35 cm	2	Glass	Cur	Bottle body mold blown
Water St. 2011-8	8 0-35 cm	1	Glass	curved	milk glass
Water St. 2011-8	8 0-35 cm	8	Glass	Flat	Window Glass
Water St. 2011-8	8 0-35 cm	5	Glass	Flat	Window Glass
Water St. 2011-8	8 0-35 cm	1	Glass	slag	Pierpoint glass slag?
Water St. 2011-8	8 0-35 cm	5	Lithic	coal	
Water St. 2011-8	8 0-35 cm	1	Metal	Cuprus	Thin, folded rim, electronic part
Water St. 2011-8	8 0-35 cm	7	Metal	iron	Machine-cut nail
Water St. 2011-8	8 0-35 cm	12	Metal	iron	Machine-cut nail
Water St. 2011-8	8 0-35 cm	1	Metal	iron	Machine-cut nail
Water St. 2011-8	8 0-35 cm	23	Metal	iron	Machine-cut nail
Water St. 2011-8	8 0-35 cm	2	Metal	iron	Machine-cut nail
Water St. 2011-8	8 0-35 cm	3	Metal	iron	Wire nails
Water St. 2011-8	8 0-35 cm	1	Metal	iron	Button

Water St. 2011-8	8 0-35 cm	1	Metal	iron	Machine-cut nail	
Water St. 2011-8	8 0-35 cm	3	Metal	iron	wire nail	
Water St. 2011-8	8 0-35 cm	1	mortar	mortar		
Water St. 2011-9	9 0-50 cm	8	ceramic	Brick		
Water St. 2011-9	9 0-50 cm	1	ceramic	earthenware	galze missing	
Water St. 2011-9	9 0-50 cm	6	ceramic	pearlware	exterior blue HP floral	
Water St. 2011-9	9 0-50 cm	3	ceramic	pearlware	interior polychrome HP floral large	
Water St. 2011-9	9 0-50 cm	1	ceramic	redware	interior glazed exetrior missing	
Water St. 2011-9	9 0-50 cm	2	ceramic	redware	Exterior unglazed interior missing	
Water St. 2011-9	9 0-50 cm	2	ceramic	Tin-Glazed	light tan body white glaze	
Water St. 2011-9	9 0-50 cm	1	ceramic	whiteware	interior dark blue transferprinted	
Water St. 2011-9	9 0-50 cm	2	ceramic	whiteware	Undecorated	
Water St. 2011-9	9 0-50 cm	1	Faunal	Bone	swine fubula calcined	sawn
Water St. 2011-9	9 0-50 cm	1	Faunal	Bone	medium mammal tooth enamel	
Water St. 2011-9	9 0-50 cm	5	Faunal	shell	quahog	
Water St. 2011-9	9 0-50 cm	1	Floral	Charcoal		
Water St. 2011-9	9 0-50 cm	2	Glass	curved	machine made	
Water St. 2011-9	9 0-50 cm	1	Glass	curved	mold blown	
Water St. 2011-9	9 0-50 cm	8	Glass	Flat	Window Glass	
Water St. 2011-9	9 0-50 cm	1	Glass	slag	sandy chunk	
Water St. 2011-9	9 0-50 cm	3	lithic	coal		
Water St. 2011-9	9 0-50 cm	1	Metal	iron	Machine-cut nail	
Water St. 2011-9	9 0-50 cm	3	Metal	iron	Machine-cut nail	
Water St. 2011-9	9 0-50 cm	2	Metal	iron	horseshoe nails	
Water St. 2011-9	9 0-50 cm	1	Metal	iron	Spoon	
Water St. 2011-9	9 0-50 cm	1	Metal	iron	hand wrought nail	
Water St. 2011-9	9 0-50 cm	1	Metal	iron	Machine-cut nail	
Water St. 2011-9	9 0-50 cm	1	Metal	iron	Wire nails	
Water St. 2011-9	9 0-50 cm	2	Metal	iron	fragments	
Water St. 2011-9	9 0-50 cm	12	Metal	iron	Machine-cut nail	
Water St. 2011-9	9 0-50 cm	1	mortar	non-shell tempered		
Water St. 2011-10	10 0-40 cm	48	ceramic	Brick	fragments	
Water St. 2011-10	10 0-40 cm	8	ceramic	whiteware	Undecorated	
Water St. 2011-10	10 0-40 cm	2	ceramic	whiteware	interior blue TP	
Water St. 2011-10	10 0-40 cm	1	Faunal	Bone	mammal calcined	
Water St. 2011-10	10 0-40 cm	1	Glass	Flat	Window Glass	
Water St. 2011-10	10 0-40 cm	11	Metal	iron	Machine-cut nail	
Water St. 2011-10	10 0-40 cm	7	Metal	iron	Machine-cut nail	
Water St. 2011-10	10 0-40 cm	2	Metal	iron	Machine-cut nail	
Water St. 2011-10	10 0-40 cm	1	Metal	iron	Hand-wrought nail	
Water St. 2011-10	10 0-40 cm	1	Metal	iron	oval chain link	
Water St. 2011-10	10 0-40 cm	1	Metal	iron	Hand-wrought nail	
Water St. 2011-10	10 0-40 cm	2	Metal	iron	Machine-cut nail	
Knoll House Site						
Water St. 2011-11	TP1 0-20 cm	24	ceramic	Brick	fragments	
Water St. 2011-11	TP1 0-20 cm	1	ceramic	ironstone	Panalled	
Water St. 2011-11	TP1 0-20 cm	1	ceramic	redware	exterior unglazed interior glazed	
Water St. 2011-11	TP1 0-20 cm	1	ceramic	redware	exterior unglazed interior glazed	
Water St. 2011-11	TP1 0-20 cm	4	ceramic	redware	Exterior unglazed interior missing	
Water St. 2011-11	TP1 0-20 cm	1	Metal	iron	Machine-cut nail	
Water St. 2011-12	TP 2 shovel test 0-30 cm	44	ceramic	Brick	fragments	
Water St. 2011-12	TP 2 shovel test 0-30 cm	1	ceramic	redware	Interior and exterior glaze missing	
Water St. 2011-12	TP 2 shovel test 0-30 cm	1	Glass	Flat	Window Glass	
Water St. 2011-13	TP 4 0-25 cm	25	ceramic	Brick	fragments	
Water St. 2011-13	TP 4 0-25 cm	1	ceramic	Pearlware	exterior hp brown line	
Water St. 2011-13	TP 4 0-25 cm	1	Floral	Charcoal	fragment	
Water St. 2011-13	TP 4 0-25 cm	1	Glass	Flat	Window Glass	
Water St. 2011-13	TP 4 0-25 cm	1	Glass	Flat	Window Glass	
Water St. 2011-14	Unit 1 0-10 cm SE	1	ceramic	Brick		
Water St. 2011-14	Unit 1 0-10 cm SE	1	ceramic	Clay	Mortar?	

Water St. 2011-14	Unit 1	0-10 cm SE	1	Lithic	Quartz	Flake	
Water St. 2011-14	Unit 1	0-10 cm SE	1	lithic	Rhyolite	Flake fragment platform missing	
Water St. 2011-15	Unit 1	10-20 cm SW	1	ceramic	Brick		
Water St. 2011-15	Unit 1	10-20 cm SW	1	ceramic	Clay	Mortar?	
Water St. 2011-15	Unit 1	10-20 cm SW	1	Faunal	Bone	medium mammal flatbone calcined	
Water St. 2011-15	Unit 1	10-20 cm SW	1	lithic	Quartz	Uniface	
Water St. 2011-15	Unit 1	10-20 cm SW	1	Metal	iron	flat strap	
Water St. 2011-15	Unit 1	10-20 cm SW	1	Metal	iron	Hand-wrought nail	
Water St. 2011-15	Unit 1	10-20 cm SW	1	Metal	iron	Hand-wrought nail	
Water St. 2011-16	Unit 1	13-20 cm NE	1	ceramic	Brick		
Water St. 2011-16	Unit 1	13-20 cm NE	6	ceramic	Brick		
Water St. 2011-16	Unit 1	13-20 cm NE	2	ceramic	Clay	Mortar?	
Water St. 2011-16	Unit 1	13-20 cm NE	1	ceramic	kaolin	Pipe	
Water St. 2011-16	Unit 1	13-20 cm NE	1	ceramic	redware	exterior glazed interior missing	
Water St. 2011-16	Unit 1	13-20 cm NE	1	ceramic	redware	Interior glazed exterior unglazed	
Water St. 2011-16	Unit 1	13-20 cm NE	1	ceramic	redware	Interior glazed exterior unglazed	
Water St. 2011-16	Unit 1	13-20 cm NE	2	ceramic	Tin-Glazed	Interior blue HP on white pale tan body	
Water St. 2011-16	Unit 1	13-20 cm NE	1	Faunal	Bone	Chicken radius calcined	
Water St. 2011-16	Unit 1	13-20 cm NE	1	Faunal	Bone	Medium mammal longbone	
Water St. 2011-16	Unit 1	13-20 cm NE	1	Glass	Flat	Window Glass	
Water St. 2011-16	Unit 1	13-20 cm NE	1	Glass	Flat	Window Glass	
Water St. 2011-16	Unit 1	13-20 cm NE	1	Glass	slag	Pierpoint glass slag?	
Water St. 2011-16	Unit 1	13-20 cm NE	1	lithic	Rhyolite	Flake	
Water St. 2011-16	Unit 1	13-20 cm NE	1	lithic	Rhyolite	Flake fragment	
Water St. 2011-16	Unit 1	13-20 cm NE	1	lithic	Rhyolite	Flake	
Water St. 2011-16	Unit 1	13-20 cm NE	2	lithic	slag	Iron slag	
Water St. 2011-16	Unit 1	13-20 cm NE	1	Metal	iron	Hand-wrought nail	
Water St. 2011-16	Unit 1	13-20 cm NE	2	Metal	iron	Hand-wrought nail	
Water St. 2011-16	Unit 1	13-20 cm NE	1	Metal	iron	Machine-cut nail	
Water St. 2011-17	Unit 1	30-40 cm SW	1	Metal	iron	Hand-wrought nail	
Water St. 2011-17	Unit 1	30-40 cm SW	1	Metal	iron	Hand-wrought nail	
Water St. 2011-18	Unit 1	to 40 cm SE	1	ceramic	kaolin	Pipe	
Water St. 2011-18	Unit 1	to 40 cm SE	1	ceramic	Tin-Glazed	light yellow body pinkish glaze	
Water St. 2011-18	Unit 1	to 40 cm SE	1	Faunal	Bone	medium size bird ulna	
Water St. 2011-18	Unit 1	to 40 cm SE	1	Metal	iron	Hand-wrought nail	
Water St. 2011-18	Unit 1	to 40 cm SE	1	Metal	iron	Machine-cut nail	
Water St. 2011-19	Unit 1	55 cm SW	1	ceramic	stoneware- westerwald	Applied rosettes on shoulder	
Water St. 2011-20	Unit 1	0-10 cm Layer 1 NE	1	ceramic	Brick	fragment	
Water St. 2011-20	Unit 1	0-10 cm Layer 1 NE	1	ceramic	redware	interior and exterior surfaces missing	
Water St. 2011-20	Unit 1	0-10 cm Layer 1 NE	1	Faunal	Bone	Medium mammal longbone	
Water St. 2011-20	Unit 1	0-10 cm Layer 1 NE	1	lithic	Rhyolite	Biface fragment	
Water St. 2011-20	Unit 1	0-10 cm Layer 1 NE	1	Metal	iron	Hand-wrought nail	
Water St. 2011-20	Unit 1	0-10 cm Layer 1 NW	3	ceramic	Brick	fragments	
Water St. 2011-20	Unit 1	0-10 cm Layer 1 NW	1	Metal	iron	Hand-wrought nail	
Water St. 2011-21	Unit 1	13-20 cm Layer 2 NW	1	ceramic	Brick	fragment	
Water St. 2011-21	Unit 1	13-20 cm Layer 2 NW	1	ceramic	Tin-Glazed	glaze missing light tan body	
Water St. 2011-21	Unit 1	13-20 cm Layer 2 NW	5	Faunal	Bone	Cattle humerus	
Water St. 2011-21	Unit 1	13-20 cm Layer 2 NW	1	Glass	curved	Hand Blown Bottle	
Water St. 2011-21	Unit 1	13-20 cm Layer 2 NW	1	Lithic	Quartzite	Flake	
Water St. 2011-21	Unit 1	13-20 cm Layer 2 SE	1	Glass	Flat	Window Glass	
Water St. 2011-21	Unit 1	13-20 cm Layer 2 SE	1	Glass	Flat	Window Glass	
Water St. 2011-21	Unit 1	13-20 cm Layer 2 SE	1	mortar	shell-tempered	fragment	
Water St. 2011-22	Unit 1	20-30 cm SW	1	ceramic	kaolin	Pipe	
Water St. 2011-22	Unit 1	20-30 cm SW	1	ceramic	redware	Interior glazed exterior unglazed	Very thick 2.2 cm thick
Water St. 2011-22	Unit 1	20-30 cm SW	1	ceramic	Tin-Glazed	interior glazed exterior missing light tan body	
Water St. 2011-22	Unit 1	20-30 cm SW	1	Faunal	Bone	Medium mammal longbone	
Water St. 2011-22	Unit 1	20-30 cm SW	1	Faunal	Bone	sheep right astragalous	
Water St. 2011-22	Unit 1	20-30 cm SW	1	Faunal	Bone	sheep right calcaneum	
Water St. 2011-22	Unit 1	20-30 cm SW	1	Glass	Flat	Window Glass	
Water St. 2011-22	Unit 1	20-30 cm SW	2	Glass	Flat	Window Glass	





Water St. 2011-28	Unit 1 W1/4	20-30 cm	1	Faunal	Bone	Cattle tibia	
Water St. 2011-28	Unit 1 W1/4	20-30 cm	1	Faunal	Bone	sheep rib	
Water St. 2011-28	Unit 1 W1/4	20-30 cm	1	Faunal	shell	crepidula	
Water St. 2011-28	Unit 1 W1/4	20-30 cm	2	Floral	Charcoal	fragments	
Water St. 2011-28	Unit 1 W1/4	20-30 cm	1	Glass	Flat	Window Glass	
Water St. 2011-28	Unit 1 W1/4	20-30 cm	1	lithic	Rhyolite	Flake	
Water St. 2011-28	Unit 1 W1/4	20-30 cm	1	Metal	iron	Flat fragment	
Water St. 2011-28	Unit 1 W1/4	20-30 cm	1	Metal	iron	Hand-wrought nail	
Water St. 2011-28	Unit 1 W1/4	20-30 cm	3	Metal	iron	Hand-wrought nails	
Water St. 2011-28	Unit 1 W1/4	20-30 cm	14	mortar	shell-tempered	fragments	
Water St. 2011-28	Unit 1 W1/4	25-30 cm	1	ceramic	Brick	fragment	
Water St. 2011-28	Unit 1 W1/4	25-30 cm	1	ceramic	Brick	fragment	
Water St. 2011-28	Unit 1 W1/4	25-30 cm	1	ceramic	Brick	fragment	
Water St. 2011-28	Unit 1 W1/4	25-30 cm	1	ceramic	Brick	fragment	
Water St. 2011-28	Unit 1 W1/4	25-30 cm	1	ceramic	Brick	fragment	
Water St. 2011-28	Unit 1 W1/4	25-30 cm	1	ceramic	Brick	fragment	
Water St. 2011-28	Unit 1 W1/4	25-30 cm	1	ceramic	Brick	fragment	
Water St. 2011-28	Unit 1 W1/4	25-30 cm	1	ceramic	Brick	fragment	
Water St. 2011-28	Unit 1 W1/4	25-30 cm	1	ceramic	Brick	fragment	
Water St. 2011-28	Unit 1 W1/4	25-30 cm	1	ceramic	Brick	fragment	
Water St. 2011-28	Unit 1 W1/4	25-30 cm	1	ceramic	Brick	fragment	
Water St. 2011-28	Unit 1 W1/4	25-30 cm	1	ceramic	Brick	fragment	
Water St. 2011-28	Unit 1 W1/4	25-30 cm	1	ceramic	Brick	fragment	
Water St. 2011-28	Unit 1 W1/4	25-30 cm	1	ceramic	Brick	fragment	
Water St. 2011-28	Unit 1 W1/4	25-30 cm	1	ceramic	Brick	fragment	
Water St. 2011-29	U1 Shovel test	0-30 cm	126	ceramic	Brick	fragments	
Water St. 2011-29	U1 Shovel test	0-30 cm	1	ceramic	kaolin	Pipe	heeless funnel
Water St. 2011-29	U1 Shovel test	0-30 cm	1	ceramic	redware	Interior glazed exterior missing buff body	
Water St. 2011-29	U1 Shovel test	0-30 cm	9	ceramic	redware	Exterior unglazed interior missing	
Water St. 2011-29	U1 Shovel test	0-30 cm	4	Floral	Charcoal	fragments	
Water St. 2011-29	U1 Shovel test	0-30 cm	1	Glass	Flat	Window Glass	
Water St. 2011-29	U1 Shovel test	0-30 cm	1	Glass	Flat	Window Glass	
Water St. 2011-29	U1 Shovel test	0-30 cm	3	Metal	iron	Hand-wrought nails	
Water St. 2011-29	U1 Shovel test	0-30 cm	1	Metal	iron	Horseshoe	
Water St. 2011-30	Unit 2	0-20 cm	30	ceramic	Brick	fragments	
Water St. 2011-30	Unit 2	0-20 cm	1	ceramic	kaolin	Pipe	
Water St. 2011-30	Unit 2	0-20 cm	2	ceramic	redware	Exterior unglazed interior surface missing	
Water St. 2011-30	Unit 2	0-20 cm	1	ceramic	redware	Interior glazed exterior surface missing	
Water St. 2011-30	Unit 2	0-20 cm	1	ceramic	redware	Interior glazed exterior unglazed	
Water St. 2011-30	Unit 2	0-20 cm	1	ceramic	stoneware- Bellarmine	exterior salt glaze	
Water St. 2011-30	Unit 2	0-20 cm	1	ceramic	stoneware-westerwald	interior and exterior salt glazed	
Water St. 2011-30	Unit 2	0-20 cm	2	Faunal	Bone	medium mammal flatbone calcined	
Water St. 2011-30	Unit 2	0-20 cm	1	Glass	Flat	Window Glass	
Water St. 2011-30	Unit 2	0-20 cm	1	Glass	Flat	Window Glass	
Water St. 2011-30	Unit 2	0-20 cm	1	Glass	Flat	Window Glass	
Water St. 2011-30	Unit 2	0-20 cm	1	Glass	Flat	Window Glass	
Water St. 2011-30	Unit 2	0-20 cm	1	lithic	Rhyolite	Broad blade point	perverse fracture
Water St. 2011-30	Unit 2	0-20 cm	1	lithic	Rhyolite	Flake	
Water St. 2011-30	Unit 2	0-20 cm	4	Metal	iron	Hand-wrought nail	
Water St. 2011-31	Unit 2	0-20 cm E half	19	ceramic	Brick	fragments	
Water St. 2011-31	Unit 2	0-20 cm E half	1	ceramic	kaolin	Pipe	rouletted bowl unburned
Water St. 2011-31	Unit 2	0-20 cm E half	2	ceramic	redware	Interior glazed exterior unglazed	
Water St. 2011-31	Unit 2	0-20 cm E half	1	ceramic	slipware	fine combing exterior	
Water St. 2011-31	Unit 2	0-20 cm E half	1	Glass	Flat	Window Glass	
Water St. 2011-31	Unit 2	0-20 cm E half	1	Glass	Flat	Window Glass	
Water St. 2011-31	Unit 2	0-20 cm E half	1	lithic	Quartz	shatter	cortex present
Water St. 2011-31	Unit 2	0-20 cm E half	1	Metal	iron	Hand-wrought nail	
Water St. 2011-31	Unit 2	0-20 cm E half	2	Metal	iron	Hand-wrought nail	
Water St. 2011-31	Unit 2	0-20 cm E half	3	Metal	iron	Hand-wrought nail	
Water St. 2011-31	Unit 2	0-20 cm E half	1	Metal	nickle	dime- 1965	
Water St. 2011-32	Unit 2	0-30 cm	80	ceramic	Brick	fragments	

Water St. 2011-32	Unit 2	0-30 cm	1	ceramic	kaolin	Pipe	
Water St. 2011-32	Unit 2	0-30 cm	1	ceramic	pearlware	undecoated	
Water St. 2011-32	Unit 2	0-30 cm	1	ceramic	redware	Interior glazed exterior surface missing	
Water St. 2011-32	Unit 2	0-30 cm	10	ceramic	redware	glaze missing	
Water St. 2011-32	Unit 2	0-30 cm	1	ceramic	redware	burned interior glaze	
Water St. 2011-32	Unit 2	0-30 cm	1	ceramic	redware	Interior glazed exterior unglazed	
Water St. 2011-32	Unit 2	0-30 cm	1	ceramic	slipware	glazed interior and exterior, fine combing exterior with wide brown band	
Water St. 2011-32	Unit 2	0-30 cm	1	ceramic	slipware	Unglazed exterior fine combed interior	
Water St. 2011-32	Unit 2	0-30 cm	1	ceramic	Tin-Glazed	blue glazed interior buff body	
Water St. 2011-32	Unit 2	0-30 cm	6	ceramic	Tin-Glazed	interior and exterior white glaze buff body	
Water St. 2011-32	Unit 2	0-30 cm	1	Faunal	Bone	medium bird longbone calcined	
Water St. 2011-32	Unit 2	0-30 cm	2	Faunal	Bone	Pig molar	
Water St. 2011-32	Unit 2	0-30 cm	3	Faunal	Bone	medium mammal flatbone calcined	
Water St. 2011-32	Unit 2	0-30 cm	1	Faunal	Bone	Small mammal phalange calcined	Unfused
Water St. 2011-32	Unit 2	0-30 cm	1	Faunal	Bone	medium mammal flatbone	
Water St. 2011-32	Unit 2	0-30 cm	1	Faunal	Bone	sheep phalange 3 calcined	
Water St. 2011-32	Unit 2	0-30 cm	1	Glass	Flat	Window Glass	
Water St. 2011-32	Unit 2	0-30 cm	1	Glass	Flat	Window Glass	
Water St. 2011-32	Unit 2	0-30 cm	2	Glass	Flat	Window Glass	
Water St. 2011-32	Unit 2	0-30 cm	1	Glass	Flat	Window Glass	
Water St. 2011-32	Unit 2	0-30 cm	3	lithic	Quartz	shatter	
Water St. 2011-32	Unit 2	0-30 cm	1	Metal	iron	hand wrought nail	rose head
Water St. 2011-32	Unit 2	0-30 cm	1	Metal	iron	hand wrought nail	large head
Water St. 2011-32	Unit 2	0-30 cm	4	Metal	iron	Hand-wrought nails	
Water St. 2011-32	Unit 2	0-30 cm	9	Metal	iron	Hand-wrought nails	Rose heads
Water St. 2011-32	Unit 2	0-30 cm	45	ceramic	Brick	fragments	
Water St. 2011-32	Unit 2	0-30 cm	1	ceramic	redware	interior and exterior surfaces missing	
Water St. 2011-32	Unit 2	20-30 cm	2	ceramic	Brick	fragments	
Water St. 2011-33	Unit 3	0-30 cm	65	ceramic	Brick	fragments	
Water St. 2011-33	Unit 3	0-30 cm	1	ceramic	kaolin	Pipe	
Water St. 2011-33	Unit 3	0-30 cm	1	ceramic	kaolin	Pipe	
Water St. 2011-33	Unit 3	0-30 cm	1	ceramic	kaolin	Pipe	
Water St. 2011-33	Unit 3	0-30 cm	1	ceramic	redware	Interior glazed exterior unglazed	
Water St. 2011-33	Unit 3	0-30 cm	1	ceramic	redware	interior and exterior unglazed	
Water St. 2011-33	Unit 3	0-30 cm	4	ceramic	redware	Interior glazed exterior unglazed	
Water St. 2011-33	Unit 3	0-30 cm	5	ceramic	redware	Exterior unglazed interior missing	
Water St. 2011-33	Unit 3	0-30 cm	4	ceramic	Tin-Glazed	glaze missing buff body	
Water St. 2011-33	Unit 3	0-30 cm	1	Faunal	Bone	large bird longbone calcined	
Water St. 2011-33	Unit 3	0-30 cm	1	Floral	Charcoal	fragment	
Water St. 2011-33	Unit 3	0-30 cm	1	Glass	Flat	Window Glass	
Water St. 2011-33	Unit 3	0-30 cm	2	Glass	Flat	Window Glass	
Water St. 2011-33	Unit 3	0-30 cm	3	Metal	iron	Hand-wrought nails	
Water St. 2011-33	Unit 3	0-30 cm	5	Metal	iron	Hand-wrought nails	
Water St. 2011-33	Unit 3	0-30 cm	1	Metal	iron	Twisted thick iron	
Water St. 2011-34	Unit 4	12-25 cm layer 2	4	ceramic	Brick	fragments	
Water St. 2011-34	Unit 4	12-25 cm layer 2	1	ceramic	kaolin	Pipe	
Water St. 2011-34	Unit 4	12-25 cm layer 2	5	ceramic	redware	interior and exterior surfaces missing	
Water St. 2011-34	Unit 4	12-25 cm layer 2	4	ceramic	redware	Interior glazed exterior unglazed	
Water St. 2011-34	Unit 4	12-25 cm layer 2	1	ceramic	Tin-Glazed	glaze missing light tan body	
Water St. 2011-34	Unit 4	12-25 cm layer 2	1	Glass	Flat	Window Glass	
Water St. 2011-34	Unit 4	12-25 cm layer 2	1	lithic	slag		
Water St. 2011-34	Unit 4	12-25 cm layer 2	1	Metal	iron	Hand-wrought nail	
Water St. 2011-35	Unit 5	12-23 cm	3	ceramic	redware	Interior glazed exterior unglazed	
Water St. 2011-35	Unit 5	12-23 cm	1	Metal	iron	Hand-wrought nail	
Water St. 2011-36	Unit 6	12-25 cm	6	ceramic	Brick	fragments	
Water St. 2011-36	Unit 6	12-25 cm	1	ceramic	ironstone	undecoated	
Water St. 2011-36	Unit 6	12-25 cm	2	ceramic	redware	Exterior unglazed interior missing	
Water St. 2011-37	Unit 7	13-23 cm	4	ceramic	Brick	fragments	
Water St. 2011-37	Unit 7	13-23 cm	1	ceramic	kaolin	Pipe	

Water St. 2011-37	Unit 7	13-23 cm	3	ceramic	redware	interior glazed exterior unglazed	
Water St. 2011-37	Unit 7	13-23 cm	1	ceramic	redware	Exterior unglazed interior surface missing	
Water St. 2011-37	Unit 7	13-23 cm	1	ceramic	redware	interior and exterior surfaces missing	
Water St. 2011-37	Unit 7	13-23 cm	1	ceramic	stoneware-bellarmine		
Water St. 2011-37	Unit 7	13-23 cm	1	lithic	Rhyolite	Flake fragment	
Water St. 2011-37	Unit 7	13-23 cm	1	mortar	shell-tempered	fragments	
Water St. 2011-38	Unit 8	13-23 cm	8	ceramic	Brick	fragments	
Water St. 2011-38	Unit 8	13-23 cm	1	ceramic	ironstone	Undecorated	
Water St. 2011-38	Unit 8	13-23 cm	1	ceramic	redware	Exterior unglazed interior missing	
Water St. 2011-38	Unit 8	13-23 cm	1	ceramic	redware	exterior glazed interior missing	
Water St. 2011-38	Unit 8	13-23 cm	2	Faunal	Bone	large mammal longbone	
Water St. 2011-38	Unit 8	13-23 cm	1	Metal	iron	chain link?	
Water St. 2011-39	Unit 9	10-20 cm	8	ceramic	Brick	fragments	
Water St. 2011-39	Unit 9	10-20 cm	1	ceramic	kaolin	Pipe	large belly bowl with heel
Water St. 2011-39	Unit 9	10-20 cm	1	ceramic	redware	exterior unglazed interior surface missing	
Water St. 2011-39	Unit 9	10-20 cm	1	Glass	Flat	Window Glass	
Water St. 2011-39	Unit 9	10-20 cm	1	lithic	Quartz	shatter	
Water St. 2011-39	Unit 9	10-20 cm	1	Metal	iron	Hand-wrought nail	
Water St. 2011-39	Unit 9	10-20 cm	1	Metal	Silver	domed button cap	
Water St. 2011-40	Unit 10	10-23 cm	8	ceramic	Brick	fragments	
Water St. 2011-40	Unit 10	10-23 cm	1	ceramic	kaolin	Pipe	unburned 18 <sup>th</sup> century
Water St. 2011-40	Unit 10	10-23 cm	1	ceramic	whiteware	undecoated	
Water St. 2011-40	Unit 10	10-23 cm	1	lithic	Rhyolite	Flake fragment	
Water St. 2011-41	Unit 11	13-23 cm	9	ceramic	Brick	fragments	
Water St. 2011-41	Unit 11	13-23 cm	1	ceramic	creamware	Undecorated	
Water St. 2011-41	Unit 11	13-23 cm	6	mortar	shell-tempered	fragments	
Water St. 2011-42	Unit 12	10-20 cm	5	ceramic	Brick	fragments	
Water St. 2011-42	Unit 12	10-20 cm	1	ceramic	pearlware	Undecoated	
Water St. 2011-42	Unit 12	10-20 cm	1	ceramic	redware	interior and exterior surfaces missing	
Water St. 2011-43	Unit 13	10-20 cm	12	ceramic	Brick	fragments	
Water St. 2011-43	Unit 13	10-20 cm	1	ceramic	creamware	undecoated	
Water St. 2011-43	Unit 13	10-20 cm	1	ceramic	pearlware	blue edged smooth edge shallow fathers	
Water St. 2011-43	Unit 13	10-20 cm	1	Faunal	Bone	medium mammal longbone calcined	
Water St. 2011-43	Unit 13	10-20 cm	1	Floral	Charcoal	fragment	
Water St. 2011-43	Unit 13	10-20 cm	1	Glass	Flat	Window Glass	
Water St. 2011-43	Unit 13	10-20 cm	1	Glass	Flat	Window Glass	
Water St. 2011-43	Unit 13	10-20 cm	1	lithic	coal	fragment	
Water St. 2011-43	Unit 13	10-20 cm	1	lithic	Quartz	shatter	
Water St. 2011-43	Unit 13	10-20 cm	1	Metal	iron	Hand forged curved	
Water St. 2011-44	Unit 14	10-20 cm	5	ceramic	Brick	fragments	
Water St. 2011-44	Unit 14	10-20 cm	1	ceramic	creamware	Undecorated	
Water St. 2011-44	Unit 14	10-20 cm	2	ceramic	redware	Exterior unglazed interior missing	
Water St. 2011-44	Unit 14	10-20 cm	1	lithic	coal	fragment	
Water St. 2011-44	Unit 14	10-20 cm	1	lithic	Hornfels	Flake fragment	
Water St. 2011-44	Unit 14	10-20 cm	1	lithic	Rhyolite	Flake fragment	
Water St. 2011-44	Unit 14	10-20 cm	1	lithic	Rhyolite	Flake	
Water St. 2011-44	Unit 14	10-20 cm	1	lithic	Rhyolite	Flake fragment	
Water St. 2011-44	Unit 14	10-20 cm	2	Metal	iron	Hand-wrought nail	
Water St. 2011-44	Unit 14	10-20 cm	1	Metal	iron	Horseshoe fragment	17 <sup>th</sup> century
Water St. 2011-45	Unit 15	10-23 cm	5	ceramic	Brick	fragments	
Water St. 2011-45	Unit 15	10-23 cm	1	ceramic	Refined earthenware	interior and exterior surfaces missing	
Water St. 2011-45	Unit 15	10-23 cm	1	Faunal	shell	fragment	
Water St. 2011-45	Unit 15	10-23 cm	1	Metal	iron	Hand-wrought nail	
Water St. 2011-46	Unit 16	10-23 cm	3	ceramic	Brick	fragments	
Water St. 2011-46	Unit 16	10-23 cm	1	Glass	Flat	Window Glass	
Water St. 2011-46	Unit 16	10-23 cm	1	Glass	Flat	Window Glass	
Water St. 2011-46	Unit 16	10-23 cm	1	lithic	Quartz	shatter	
Water St. 2011-47	Unit 17	10-20 cm	1	ceramic	Brick	fragment	
Water St. 2011-47	Unit 17	10-20 cm	2	ceramic	redware	Interior and exterior glaze missing	
Water St. 2011-47	Unit 17	10-20 cm	1	Floral	Charcoal	fragment	

Water St. 2011-47	Unit 17	10-20 cm	1	lithic	coal	fragment
Water St. 2011-48	Unit 18	10-20 cm S ½	1	ceramic	whiteware	undecoated
Water St. 2011-48	Unit 18	10-20 cm S ½	1	Glass	curved	machine-made
Water St. 2011-48	Unit 18	10-20 cm S ½	11	ceramic	Brick	
Water St. 2011-49	Unit 19	10-15 cm	5	ceramic	Brick	fragments
Water St. 2011-49	Unit 19	10-15 cm	1	ceramic	kaolin	Pipe
Water St. 2011-49	Unit 19	10-15 cm	1	Faunal	Bone	Medium mammal longbone
Water St. 2011-49	Unit 19	10-15 cm	1	Metal	iron	Hand-wrought nail
Water St. 2011-49	Unit 19	10-15 cm	1	Metal	iron	Machine-cut nail
Water St. 2011-50	Unit 20	0-20 cm	9	ceramic	Brick	fragments
Water St. 2011-50	Unit 20	0-20 cm	1	ceramic	redware	Interior glazed exterior unglazed
Water St. 2011-50	Unit 20	0-20 cm	1	ceramic	whiteware	Undecoated
Water St. 2011-50	Unit 20	0-20 cm	1	Faunal	tortoise shell	hair comb fragment
Water St. 2011-50	Unit 20	0-20 cm	1	Glass	curved	hand-blown
Water St. 2011-50	Unit 20	0-20 cm	1	lithic	Rhyolite	Flake fragment
Water St. 2011-51	Unit 21	10-20 cm	1	ceramic	creamware	Undecoated
Water St. 2011-52	Unit 22	10-20 cm	2	ceramic	Brick	fragments
Water St. 2011-52	Unit 22	10-20 cm	1	ceramic	kaolin	Pipe
Water St. 2011-52	Unit 22	10-20 cm	1	ceramic	redware	Interior glazed exterior unglazed
Water St. 2011-52	Unit 22	10-20 cm	1	ceramic	whiteware	undecoated
Water St. 2011-52	Unit 22	10-20 cm	1	ceramic	whiteware	interior light blue TP
Water St. 2011-52	Unit 22	10-20 cm	1	Faunal	tortoise shell	hair comb?
Water St. 2011-52	Unit 22	10-20 cm	2	Floral	Charcoal	fragments
Water St. 2011-52	Unit 22	10-20 cm	1	Glass	Flat	Window Glass
Water St. 2011-52	Unit 22	10-20 cm	1	Glass	Flat	Window Glass
Water St. 2011-53	Unit 24	10-22 cm	34	ceramic	Brick	fragments
Water St. 2011-53	Unit 24	10-22 cm	1	ceramic	kaolin	Pipe
Water St. 2011-53	Unit 24	10-22 cm	1	ceramic	pearlware	blue edged shallow scallop
Water St. 2011-53	Unit 24	10-22 cm	1	ceramic	redware	Exterior unglazed interior missing
Water St. 2011-53	Unit 24	10-22 cm	1	ceramic	Whiteware	undecoated
Water St. 2011-53	Unit 24	10-22 cm	1	Glass	curved	Hurricane lamp
Water St. 2011-53	Unit 24	10-22 cm	1	Glass	Flat	Window Glass
Water St. 2011-53	Unit 24	10-22 cm	1	Glass	Flat	Window Glass
Water St. 2011-53	Unit 24	10-22 cm	3	Metal	iron	Machine-cut nail
Water St. 2011-53	Unit 24	10-22 cm	2	Metal	iron	Machine-cut nail
Water St. 2011-53	Unit 24	10-22 cm	2	mortar	shell-tempered	fragments
Water St. 2011-54	Unit 25	10-23 cm	39	ceramic	Brick	fragments
Water St. 2011-54	Unit 25	10-23 cm	1	ceramic	north devon gravel tempered	Unglazed foot interior glazed
Water St. 2011-54	Unit 25	10-23 cm	1	ceramic	Redware	interior glazed exterior missing
Water St. 2011-54	Unit 25	10-23 cm	1	ceramic	Tin-Glazed	Glaze missing pink body
Water St. 2011-54	Unit 25	10-23 cm	4	Faunal	Bone	cattle carpals
Water St. 2011-54	Unit 25	10-23 cm	2	Faunal	shell	surf clam
Water St. 2011-54	Unit 25	10-23 cm	40	mortar	shell-tempered	fragments
Water St. 2011-55	Unit 27	0-16 cm	1	ceramic	Brick	fragment
Water St. 2011-55	Unit 27	0-16 cm	1	ceramic	north devon gravel tempered	Interior glazed exterior unglazed
Water St. 2011-55	Unit 27	0-16 cm	1	ceramic	pearlware	undecoated
Water St. 2011-55	Unit 27	0-16 cm	2	Faunal	Bone	medium mammal flatbone calcined
Water St. 2011-55	Unit 27	0-16 cm	1	lithic	Hornfels	Flake fragment
Water St. 2011-55	Unit 27	0-16 cm	1	lithic	Rhyolite	Flake fragment
Water St. 2011-55	Unit 27	0-16 cm	1	lithic	Rhyolite	Flake fragment
Water St. 2011-55	Unit 27	0-16 cm	1	Metal	iron	Hand-wrought nail
Water St. 2011-56	Unit 28	0-27 cm	1	ceramic	Brick	fragment
Water St. 2011-56	Unit 28	0-27 cm	1	ceramic	redware	Interior glazed exterior unglazed
Water St. 2011-56	Unit 28	0-27 cm	3	ceramic	redware	Exterior unglazed interior surface missing
Water St. 2011-56	Unit 28	0-27 cm	1	Glass	Flat	Window Glass
Water St. 2011-56	Unit 28	0-27 cm	1	Metal	iron	Hand-wrought nail
Water St. 2011-56	Unit 28	0-27 cm	2	Metal	iron	Hand-wrought nail
Water St. 2011-57	Unit 29	0-27 cm	1	ceramic	Brick	fragment
Water St. 2011-57	Unit 29	0-27 cm	1	ceramic	redware	Exterior unglazed interior missing
Water St. 2011-57	Unit 29	0-27 cm	1	ceramic	redware	exterior unglazed interior glazed

Water St. 2011-58	Unit 30	0-27 cm	1	ceramic	Brick	fragment	
Water St. 2011-58	Unit 30	0-27 cm	1	ceramic	kaolin	Pipe	
Water St. 2011-58	Unit 30	0-27 cm	2	ceramic	redware	Exterior unglazed interior missing	
Water St. 2011-58	Unit 30	0-27 cm	3	Faunal	Bone	medium mammal longbone calcined	
Water St. 2011-58	Unit 30	0-27 cm	2	lithic	Rhyolite	Flake fragment	
Water St. 2011-58	Unit 30	10-25 cm layer 2	1	ceramic	brick?	fragments	
Water St. 2011-58	Unit 30	10-25 cm layer 2	1	ceramic	kaolin	Pipe	
Water St. 2011-58	Unit 30	10-25 cm layer 2	1	ceramic	kaolin	Pipe	
Water St. 2011-58	Unit 30	10-25 cm layer 2	1	ceramic	redware	interior glazed exterior missing	
Water St. 2011-58	Unit 30	10-25 cm layer 2	1	ceramic	stoneware- westerwald	Applied rosettes on shoulder	
Water St. 2011-58	Unit 30	10-25 cm layer 2	1	Glass	Flat	Window Glass	
Water St. 2011-58	Unit 30	10-25 cm layer 2	1	Glass	Flat	Window Glass	
Water St. 2011-58	Unit 30	10-25 cm layer 2	1	Glass	Flat	Window Glass	
Water St. 2011-58	Unit 30	10-25 cm layer 2	1	Glass	Flat	Window Glass	
Water St. 2011-58	Unit 30	10-25 cm layer 2	1	lithic	Quartz	shatter	
Water St. 2011-58	Unit 30	10-25 cm layer 2	1	Metal	iron	Buckle- harness	
Water St. 2011-58	Unit 30	10-25 cm layer 2	5	Metal	iron	Hand-wrought nail	
Water St. 2011-58	Unit 30	10-25 cm layer 2	1	Metal	iron	Hand-wrought nail	
Water St. 2011-58	Unit 30	10-25 cm layer 2	1	Metal	iron	Hand-wrought nail	
Water St. 2011-58	Unit 30	10-25 cm layer 2	1	Metal	Lead	window kame	
Water St. 2011-59	Unit 31	0-25 cm	1	ceramic	creamware	Undecoated	
Water St. 2011-59	Unit 31	0-25 cm	1	ceramic	kaolin	Pipe	Rouletted unburned
Water St. 2011-59	Unit 31	0-25 cm	1	ceramic	redware	burned glaze interior missing exterior	
Water St. 2011-59	Unit 31	0-25 cm	2	Metal	iron	Hand-wrought nail	
Water St. 2011-59	Unit 31	0-25 cm	3	Metal	iron	Hand-wrought nail	
Water St. 2011-60	Unit 32	0-23 cm	4	ceramic	Brick	fragments	
Water St. 2011-60	Unit 32	0-23 cm	4	ceramic	redware	interior and exterior surfaces missing	
Water St. 2011-60	Unit 32	0-23 cm	1	ceramic	redware	Interior glazed exterior unglazed	
Water St. 2011-60	Unit 32	0-23 cm	1	ceramic	redware	interior and exterior glazed	
Water St. 2011-60	Unit 32	0-23 cm	1	Faunal	Bone	medium mammal flatbone calcined	
Water St. 2011-60	Unit 32	0-23 cm	1	lithic	Rhyolite	Flake	
Water St. 2011-60	Unit 32	0-23 cm	1	lithic	Rhyolite	Flake	
Water St. 2011-60	Unit 32	0-23 cm	1	lithic	Rhyolite	Flake	
Water St. 2011-61	Unit 34	0-22 cm	1	ceramic	Brick	fragment	
Water St. 2011-61	Unit 34	0-22 cm	1	ceramic	whiteware	undecoated	
Water St. 2011-62	Unit 35	0-24 cm	1	ceramic	redware	interior and exterior surfaces missing	
Water St. 2011-62	Unit 36	0-22 cm	10	ceramic	Brick	fragments	
Water St. 2011-62	Unit 36	0-22 cm	1	ceramic	pearlware	undecoated	
Water St. 2011-62	Unit 36	0-22 cm	1	ceramic	redware	exterior glazed interior missing	
Water St. 2011-62	Unit 36	0-22 cm	2	ceramic	redware	Exterior unglazed interior missing	
Water St. 2011-62	Unit 36	0-22 cm	2	ceramic	Tin-Glazed	light tan body glaze missing	
Water St. 2011-62	Unit 36	0-22 cm	2	ceramic	whiteware	undecoated	
Water St. 2011-62	Unit 36	0-22 cm	1	Faunal	Bone	medium mammal flatbone calcined	
Water St. 2011-62	Unit 36	0-22 cm	1	lithic	coal	fragment	
Water St. 2011-62	Unit 36	0-22 cm	1	lithic	Quartz	Projectile Point	perverse fracture
Water St. 2011-63	Unit 37	0-24 cm	3	ceramic	Brick	fragments	
Water St. 2011-63	Unit 37	0-24 cm	1	Glass	Flat	Window Glass	
Water St. 2011-63	Unit 37	0-24 cm	1	Metal	iron	Hand-wrought nail	
Water St. 2011-64	Unit 38	0-23 cm	2	ceramic	Brick	fragments	
Water St. 2011-64	Unit 38	0-23 cm	1	ceramic	creamware	Undecoated	
Water St. 2011-65	Unit 39	0-23 cm	1	ceramic	Brick	fragment	
Water St. 2011-65	Unit 39	0-23 cm	1	ceramic	Stoneware- white salt glazed	fragment	
Water St. 2011-65	Unit 39	0-23 cm	1	Glass	curved	machine made	
Water St. 2011-65	Unit 39	0-23 cm	1	Metal	iron	Machine-cut nail	
Water St. 2011-66	Unit 41	0-27 cm	2	ceramic	Brick	fragments	
Water St. 2011-66	Unit 41	0-27 cm	1	ceramic	redware	Exterior unglazed interior surface missing	
Water St. 2011-67	Unit 42	0-24 cm	2	ceramic	Brick	fragments	
Water St. 2011-67	Unit 42	0-24 cm	1	ceramic	redware	Exterior unglazed interior surface missing	
Water St. 2011-67	Unit 42	0-24 cm	1	Glass	Flat	Window Glass	
Water St. 2011-67	Unit 42	0-24 cm	1	Glass	Flat	Window Glass	

Water St. 2011-67	Unit 42	0-24 cm	1	Metal	iron	Hand-wrought nail	
Water St. 2011-68	Unit 43	0-25 cm	1	ceramic	Brick		
Water St. 2011-68	Unit 43	0-25 cm	1	ceramic	redware	interior glazed exterior missing	
Water St. 2011-68	Unit 43	0-25 cm	1	Faunal	Bone	Medium mammal longbone	
Water St. 2011-68	Unit 43	0-25 cm	1	lithic	Rhyolite	Flake fragment	
Water St. 2011-69	Unit 46	0-20 cm	1	ceramic	Brick	fragment	
Water St. 2011-69	Unit 46	0-20 cm	1	ceramic	redware	interior and exterior surfaces missing	
Water St. 2011-70	Unit 47	0-23 cm	1	ceramic	Brick		
Water St. 2011-70	Unit 47	0-23 cm	1	ceramic	kaolin	Pipe	
Water St. 2011-70	Unit 47	0-23 cm	1	Glass	Flat	Window Glass	
Water St. 2011-71	Unit 48	0-26 cm	17	ceramic	Brick	fragments	
Water St. 2011-71	Unit 48	0-26 cm	1	ceramic	kaolin	Pipe	
Water St. 2011-71	Unit 48	0-26 cm	1	ceramic	redware	interior surface missing exterior unglazed	
Water St. 2011-71	Unit 48	0-26 cm	1	ceramic	redware	Interior glazed exterior unglazed	
Water St. 2011-71	Unit 48	0-26 cm	1	Glass	Flat	Window Glass	
Water St. 2011-71	Unit 48	0-26 cm	1	Glass	slag	sandwich glass	
Water St. 2011-72	Unit 49	0-26 cm	1	ceramic	ironstone	Undecorated	
Water St. 2011-72	Unit 49	0-26 cm	2	ceramic	pearlware	Undecorated	
Water St. 2011-72	Unit 49	0-26 cm	1	ceramic	redware	Exterior and interior surfaces missing	
Water St. 2011-72	Unit 49	0-26 cm	1	Metal	iron	Machine-cut nail	
Water St. 2011-73	Unit 50	0-27 cm	2	ceramic	Brick	fragments	
Water St. 2011-73	Unit 50	0-27 cm	1	ceramic	creamware	Undecorated	
Water St. 2011-73	Unit 50	0-27 cm	1	ceramic	kaolin	Pipe	Heeless funnel
Water St. 2011-73	Unit 50	0-27 cm	1	ceramic	pearlware	interior blue TP	
Water St. 2011-74	Unit 51	0-22 cm	3	ceramic	Brick	fragments	
Water St. 2011-74	Unit 51	0-22 cm	1	ceramic	kaolin	Pipe	
Water St. 2011-74	Unit 51	0-22 cm	1	ceramic	pearlware	undecoated	
Water St. 2011-74	Unit 51	0-22 cm	3	ceramic	redware	Exterior unglazed interior missing	
Water St. 2011-74	Unit 51	0-22 cm	2	ceramic	Tin-Glazed	Pink body	
Water St. 2011-74	Unit 51	0-22 cm	1	Faunal	Bone	medium mammal flatbone calcined	
Water St. 2011-74	Unit 51	0-22 cm	1	lithic	flint	Gunflint	Locally knapped pistol flint
Water St. 2011-75	Unit 52	0-26 cm	8	ceramic	Brick	fragments	
Water St. 2011-75	Unit 52	0-26 cm	1	Glass	Flat	Window Glass	
Water St. 2011-75	Unit 52	0-26 cm	2	Metal	iron	Hand-wrought nail	
Water St. 2011-76	Unit 53	0-27 cm	33	ceramic	Brick	fragments	
Water St. 2011-76	Unit 53	0-27 cm	1	ceramic	creamware	undecoated	
Water St. 2011-76	Unit 53	0-27 cm	1	Faunal	Bone	medium mammal flatbone calcined	
Water St. 2011-76	Unit 53	0-27 cm	1	Glass	Flat	Window Glass	
Water St. 2011-77	Unit 54	0-27 cm	63	ceramic	Brick	fragments	
Water St. 2011-77	Unit 54	0-27 cm	1	ceramic	kaolin	Pipe	
Water St. 2011-77	Unit 54	0-27 cm	1	ceramic	stoneware-bellarmino	interior gray	
Water St. 2011-77	Unit 54	0-27 cm	1	ceramic	whiteware	undecoated	
Water St. 2011-77	Unit 54	0-27 cm	2	Faunal	Bone	medium mammal longbone calcined	
Water St. 2011-77	Unit 54	0-27 cm	4	Faunal	Bone	swine left m3	
Water St. 2011-77	Unit 54	0-27 cm	2	Metal	iron	Machine-cut nail	
Water St. 2011-78	Unit 55	0-30 cm	37	ceramic	Brick	fragments	
Water St. 2011-78	Unit 55	0-30 cm	2	ceramic	kaolin	Pipe	
Water St. 2011-78	Unit 55	0-30 cm	4	ceramic	redware	Exterior unglazed interior missing	
Water St. 2011-78	Unit 55	0-30 cm	1	ceramic	whiteware	undecoated	
Water St. 2011-78	Unit 55	0-30 cm	1	Glass	Flat	Window Glass	
Water St. 2011-78	Unit 55	0-30 cm	4	Metal	iron	Hand-wrought nails	
Water St. 2011-78	Unit 55	0-30 cm	1	Metal	iron	Hand-wrought spike	
Water St. 2011-79	SE test 1	0-7"	3	ceramic	Brick	fragments	
Water St. 2011-79	SE test 1	0-7"	1	ceramic	redware	thick, glazed interior unglazed exterior	
Water St. 2011-79	SE test 1	0-7"	3	ceramic	redware	glaze missing interior and exterior	
Water St. 2011-79	SE test 1	0-7"	1	ceramic	whiteware	blue HP on rim	
Water St. 2011-79	SE test 1	0-7"	1	Floral	Charcoal	fragment	
Water St. 2011-79	SE test 1	0-7"	1	Metal	iron	Hand-wrought nail	
Water St. 2011-80	SE test 3	0-8.5"	2	ceramic	Brick	fragments	
Water St. 2011-80	SE test 3	0-8.5"	1	ceramic	Tin-Glazed	Interior and exterior glazed blue HP int	

Water St. 2011-80	SE test 3	0-8.5"	1	Faunal	Bone	medium bird longbone calcined	
Water St. 2011-80	SE test 3	0-8.5"	1	Glass	Flat	Window Glass	
Water St. 2011-80	SE test 3	0-8.5"	1	Glass	Flat	Window Glass	
Water St. 2011-80	SE test 3	0-8.5"	3	lithic	Quartz	shatter	
Water St. 2011-80	SE test 3	0-8.5"	1	lithic	Rhyolite	Flake	
Water St. 2011-80	SE test 3	0-8.5"	1	Metal	iron	Hand-wrought nail	
Water St. 2011-80	SE test 3	0-8.5"	1	Metal	iron	Hand-wrought nail	
Water St. 2011-80	SE test 3	8.5-13"	5	ceramic	Brick	fragments	
Water St. 2011-80	SE test 3	8.5-13"	1	ceramic	whiteware	interior and exterior blue TP	
Water St. 2011-80	SE test 3	8.5-13"	1	Metal	iron	Hand-wrought nail	
Water St. 2011-80	SE test 3	8.5-13"	1	mortar	shell-tempered	fragment	
Water St. 2011-81	Test unit 3A South	0-12"	39	ceramic	Brick	fragments	
Water St. 2011-81	Test unit 3A South	0-12"	1	Floral	Charcoal	fragment	
Water St. 2011-81	Test unit 3A South	0-12"	4	Metal	iron	Hand-wrought nails	
Water St. 2011-81	Test Unit 3B South	0-30 cm	17	ceramic	Brick	fragments	
Water St. 2011-82	Test Unit 3B South	0-30 cm	17	Metal	iron	Hand-wrought nails	
Water St. 2011-82	Test Unit 3B South	0-30 cm	5	Metal	iron	Hand-wrought nails	
Water St. 2011-83	U1AN	0-27 cm	140	ceramic	Brick	fragments	
Water St. 2011-83	U1AN	0-27 cm	1	ceramic	kaolin	Pipe	
Water St. 2011-83	U1AN	0-27 cm	1	ceramic	kaolin	Pipe	
Water St. 2011-83	U1AN	0-27 cm	2	Faunal	Bone	medium mammal flatbone calcined	
Water St. 2011-83	U1AN	0-27 cm	9	Floral	Charcoal	fragments	small
Water St. 2011-83	U1AN	0-27 cm	1	Glass	Flat	Window Glass	
Water St. 2011-83	U1AN	0-27 cm	1	Glass	Flat	Window Glass	
Water St. 2011-83	U1AN	0-27 cm	1	Glass	Flat	Window Glass	
Water St. 2011-83	U1AN	0-27 cm	1	Glass	Flat	Window Glass	
Water St. 2011-84	U1BN	0-20 cm	129	ceramic	Brick	fragments	
Water St. 2011-84	U1BN	0-20 cm	1	ceramic	kaolin	Pipe	
Water St. 2011-84	U1BN	0-20 cm	1	ceramic	kaolin	Pipe	
Water St. 2011-84	U1BN	0-20 cm	1	ceramic	redware	interior and exterior surfaces missing	
Water St. 2011-84	U1BN	0-20 cm	1	Faunal	Bone	medium mammal flatbone calcined	
Water St. 2011-84	U1BN	0-20 cm	1	Glass	Flat	Window Glass	
Water St. 2011-84	U1BN	0-20 cm	1	Glass	Flat	Window Glass	
Water St. 2011-84	U1BN	0-20 cm	3	Glass	Flat	Window Glass	
Water St. 2011-84	U1BN	0-20 cm	1	Glass	Flat	Window Glass?	
Water St. 2011-84	U1BN	0-20 cm	1	Metal	iron	hand-wrought horseshoe nail	
Water St. 2011-84	U1BN	0-20 cm	3	Metal	iron	Hand-wrought nail	
Water St. 2011-84	U1BN	0-20 cm	4	Metal	iron	Hand-wrought nails	
Water St. 2011-85	U1N 30"x6"1" repair	0-30 cm	212	ceramic	Brick	fragments	
Water St. 2011-85	U1N 30"x6"1" repair	0-30 cm	28	ceramic	Brick	fragments	
Water St. 2011-85	U1N 30"x6"1" repair	0-30 cm	1	ceramic	kaolin	Pipe	
Water St. 2011-85	U1N 30"x6"1" repair	0-30 cm	3	ceramic	redware	glaze missing	
Water St. 2011-85	U1N 30"x6"1" repair	0-30 cm	1	ceramic	redware	Exterior missing interior glazed	
Water St. 2011-85	U1N 30"x6"1" repair	0-30 cm	1	ceramic	redware	exterior unglazed interior glazed	
Water St. 2011-85	U1N 30"x6"1" repair	0-30 cm	1	ceramic	Tin-Glazed	Glaze missing pink body	
Water St. 2011-85	U1N 30"x6"1" repair	0-30 cm	1	ceramic	whiteware	Undecorated white	
Water St. 2011-85	U1N 30"x6"1" repair	0-30 cm	1	Faunal	Bone	Medium mammal longbone midsection calcined	
Water St. 2011-85	U1N 30"x6"1" repair	0-30 cm	1	Floral	Charcoal	fragment	
Water St. 2011-85	U1N 30"x6"1" repair	0-30 cm	1	Glass	Flat	Window Glass	
Water St. 2011-85	U1N 30"x6"1" repair	0-30 cm	13	Glass	Flat	Window Glass	
Water St. 2011-85	U1N 30"x6"1" repair	0-30 cm	1	Glass	Flat	Window Glass	
Water St. 2011-85	U1N 30"x6"1" repair	0-30 cm	1	lithic	Quartz	shatter	
Water St. 2011-85	U1N 30"x6"1" repair	0-30 cm	1	Metal	Cuprus	Buckle- belt	incised design
Water St. 2011-85	U1N 30"x6"1" repair	0-30 cm	4	Metal	iron	hand wrought nail	Rose heads
Water St. 2011-85	U1N 30"x6"1" repair	0-30 cm	6	Metal	iron	hand wrought nail	
Water St. 2011-85	U1N 30"x6"1" repair	0-30 cm	1	Metal	iron	Hand-wrought nail	
Water St. 2011-85	U1N 30"x6"1" repair	0-30 cm	1	Metal	iron	Hand-wrought nail	
Water St. 2011-85	U1N 30"x6"1" repair	0-30 cm	1	Metal	iron	Hearth chain	
Water St. 2011-85	U1N 30"x6"1" repair	0-30 cm	1	Metal	iron	Knife blade	

Water St. 2011-85	U1N 30"x6"1" repair	0-30 cm	2	Metal	iron	Machine-cut nail	
Water St. 2011-85	U1N 30"x6"1" repair	0-30 cm	1	Metal	Silver	Cufflink	Etched G on face
Water St. 2011-86	U1N shovel test	0-30 cm	173	ceramic	Brick	fragments	
Water St. 2011-86	U1N shovel test	0-30 cm	3	ceramic	redware	glaze missing	
Water St. 2011-86	U1N shovel test	0-30 cm	1	ceramic	slipware	exterior glazed fine combed slip interior missing	
Water St. 2011-86	U1N shovel test	0-30 cm	1	Faunal	Bone	medium mammal rib calcined	
Water St. 2011-86	U1N shovel test	0-30 cm	1	Glass	Flat	Window Glass	
Water St. 2011-86	U1N shovel test	0-30 cm	1	Glass	Flat	Window Glass	
Water St. 2011-86	U1N shovel test	0-30 cm	1	Glass	Flat	Window Glass	
Water St. 2011-86	U1N shovel test	0-30 cm	1	Metal	Cuprus	Spoon	Fiddleback spoon?
Water St. 2011-86	U1N shovel test	0-30 cm	1	Metal	iron	Hand-wrought spike	
Water St. 2011-86	U1N shovel test	0-30 cm	1	Metal	iron	Wire nail	
Water St. 2011-87	U2TP	0-30 cm	27	ceramic	Brick	fragments	
Water St. 2011-87	U2TP	0-30 cm	1	ceramic	kaolin	Pipe	
Water St. 2011-87	U2TP	0-30 cm	1	ceramic	kaolin	Pipe	Unburned
Water St. 2011-87	U2TP	0-30 cm	1	ceramic	redware	Exterior unglazed interior missing	
Water St. 2011-87	U2TP	0-30 cm	1	Glass	Flat	Window Glass	
Water St. 2011-87	U2TP	0-30 cm	3	lithic	Quartz	flake fragments	
Water St. 2011-87	U2TP	0-30 cm	1	lithic	Rhyolite	Flake	
Water St. 2011-87	U2TP	0-30 cm	1	lithic	Rhyolite	Levanna point	
Water St. 2011-87	U2TP	0-30 cm	1	mortar	Clay	fragment	
Water St. 2011-88	Unit 1BN	9"	1	Metal	Cuprus and tin washed	Spoon	drilled repair hole and 3 spoon mark
Water St. 2011-88	Unit 1BN	9"	1	Metal	Cuprus and tin washed	Spoon	3 spoon mark and IB
Water St. 2011-89	Unit 3 B North shovel test	0-30 cm	26	ceramic	Brick	fragments	
Water St. 2011-89	Unit 3 B North shovel test	0-30 cm	1	ceramic	creamware	undecoated	
Water St. 2011-89	Unit 3 B North shovel test	0-30 cm	1	Class	kaolin	Pipe	
Water St. 2011-89	Unit 3 B North shovel test	0-30 cm	1	Class	kaolin	Pipe	
Water St. 2011-89	Unit 3 B North shovel test	0-30 cm	1	Class	kaolin	Pipe	
Water St. 2011-89	Unit 3 B North shovel test	0-30 cm	2	Faunal	Bone	medium mammal flatbone calcined	
Water St. 2011-89	Unit 3 B North shovel test	0-30 cm	1	Glass	Flat	Window Glass	
Water St. 2011-89	Unit 3 B North shovel test	0-30 cm	1	Glass	Flat	Window Glass	
Water St. 2011-89	Unit 3 B North shovel test	0-30 cm	1	lithic	cinder	fragment	
Water St. 2011-89	Unit 3 B North shovel test	0-30 cm	1	Metal	iron	Hand-wrought nail	
Water St. 2011-89	Unit 3 B North shovel test	0-30 cm	5	Metal	iron	Hand-wrought nails	
Water St. 2011-89	Unit 3 B North shovel test	0-30 cm	2	Metal	iron	Hand-wrought nails	
Water St. 2011-90	Unit 3A North Shovel Test	0-30 cm	10	ceramic	Brick	fragments	
Water St. 2011-90	Unit 3A North Shovel Test	0-30 cm	2	ceramic	redware	Exterior unglazed interior surface missing	
Water St. 2011-90	Unit 3A North Shovel Test	0-30 cm	1	ceramic	redware	Interior glazed exterior surface missing	
Water St. 2011-90	Unit 3A North Shovel Test	0-30 cm	1	Glass	Flat	Window Glass	
Water St. 2011-90	Unit 3A North Shovel Test	0-30 cm	1	Metal	Cuprus	kettle repair fragment	
Water St. 2011-90	Unit 3A North Shovel Test	0-30 cm	4	Metal	iron	Hand-wrought nails	
Water St. 2011-91	Unit 3N	surface to subsoil	31	ceramic	Brick		
Water St. 2011-91	Unit 3N	surface to subsoil	1	ceramic	redware	interior and exterior surfaces missing	
Water St. 2011-91	Unit 3N	surface to subsoil	1	Metal	iron	Hand-wrought nail	
Water St. 2011-92	S2.5 E00	0-40 cm	1	ceramic	Brick		
Water St. 2011-92	S2.5 E00	0-40 cm	1	mortar	shell-tempered		
Water St. 2011-93	S2.5 E.5	0-30 cm	3	ceramic	Brick	fragments	
Water St. 2011-93	S2.5 E.5	0-30 cm	1	ceramic	kaolin	Pipe	unrouletted, burned
Water St. 2011-93	S2.5 E.5	0-30 cm	1	Faunal	Bone	medium mammal flatbone calcined	
Water St. 2011-93	S2.5 E.5	0-30 cm	4	Floral	Charcoal	fragments	
Water St. 2011-93	S2.5 E.5	0-30 cm	1	Metal	iron	Machine-cut nail	
Water St. 2011-93	S2.5 E.5	0-30 cm	7	mortar	shell-tempered	fragments	
Water St. 2011-94	S2.5 E1	0-30 cm	2	ceramic	Brick	fragments	
Water St. 2011-94	S2.5 E1	0-30 cm	1	ceramic	slipware	combed	
Water St. 2011-94	S2.5 E1	0-30 cm	1	Floral	Charcoal	fragment	
Water St. 2011-94	S2.5 E1	0-30 cm	1	Glass	Flat	Window Glass	
Water St. 2011-94	S2.5 E1	0-30 cm	2	Metal	iron	Machine-cut nail	
Water St. 2011-94	S2.5 E1	0-30 cm	1	Metal	iron	Machine-cut nail	
Water St. 2011-94	S2.5 E1	0-30 cm	6	mortar	shell-tempered	fragments	

Water St. 2011-95	S2.5 E1	30 cm	1	ceramic	Brick	fragment	
Water St. 2011-95	S2.5 E1	30 cm	1	Metal	iron	lock spring	
Water St. 2011-96	S2.5 E1	40-50 cm	1	ceramic	slipware	glazed interior and exterior fine combing exterior	
Water St. 2011-96	S2.5 E1	40-50 cm	1	Faunal	Bone	medium mammal flatbone	
Water St. 2011-96	S2.5 E1	40-50 cm	1	Faunal	Bone	swine metacarpal	rodent gnawed
Water St. 2011-96	S2.5 E1	40-50 cm	1	Faunal	Bone	swine phalange 2	
Water St. 2011-96	S2.5 E1	40-50 cm	11	Floral	Charcoal	fragments	
Water St. 2011-96	S2.5 E1	40-50 cm	3	Metal	iron	Hand-wrought nails	
Water St. 2011-96	S2.5 E1	40-50 cm	1	Metal	iron	Hand-wrought spike	
Water St. 2011-96	S2.5 E1	40-50 cm	1	Metal	Lead	kame	
Water St. 2011-97	S2.5 E01	40-50 cm lower fill	1	ceramic	Brick	fragment	
Water St. 2011-97	S2.5 E01	40-50 cm lower fill	2	ceramic	kaolin	Pipe	
Water St. 2011-97	S2.5 E01	40-50 cm lower fill	1	ceramic	kaolin	Pipe	Small belly bowl burned rim
Water St. 2011-97	S2.5 E01	40-50 cm lower fill	1	Metal	iron	Wedge	
Water St. 2011-98	S2 E1.5	30-40 cm	1	lithic	Quartz	Flake	
Water St. 2011-99	S2.5 E1.5	20-30 cm	1	ceramic	Brick	fragment	
Water St. 2011-99	S2.5 E1.5	20-30 cm	2	ceramic	redware	interior and exterior surfaces missing	
Water St. 2011-99	S2.5 E1.5	20-30 cm	1	ceramic	whiteware	undecoated	
Water St. 2011-99	S2.5 E1.5	20-30 cm	8	clay	burned	Mortar?	
Water St. 2011-99	S2.5 E1.5	20-30 cm	2	clay	Mortar or daub	fragments	
Water St. 2011-99	S2.5 E1.5	20-30 cm	2	Faunal	Bone	Medium mammal longbone	
Water St. 2011-99	S2.5 E1.5	20-30 cm	5	Floral	Charcoal	fragments	
Water St. 2011-99	S2.5 E1.5	20-30 cm	1	Glass	Flat	Window Glass	
Water St. 2011-99	S2.5 E1.5	20-30 cm	1	lithic	Quartz	shatter	
Water St. 2011-99	S2.5 E1.5	20-30 cm	1	Metal	iron	Hand-wrought nail	
Water St. 2011-99	S2.5 E1.5	20-30 cm	1	Metal	iron	Knife blade	Bent and snapped
Water St. 2011-99	S2.5 E1.5	20-30 cm	2	Metal	iron	Machine-cut nail	
Water St. 2011-99	S2.5 E1.5	20-30 cm	3	mortar	shell-tempered	fragments	
Water St. 2011-100	S2.5 E1.5	30-40 cm	3	Floral	Charcoal		
Water St. 2011-100	S2.5 E1.5	30-40 cm	1	Metal	iron	Hand-wrought nail	
Water St. 2011-100	S2.5 E1.5	30-40 cm	1	Metal	iron	Hand-wrought nail	
Water St. 2011-100	S2.5 E1.5	30-40 cm	5	mortar	shell-tempered		
Water St. 2011-101	S3 E0-E.5	40-55 cm	24	ceramic	Brick	fragments	
Water St. 2011-101	S3 E0-E.5	40-55 cm	1	ceramic	redware	interior glazed exterior missing	
Water St. 2011-101	S3 E0-E.5	40-55 cm	2	Glass	Flat	Window Glass	
Water St. 2011-101	S3 E0-E.5	40-55 cm	1	Glass	Flat	Window Glass	
Water St. 2011-101	S3 E0-E.5	40-55 cm	1	lithic	granite	cobble with mortar on it	
Water St. 2011-101	S3 E0-E.5	40-55 cm	1	Metal	iron	Hand-wrought nail	
Water St. 2011-101	S3 E0-E.5	40-55 cm	2	Metal	iron	Hand-wrought nail	
Water St. 2011-101	S3 E0-E.5	40-55 cm	21	mortar	shell-tempered	fragments	
Water St. 2011-102	S3 E1	10-20 cm	26	ceramic	Brick	fragments	
Water St. 2011-102	S3 E1	10-20 cm	1	Metal	iron	Hand-wrought nail	
Water St. 2011-102	S3 E1	20-30 cm	8	ceramic	Brick	fragments	
Water St. 2011-102	S3 E1	20-30 cm	3	ceramic	redware	Exterior unglazed interior surface missing	
Water St. 2011-102	S3 E1	20-30 cm	1	ceramic	redware	Interior glazed exterior unglazed	
Water St. 2011-102	S3 E1	20-30 cm	1	Faunal	Bone	cattle phalange 1	fused epiphysis
Water St. 2011-102	S3 E1	20-30 cm	1	Faunal	shell	oyster	
Water St. 2011-102	S3 E1	20-30 cm	1	Metal	iron	Hand-wrought nail	
Water St. 2011-102	S3 E1	20-30 cm	2	Metal	iron	Hand-wrought nail	
Water St. 2011-102	S3 E1	20-30 cm	3	mortar	shell-tempered	fragments	
Water St. 2011-103	S3 E1	40-55 cm	9	ceramic	Brick	fragments	
Water St. 2011-103	S3 E1	40-55 cm	7	Faunal	Bone	large mammal longbone calcined	
Water St. 2011-103	S3 E1	40-55 cm	20	Floral	Charcoal	fragments	
Water St. 2011-103	S3 E1	40-55 cm	1	lithic	granite	fire cracked rock	
Water St. 2011-103	S3 E1	40-55 cm	22	mortar	shell-tempered	fragments	
Water St. 2011-104	S3.5 E1	0-20 cm	1	ceramic	Clay	Mortar	
Water St. 2011-104	S3.5 E1	0-20 cm	1	ceramic	Whiteware	Undecorated	
Water St. 2011-104	S3.5 E1	0-20 cm	1	Faunal	Bone	Calcined mammal longbone	

Water St. 2011-104	S3.5 E1	0-20 cm	1	Faunal	Bone	Sheep Molar
Water St. 2011-104	S3.5 E1	0-20 cm	1	Lithic	coal	
Water St. 2011-105	S5.5 E.5	0-20 cm	5	ceramic	Brick	fragments
Water St. 2011-105	S5.5 E.5	0-20 cm	1	ceramic	redware	Interior and exterior glaze missing
Water St. 2011-105	S5.5 E.5	0-20 cm	1	Metal	iron	hand-wrought horseshoe nail
Water St. 2011-105	S5.5 E.5	0-20 cm	1	Metal	iron	Hand-wrought nail
Water St. 2011-105	S5.5 E1	10-20 cm	2	ceramic	kaolin	Pipe
Water St. 2011-105	S5.5 E1	10-20 cm	1	ceramic	redware	interior missing exterior unglazed
Water St. 2011-105	S5.5 E1	10-20 cm	1	ceramic	redware	Interior glazed exterior missing buff body
Water St. 2011-105	S5.5 E1	10-20 cm	1	Glass	Flat	
Water St. 2011-106	S5.5 E1	10-20 cm	24	ceramic	Brick	fragments
Water St. 2011-106	S5.5 E1	20-29 cm	7	ceramic	Brick	fragments
Water St. 2011-106	S5.5 E1	20-29 cm	1	Glass	Flat	Window Glass
Water St. 2011-106	S5.5 E1	20-29 cm	2	mortar	shell-tempered	fragments
Water St. 2011-107	S5.5 E1.5	10-20 cm	21	ceramic	Brick	fragments
Water St. 2011-107	S5.5 E1.5	10-20 cm	1	Faunal	Bone	medium bird longbone calcined
Water St. 2011-107	S5.5 E1.5	10-20 cm	2	Glass	Flat	Window Glass
Water St. 2011-107	S5.5 E1.5	10-20 cm	1	lithic	Quartz	shatter
Water St. 2011-107	S5.5 E1.5	10-20 cm	3	Metal	iron	Hand-wrought nails
Water St. 2011-107	S5.5 E1.5	10-20 cm	1	Metal	iron	Hand-wrought spike
Water St. 2011-107	S5.5 E1.5	10-20 cm	1	Metal	iron	Machine-cut nail
Water St. 2011-107	S5.5 E1.5	10-20 cm	3	mortar	shell-tempered	fragments
Water St. 2011-108	S5.5 E1.5 in foundation trench	30-35 cm	1	ceramic	Brick	fragment
Water St. 2011-108	S5.5 E1.5 in foundation trench	30-35 cm	1	Faunal	Bone	medium mammal flatbone calcined
Water St. 2011-108	S5.5 E1.5 in foundation trench	30-35 cm	1	Faunal	shell	quahog
Water St. 2011-108	S5.5 E1.5 in foundation trench	30-35 cm	1	lithic	Quartz	shatter
Water St. 2011-108	S5.5 E1.5 in foundation trench	30-35 cm	1	Metal	iron	Hand-wrought nail
Water St. 2011-108	S5.5 E1.5 in foundation trench	30-35 cm	1	Metal	iron	Hand-wrought nail
Water St. 2011-108	S5.5 E1.5 in foundation trench	30-35 cm	1	mortar	shell-tempered	fragment
Water St. 2011-109	S5.5 E1.5 in foundation trench	30-40 cm	1	ceramic	Brick	fragment
Water St. 2011-109	S5.5 E1.5 in foundation trench	30-40 cm	2	Glass	Flat	Window Glass
Water St. 2011-109	S5.5 E1.5 in foundation trench	30-40 cm	1	Metal	iron	cast iron pot leg, molded
Water St. 2011-109	S5.5 E1.5 in foundation trench	30-40 cm	2	Metal	iron	Machine-cut nail
Water St. 2011-110	S7 E.5	10-20 cm	12	ceramic	Brick	fragments
Water St. 2011-110	S7 E.5	10-20 cm	1	ceramic	kaolin	Pipe
Water St. 2011-110	S7 E.5	10-20 cm	2	ceramic	redware	Interior and exterior glaze missing
Water St. 2011-110	S7 E.5	10-20 cm	1	ceramic	whiteware	undecoated
Water St. 2011-110	S7 E.5	10-20 cm	1	lithic	Quartz	shatter
Water St. 2011-110	S7 E.5	10-20 cm	1	Metal	iron	Hand-wrought nail
Water St. 2011-110	S7 E.5	10-20 cm	2	Metal	iron	Hand-wrought nails
Water St. 2011-111	S7 E.5	20-30 cm	16	ceramic	Brick	fragments
Water St. 2011-111	S7 E.5	20-30 cm	1	ceramic	kaolin	Pipe
Water St. 2011-111	S7 E.5	20-30 cm	1	Glass	Flat	Case Bottle?
Water St. 2011-111	S7 E.5	20-30 cm	3	Metal	iron	Hand-wrought nails
Water St. 2011-112	S7 E2	20-40 cm	299	ceramic	Brick	fragments
Water St. 2011-112	S7 E2	20-40 cm	1	ceramic	kaolin	Pipe
Water St. 2011-112	S7 E2	20-40 cm	1	ceramic	redware	Exterior unglazed interior missing
Water St. 2011-112	S7 E2	20-40 cm	1	ceramic	redware	Exterior missing interior glazed
Water St. 2011-112	S7 E2	20-40 cm	1	ceramic	redware	exterior unglazed interior glazed
Water St. 2011-112	S7 E2	20-40 cm	1	ceramic	redware	Exterior unglazed interior glaze missing
Water St. 2011-112	S7 E2	20-40 cm	1	ceramic	Tin-Glazed	Glaze missing pink body
Water St. 2011-112	S7 E2	20-40 cm	1	Glass	curved	wine bottle
Water St. 2011-112	S7 E2	20-40 cm	9	Glass	Flat	Window Glass
Water St. 2011-112	S7 E2	20-40 cm	1	Lithic	flint	Gunflint
Water St. 2011-112	S7 E2	20-40 cm	1	lithic	Quartz	shatter
Water St. 2011-112	S7 E2	20-40 cm	6	Metal	iron	Hand-wrought nails
Water St. 2011-112	S7 E2	20-40 cm	1	Metal	iron	Horseshoe
Water St. 2011-113	S7 E2	7-20 cm	112	ceramic	Brick	fragments

Water St. 2011-113	S7 E2	7-20 cm	2	ceramic	pearlware	Undecorated
Water St. 2011-113	S7 E2	7-20 cm	2	ceramic	redware	glaze missing
Water St. 2011-113	S7 E2	7-20 cm	1	ceramic	Stoneware- English brown	Glaze interior and exterior
Water St. 2011-113	S7 E2	7-20 cm	1	ceramic	stoneware- westerwald	Rosettes on exterior
Water St. 2011-113	S7 E2	7-20 cm	1	Faunal	Bone	medium mammal flatbone calcined
Water St. 2011-113	S7 E2	7-20 cm	2	Faunal	shell	soft shell clam
Water St. 2011-113	S7 E2	7-20 cm	1	Floral	Charcoal	fragment
Water St. 2011-113	S7 E2	7-20 cm	1	Glass	curved	Thick clear fragment
Water St. 2011-113	S7 E2	7-20 cm	5	Glass	Flat	Window Glass
Water St. 2011-114	S8 E2	0-20 cm	12	ceramic	Brick	fragments
Water St. 2011-114	S8 E2	0-20 cm	1	ceramic	kaolin	Pipe
Water St. 2011-114	S8 E2	0-20 cm	1	ceramic	redware	interior and exterior surfaces missing
Water St. 2011-114	S8 E2	0-20 cm	1	Faunal	shell	quahog
Water St. 2011-114	S8 E2	0-20 cm	2	Glass	Flat	Window Glass
Water St. 2011-114	S8 E2	0-20 cm	1	lithic	Quartz	shatter
Water St. 2011-115	S8 E2	20-28 cm	28	ceramic	Brick	fragments
Water St. 2011-115	S8 E2	20-28 cm	1	ceramic	kaolin	Pipe
Water St. 2011-115	S8 E2	20-28 cm	1	ceramic	redware	Exterior unglazed interior surface missing
Water St. 2011-115	S8 E2	20-28 cm	1	ceramic	redware	Interior glazed exterior unglazed burned?
Water St. 2011-115	S8 E2	20-28 cm	1	lithic	Rhyolite	Flake fragment
Water St. 2011-115	S8 E2	20-28 cm	1	Metal	iron	Hand-wrought nail
Water St. 2011-115	S8 E2	20-28 cm	1	Metal	iron	Hand-wrought nail
Water St. 2011-116	S8.4 E1.25	10-20 cm	53	ceramic	Brick	fragments
Water St. 2011-116	S8.4 E1.25	10-20 cm	1	ceramic	kaolin	Pipe
Water St. 2011-116	S8.4 E1.25	10-20 cm	1	ceramic	kaolin	Pipe
Water St. 2011-116	S8.4 E1.25	10-20 cm	5	ceramic	redware	interio and exterior surfaces missing
Water St. 2011-116	S8.4 E1.25	10-20 cm	3	ceramic	redware	Interior glazed exterior missing buff body
Water St. 2011-116	S8.4 E1.25	10-20 cm	2	Floral	Charcoal	fragments
Water St. 2011-116	S8.4 E1.25	10-20 cm	1	Glass	Flat	Window Glass
Water St. 2011-116	S8.4 E1.25	10-20 cm	1	Glass	Flat	Window Glass
Water St. 2011-116	S8.4 E1.25	10-20 cm	2	Glass	Flat	Window Glass
Water St. 2011-116	S8.4 E1.25	10-20 cm	2	Glass	Flat	Window Glass
Water St. 2011-116	S8.4 E1.25	10-20 cm	2	Glass	Flat	Window Glass
Water St. 2011-116	S8.4 E1.25	10-20 cm	1	lithic	Rhyolite	Flake
Water St. 2011-116	S8.4 E1.25	10-20 cm	1	Metal	iron	Hand-wrought nail
Water St. 2011-116	S8.4 E1.25	10-20 cm	1	Metal	iron	Hand-wrought nail
Water St. 2011-116	S8.4 E1.25	10-20 cm	1	Metal	iron	triangular fragment
Water St. 2011-117	S8.4 E1.25	20-30 cm	26	ceramic	Brick	fragments
Water St. 2011-117	S8.4 E1.25	20-30 cm	1	Glass	Flat	Window Glass
Water St. 2011-117	S8.4 E1.25	20-30 cm	5	Metal	iron	Hand-wrought nails
Water St. 2011-117	S8.4 E1.25	20-30 cm	6	Metal	iron	Hand-wrought nails
Water St. 2011-118	S8.4 E2	0-16 cm	6	ceramic	Brick	fragments
Water St. 2011-118	S8.4 E2	0-16 cm	1	Glass	Flat	Window Glass?
Water St. 2011-118	S8.4 E2	0-16 cm	1	Metal	iron	Hand-wrought nail
Water St. 2011-119	S8.4 E2	16-30 cm	6	ceramic	Brick	fragments
Water St. 2011-119	S8.4 E2	16-30 cm	1	ceramic	redware	Exterior unglazed interior missing
Water St. 2011-119	S8.4 E2	16-30 cm	1	lithic	Quartz	shatter
Water St. 2011-120	S3 W1	30-40 cm	7	ceramic	Brick	fragments
Water St. 2011-120	S3 W1	30-40 cm	1	Metal	iron	Hand-wrought nail
Water St. 2011-120	S3 W1	30-40 cm	2	Metal	iron	Hand-wrought nails
Water St. 2011-120	S3 W1	30-40 cm	1	Metal	iron	Hook end
Water St. 2011-120	S3 W1	30-40 cm	20	mortar	shell-tempered	fragments
Water St. 2011-121	S3.5 W.5	0-27 cm	212	ceramic	Brick	fragments
Water St. 2011-121	S3.5 W.5	0-27 cm	1	ceramic	English buff-bodied	interior and exterior glazed
Water St. 2011-121	S3.5 W.5	0-27 cm	1	ceramic	pearlware	blue edged deep feathers
Water St. 2011-121	S3.5 W.5	0-27 cm	2	ceramic	redware	interior and exterior surfaces missing
Water St. 2011-121	S3.5 W.5	0-27 cm	4	ceramic	redware	interior and exterior glazed
Water St. 2011-121	S3.5 W.5	0-27 cm	2	ceramic	Tin-Glazed	glaze missing buff body

Water St. 2011-121	S3.5 W.5	0-27 cm	3	ceramic	whiteware	undecoated	
Water St. 2011-121	S3.5 W.5	0-27 cm	1	Faunal	Bone	large mammal longbone	
Water St. 2011-121	S3.5 W.5	0-27 cm	1	Glass	Flat	Window Glass	
Water St. 2011-121	S3.5 W.5	0-27 cm	1	lithic	hornfels	Flake	
Water St. 2011-121	S3.5 W.5	0-27 cm	1	lithic	hornfels	Flake	
Water St. 2011-121	S3.5 W.5	0-27 cm	1	lithic	hornfels	Flake	
Water St. 2011-121	S3.5 W.5	0-27 cm	1	lithic	Quartz	shatter	
Water St. 2011-121	S3.5 W.5	0-27 cm	1	lithic	Quartz	Flake fragment	
Water St. 2011-121	S3.5 W.5	0-27 cm	1	lithic	Quartzite	Flake fragment	
Water St. 2011-121	S3.5 W.5	0-27 cm	1	lithic	Rhyolite	Flake fragment	
Water St. 2011-121	S3.5 W.5	0-27 cm	2	Metal	iron	Hand-wrought nail	
Water St. 2011-121	S3.5 W.5	0-27 cm	1	Metal	iron	Machine-cut nail	
Water St. 2011-121	S3.5 W.5	0-27 cm	1	Metal	iron	Machine-cut nail	
Water St. 2011-121	S3.5 W.5	0-27 cm	5	Metal	iron	Machine-cut nail	
Water St. 2011-121	S3.5 W.5	0-27 cm	4	mortar	shell-tempered	fragments	
Water St. 2011-122	S3.5 W1	40-50 cm	1	ceramic	Brick		
Water St. 2011-122	S3.5 W1	40-50 cm	1	ceramic	redware	interior glazed exterior missing	
Water St. 2011-122	S3.5 W1	40-50 cm	26	ceramic	redware	interior and exterior surfaces missing	
Water St. 2011-122	S3.5 W1	40-50 cm	2	lithic	Quartz	flake fragments	
Water St. 2011-122	S3.5 W1	40-50 cm	1	Metal	iron	Hand-wrought nail	
Water St. 2011-123	S3.5 W3	20 cm	1	ceramic	redware	Exterior unglazed interior surface missing	
Water St. 2011-124	S6 W4	10-20 cm	193	ceramic	Brick	fragments	
Water St. 2011-124	S6 W4	10-20 cm	1	ceramic	creamware	undecoated	
Water St. 2011-124	S6 W4	10-20 cm	4	ceramic	kaolin	Pipe	
Water St. 2011-124	S6 W4	10-20 cm	1	ceramic	kaolin	Pipe	
Water St. 2011-124	S6 W4	10-20 cm	3	ceramic	kaolin	Pipe	1 notched nib
Water St. 2011-124	S6 W4	10-20 cm	1	ceramic	kaolin	Pipe	
Water St. 2011-124	S6 W4	10-20 cm	1	ceramic	pearlware	undecoated	
Water St. 2011-124	S6 W4	10-20 cm	1	ceramic	redware	Interior glazed exterior unglazed	
Water St. 2011-124	S6 W4	10-20 cm	13	ceramic	redware	interior and exterior missing	
Water St. 2011-124	S6 W4	10-20 cm	2	ceramic	redware	Interior glazed exterior unglazed	
Water St. 2011-124	S6 W4	10-20 cm	1	ceramic	stoneware- Bellarmine	molded beard fragment	
Water St. 2011-124	S6 W4	10-20 cm	1	ceramic	Tin-Glazed	Interior and exterior glazed blue HP int	Buff body
Water St. 2011-124	S6 W4	10-20 cm	1	Faunal	Bone	swine incisor	unerupted
Water St. 2011-124	S6 W4	10-20 cm	2	Faunal	Bone	medium mammal flatbone calcined	
Water St. 2011-124	S6 W4	10-20 cm	2	Glass	curved	Hand Blown Bottle	
Water St. 2011-124	S6 W4	10-20 cm	1	Glass	Flat	Window Glass	
Water St. 2011-124	S6 W4	10-20 cm	3	Glass	Flat	Window Glass	
Water St. 2011-124	S6 W4	10-20 cm	1	Glass	Flat	Window Glass	
Water St. 2011-124	S6 W4	10-20 cm	1	lithic	Rhyolite	Flake	
Water St. 2011-124	S6 W4	10-20 cm	1	lithic	Rhyolite	Flake	
Water St. 2011-124	S6 W4	10-20 cm	1	Metal	iron	Hand-wrought nail	
Water St. 2011-124	S6 W4	10-20 cm	1	Metal	iron	Hand-wrought nail	
Water St. 2011-124	S6 W4	10-20 cm	9	Metal	iron	Hand-wrought nails	Rose heads
Water St. 2011-124	S6 W4	10-20 cm	8	Metal	iron	Hand-wrought nails	
Water St. 2011-124	S6 W4	10-20 cm	3	Metal	iron	Hand-wrought nails	
Water St. 2011-124	S6 W4	10-20 cm	1	Metal	iron	Machine-cut nail	
Water St. 2011-124	S6 W4	10-20 cm	1	Metal	iron	Machine-cut nail	
Water St. 2011-124	S6 W4	10-20 cm	1	Metal	Lead	kame	
Water St. 2011-125	S8.5 W4	30-50 cm	3	ceramic	Brick	fragments	
Water St. 2011-125	S8.5 W4	30-50 cm	1	ceramic	redware	Interior glazed exterior unglazed	
Water St. 2011-125	S8.5 W4	30-50 cm	2	Faunal	Bone	Medium mammal longbone	
Water St. 2011-126	S8.5 W5	20-30 cm	1	ceramic	Brick	fragment	
Water St. 2011-126	S8.5 W5	20-30 cm	3	ceramic	kaolin	Pipe	heeless funnel
Water St. 2011-126	S8.5 W5	20-30 cm	11	ceramic	redware	Exterior unglazed interior surface missing	
Water St. 2011-126	S8.5 W5	20-30 cm	2	Faunal	Bone	medium mammal flatbone calcined	
Water St. 2011-126	S8.5 W5	20-30 cm	6	Faunal	Bone	sheep molar	Unerupted
Water St. 2011-126	S8.5 W5	20-30 cm	1	Faunal	Bone	swine canine female	Unburned

Water St. 2011-126	S8.5 W5	20-30 cm	3	Faunal	shell	oyster	
Water St. 2011-126	S8.5 W5	20-30 cm	1	Glass	curved	Hand Blown Bottle	
Water St. 2011-126	S8.5 W5	20-30 cm	1	Glass	curved	Hand Blown Bottle	
Water St. 2011-126	S8.5 W5	20-30 cm	1	Glass	Flat	Window Glass	
Water St. 2011-126	S8.5 W5	20-30 cm	1	Glass	Flat	Window Glass	
Water St. 2011-126	S8.5 W5	20-30 cm	1	lithic	flint	burned chip	
Water St. 2011-126	S8.5 W5	20-30 cm	1	lithic	Rhyolite	Flake	
Water St. 2011-126	S8.5 W5	20-30 cm	1	Metal	iron	Hand-wrought nail	
Water St. 2011-126	S8.5 W5	20-30 cm	1	Metal	iron	Hand-wrought nail	
Water St. 2011-127	S9 W4	0-20 cm	1	ceramic	redware	interior and exterior surfaces missing	
Water St. 2011-127	S9 W4	0-20 cm	1	ceramic	slipware	exterior decorated fine combing	
Water St. 2011-127	S9 W4	0-20 cm	1	ceramic	Tin-Glazed	light tan body white glaze	
Water St. 2011-127	S9 W4	0-20 cm	3	Faunal	Bone	medium mammal flatbone calcined	
Water St. 2011-127	S9 W4	0-20 cm	2	Glass	Flat	Window Glass	
Water St. 2011-128	S9 W4	20-30 cm	1	ceramic	Brick	fragment	
Water St. 2011-128	S9 W4	20-30 cm	1	ceramic	kaolin	Pipe	
Water St. 2011-128	S9 W4	20-30 cm	1	ceramic	kaolin	Pipe	
Water St. 2011-128	S9 W4	20-30 cm	1	ceramic	redware	Interior and exterior glaze missing	
Water St. 2011-128	S9 W4	20-30 cm	1	ceramic	slipware	exterior fine trailed slip	
Water St. 2011-128	S9 W4	20-30 cm	1	ceramic	slipware	wide brown band on exterior	
Water St. 2011-128	S9 W4	20-30 cm	1	ceramic	Tin-Glazed	exterior glazed interior surface missing	
Water St. 2011-128	S9 W4	20-30 cm	3	Faunal	Bone	cattle rib	
Water St. 2011-128	S9 W4	20-30 cm	3	Faunal	Bone	medium bird longbone calcined	
Water St. 2011-128	S9 W4	20-30 cm	1	Faunal	Bone	swine m2	Worn
Water St. 2011-128	S9 W4	20-30 cm	1	Glass	Flat	Window Glass	
Water St. 2011-128	S9 W4	20-30 cm	1	lithic	flint	Chip	
Water St. 2011-128	S9 W4	20-30 cm	1	Metal	Cuprus	Hinge?	marked RW
Water St. 2011-128	S9 W4	20-30 cm	1	Metal	iron	Machine-cut nail	
Water St. 2011-128	S9 W4	20-30 cm	1	Metal	iron	Machine-cut nail	
Water St. 2011-129	S9 W4	30-40 cm	1	ceramic	kaolin	Pipe	
Water St. 2011-129	S9 W4	30-40 cm	1	ceramic	kaolin	Pipe	
Water St. 2011-129	S9 W4	30-40 cm	1	ceramic	kaolin	Pipe	
Water St. 2011-129	S9 W4	30-40 cm	1	ceramic	redware	Interior glazed exterior unglazed	
Water St. 2011-129	S9 W4	30-40 cm	5	ceramic	redware	interior missing exterior unglazed	
Water St. 2011-129	S9 W4	30-40 cm	3	ceramic	slipware	exterior fine and wide combed	
Water St. 2011-129	S9 W4	30-40 cm	1	ceramic	Tin-Glazed	glaze missing buff body	
Water St. 2011-129	S9 W4	30-40 cm	1	Faunal	Bone	cattle M1	Worn
Water St. 2011-129	S9 W4	30-40 cm	1	Faunal	Bone	cattle mandible	
Water St. 2011-129	S9 W4	30-40 cm	3	Faunal	Bone	cattle rib	
Water St. 2011-129	S9 W4	30-40 cm	2	Faunal	Bone	medium mammal flatbone calcined	
Water St. 2011-129	S9 W4	30-40 cm	1	Faunal	Bone	swine Pm2	Worn
Water St. 2011-129	S9 W4	30-40 cm	2	Floral	Charcoal	fragments	
Water St. 2011-129	S9 W4	30-40 cm	2	Metal	iron	Hand-wrought nails	
Water St. 2011-130	S9 W4.5	A3	1	ceramic	redware	Exterior unglazed interior surface missing	
Water St. 2011-130	S9 W4.5	A3	14	Floral	Charcoal	fragments	
Water St. 2011-130	S9 W4.5	A3	1	Glass	Flat	Window Glass	
Water St. 2011-131	S9 W4.5	Level 2	1	ceramic	kaolin	Pipe	Unburned
Water St. 2011-131	S9 W4.5	Level 2	1	ceramic	kaolin	Pipe	
Water St. 2011-131	S9 W4.5	Level 2	1	ceramic	kaolin	Pipe	Unburned
Water St. 2011-131	S9 W4.5	Level 2	1	ceramic	kaolin	Pipe	Unburned
Water St. 2011-131	S9 W4.5	Level 2	5	ceramic	redware	Exterior unglazed interior missing	
Water St. 2011-131	S9 W4.5	Level 2	1	ceramic	slipware	exterior slip decorated	
Water St. 2011-131	S9 W4.5	Level 2	1	ceramic	Tin-Glazed	buff body exterior glazed interior missing	
Water St. 2011-131	S9 W4.5	Level 2	3	Faunal	Bone	medium mammal flatbone calcined	
Water St. 2011-131	S9 W4.5	Level 2	1	Faunal	Bone	Medium mammal longbone	
Water St. 2011-131	S9 W4.5	Level 2	1	Faunal	Bone	sheep molar 3	
Water St. 2011-131	S9 W4.5	Level 2	1	Faunal	Bone	swine canine	
Water St. 2011-131	S9 W4.5	Level 2	1	Faunal	Bone	swine incisor	

Water St. 2011-131	S9 W4.5	Level 2	3	Faunal	Bone	swine molar 1	
Water St. 2011-131	S9 W4.5	Level 2	1	Floral	Charcoal	fragment	
Water St. 2011-131	S9 W4.5	Level 2	1	Glass	curved	Hand-blown wine glass	
Water St. 2011-131	S9 W4.5	Level 2	2	Glass	curved	Hand Blown Bottle	
Water St. 2011-131	S9 W4.5	Level 2	1	Glass	Flat	Window Glass	
Water St. 2011-131	S9 W4.5	Level 2	1	Metal	iron	Hand-wrought horseshoe nail	
Water St. 2011-131	S9 W4.5	Level 2	4	Metal	iron	Hand-wrought nail	
Water St. 2011-132	S9.5 W4	10-20 cm S ½	10	ceramic	Brick		
Water St. 2011-132	S9.5 W4	10-20 cm S ½	1	ceramic	kaolin	Pipe	
Water St. 2011-132	S9.5 W4	10-20 cm S ½	1	ceramic	kaolin	Pipe	
Water St. 2011-132	S9.5 W4	10-20 cm S ½	1	ceramic	Redware	Exterior unglazed interior missing	
Water St. 2011-132	S9.5 W4	10-20 cm S ½	4	Faunal	Bone	Medium mammal longbone	
Water St. 2011-132	S9.5 W4	10-20 cm S ½	2	Glass	Flat	Window Glass	
Water St. 2011-132	S9.5 W4	10-20 cm S1/2	42	ceramic	Brick	fragments	
Water St. 2011-132	S9.5 W4	10-20 cm S1/2	1	ceramic	redware	Interior glazed exterior missing buff body	
Water St. 2011-132	S9.5 W4	10-20 cm S1/2	1	ceramic	redware	surfaces missing	
Water St. 2011-132	S9.5 W4	10-20 cm S1/2	1	Faunal	Bone	medium bird longbone calcined	
Water St. 2011-132	S9.5 W4	10-20 cm S1/2	1	Glass	Flat	Window Glass	
Water St. 2011-132	S9.5 W4	10-20 cm S1/2	1	Glass	Flat	Window Glass	
Water St. 2011-132	S9.5 W4	10-20 cm S1/2	1	Metal	iron	Flat fragment	Truncated triangle
Water St. 2011-132	S9.5 W4	10-20 cm S1/2	2	Metal	iron	Hand-wrought nails	
Water St. 2011-133	S9.5 W4	20-30 cm NW	27	ceramic	Brick		
Water St. 2011-133	S9.5 W4	20-30 cm NW	2	ceramic	kaolin	Pipe	
Water St. 2011-133	S9.5 W4	20-30 cm NW	3	ceramic	kaolin	Pipe	
Water St. 2011-133	S9.5 W4	20-30 cm NW	4	ceramic	kaolin	Pipe	Unburned
Water St. 2011-133	S9.5 W4	20-30 cm NW	1	ceramic	kaolin	Pipe	
Water St. 2011-133	S9.5 W4	20-30 cm NW	3	ceramic	kaolin	Pipe	Burned rouletted
Water St. 2011-133	S9.5 W4	20-30 cm NW	3	ceramic	kaolin	Pipe	
Water St. 2011-133	S9.5 W4	20-30 cm NW	2	ceramic	redware	burned interior and exterior	
Water St. 2011-133	S9.5 W4	20-30 cm NW	16	ceramic	redware	Interior glazed exterior unglazed	
Water St. 2011-133	S9.5 W4	20-30 cm NW	19	ceramic	redware	Exterior unglazed interior surface missing	
Water St. 2011-133	S9.5 W4	20-30 cm NW	5	ceramic	redware	Interior glazed exterior unglazed	
Water St. 2011-133	S9.5 W4	20-30 cm NW	1	ceramic	redware	Exterior unglazed interior missing	double edge on rim
Water St. 2011-133	S9.5 W4	20-30 cm NW	13	ceramic	redware	Interior glazed exterior unglazed	
Water St. 2011-133	S9.5 W4	20-30 cm NW	13	ceramic	slipware	narrow and wide combing	
Water St. 2011-133	S9.5 W4	20-30 cm NW	1	ceramic	stoneware- westerwald	applied decoration exterior	
Water St. 2011-133	S9.5 W4	20-30 cm NW	4	ceramic	Tin-Glazed	glazed interior and exterior light tan body	Portugese
Water St. 2011-133	S9.5 W4	20-30 cm NW	5	clay	Mortar or daub		Burned
Water St. 2011-133	S9.5 W4	20-30 cm NW	1	Faunal	Bone	Cattle lumbar vertebra	chopped 3 times
Water St. 2011-133	S9.5 W4	20-30 cm NW	1	Faunal	Bone	Cattle right mandible	4 I teeth on left side, Pm2-3 worn, chopped impacted teeth
Water St. 2011-133	S9.5 W4	20-30 cm NW	1	Faunal	Bone	cattle tarsal	carnivore chewed
Water St. 2011-133	S9.5 W4	20-30 cm NW	1	Faunal	Bone	Large mammal flatbone	chopped 3 times
Water St. 2011-133	S9.5 W4	20-30 cm NW	6	Faunal	Bone	medium mammal flatbone	
Water St. 2011-133	S9.5 W4	20-30 cm NW	5	Faunal	Bone	medium mammal flatbone calcined	
Water St. 2011-133	S9.5 W4	20-30 cm NW	1	Faunal	Bone	Medium mammal longbone	
Water St. 2011-133	S9.5 W4	20-30 cm NW	2	Faunal	Bone	medium mammal longbone burned	
Water St. 2011-133	S9.5 W4	20-30 cm NW	5	Faunal	Bone	medium mammal longbone calcined	
Water St. 2011-133	S9.5 W4	20-30 cm NW	1	Faunal	Bone	medium to large bird phalange	
Water St. 2011-133	S9.5 W4	20-30 cm NW	2	Faunal	Bone	sheep humerus	
Water St. 2011-133	S9.5 W4	20-30 cm NW	2	Faunal	Bone	Sheep Incisors	Very worn
Water St. 2011-133	S9.5 W4	20-30 cm NW	1	Faunal	Bone	Sheep molar enamel	
Water St. 2011-133	S9.5 W4	20-30 cm NW	1	Faunal	Bone	sheep radius	chopped 3 times
Water St. 2011-133	S9.5 W4	20-30 cm NW	2	Faunal	Bone	sheep right radius	fused epiphysis, 1 radius broken in half
Water St. 2011-133	S9.5 W4	20-30 cm NW	3	Faunal	Bone	Sheep ulna right	
Water St. 2011-133	S9.5 W4	20-30 cm NW	2	Faunal	Bone	swine radius	chopped, carnivore chewed
Water St. 2011-133	S9.5 W4	20-30 cm NW	4	Faunal	shell	oyster	
Water St. 2011-133	S9.5 W4	20-30 cm NW	32	Floral	Charcoal		large
Water St. 2011-133	S9.5 W4	20-30 cm NW	1	Glass	curved		

Water St. 2011-133	S9.5 W4	20-30 cm NW	1	Glass	curved			19thc entury
Water St. 2011-133	S9.5 W4	20-30 cm NW	4	Glass	Flat	Window Glass		
Water St. 2011-133	S9.5 W4	20-30 cm NW	3	Metal	iron	Hand-wrought nail		
Water St. 2011-133	S9.5 W4	20-30 cm NW	8	Metal	iron	Hand-wrought nail		
Water St. 2011-133	S9.5 W4	20-30 cm NW	1	Metal	iron	Horse bridle bit	Broken	
Water St. 2011-133	S9.5 W4	20-30 cm NW	1	Metal	iron	Horseshoe	originally would have been 11 cm wide 10.5 cm high	
Water St. 2011-133	S9.5 W4	20-30 cm NW	1	Metal	Lead	window kame		
Water St. 2011-133	S9.5 W4	20-30 cm NW	1	Plaster				
Water St. 2011-134	S9.5 W4	30 cm NW quad Light OI	1	ceramic	kaolin	Pipe		
Water St. 2011-134	S9.5 W4	30 cm NW quad Light OI	1	Faunal	Bone	Swine premolar 1	Unworn	
Water St. 2011-134	S9.5 W4	30 cm NW quad Light OI	1	Metal	iron	Hand-wrought nail		
Water St. 2011-135	S9.5 W4	30-40 cm	37	ceramic	Brick			
Water St. 2011-135	S9.5 W4	30-40 cm	1	ceramic	kaolin	Pipe		
Water St. 2011-135	S9.5 W4	30-40 cm	2	ceramic	kaolin	Pipe	small belly bowl no rouletting	
Water St. 2011-135	S9.5 W4	30-40 cm	3	ceramic	kaolin	Pipe		
Water St. 2011-135	S9.5 W4	30-40 cm	2	ceramic	kaolin	Pipe	large belly bowl no rouletting	
Water St. 2011-135	S9.5 W4	30-40 cm	7	ceramic	redware	exterior unglazed interior glazed		
Water St. 2011-135	S9.5 W4	30-40 cm	18	ceramic	redware	Exterior unglazed interior surface missing		
Water St. 2011-135	S9.5 W4	30-40 cm	2	ceramic	slipware	exterior fine combing		
Water St. 2011-135	S9.5 W4	30-40 cm	9	Faunal	Bone	medium mammal flatbone calcined		
Water St. 2011-135	S9.5 W4	30-40 cm	2	Faunal	Bone	Medium mammal longbone	Burned	
Water St. 2011-135	S9.5 W4	30-40 cm	1	Faunal	shell	soft shell clam	Burned	
Water St. 2011-135	S9.5 W4	30-40 cm	13	Floral	Charcoal		large	
Water St. 2011-135	S9.5 W4	30-40 cm	1	Glass	curved	hand blown		
Water St. 2011-135	S9.5 W4	30-40 cm	1	Glass	Flat	Window Glass		
Water St. 2011-135	S9.5 W4	30-40 cm	2	Metal	iron	Hand-wrought nail		
Water St. 2011-135	S9.5 W4	30-40 cm	1	Metal	iron	Hand-wrought nail		
Water St. 2011-135	S9.5 W4	30-40 cm	1	Metal	iron	Hand-wrought nail		
Water St. 2011-135	S9.5 W4	30-40 cm	8	Metal	iron	Hand-wrought nail		
Water St. 2011-135	S9.5 W4	30-40 cm	1	Metal	iron	Horseshoe half		
Water St. 2011-136	S9.5 W4	30-40 cm SE dark soil	15	ceramic	Brick			
Water St. 2011-136	S9.5 W4	30-40 cm SE dark soil	1	ceramic	Clay	Mortar		
Water St. 2011-136	S9.5 W4	30-40 cm SE dark soil	2	ceramic	kaolin	Pipe		
Water St. 2011-136	S9.5 W4	30-40 cm SE dark soil	1	ceramic	kaolin	Pipe		
Water St. 2011-136	S9.5 W4	30-40 cm SE dark soil	1	ceramic	kaolin	Pipe		
Water St. 2011-136	S9.5 W4	30-40 cm SE dark soil	3	ceramic	redware	Interior glazed exterior unglazed		
Water St. 2011-136	S9.5 W4	30-40 cm SE dark soil	1	Faunal	Bone	mammal		
Water St. 2011-136	S9.5 W4	30-40 cm SE dark soil	5	Faunal	Bone	medium mammal longbone calcined		
Water St. 2011-136	S9.5 W4	30-40 cm SE dark soil	30	Floral	Charcoal		large	
Water St. 2011-136	S9.5 W4	30-40 cm SE dark soil	2	Glass	Flat	Window Glass		
Water St. 2011-136	S9.5 W4	30-40 cm SE dark soil	5	Metal	iron	Hand-wrought nail		
Water St. 2011-136	S9.5 W4	30-40 cm SE dark soil	1	Metal	iron	Hand-wrought nail		
Water St. 2011-136	S9.5 W4	30-40 cm SE dark soil	2	Metal	iron	Hand-wrought nail		
Water St. 2011-136	S9.5 W4	30-40 cm SE dark soil	1	Metal	iron	Hand-wrought nail		
Water St. 2011-137	S9.5 W4	7-10 cm	20	ceramic	Brick	fragments		
Water St. 2011-137	S9.5 W4	7-10 cm	1	ceramic	slipware	wide brown band on exterior		
Water St. 2011-137	S9.5 W4	7-10 cm	10	Glass	Cur	Machine-made		
Water St. 2011-137	S9.5 W4	7-10 cm	2	Glass	Flat	Window Glass		
Water St. 2011-137	S9.5 W4	7-10 cm	1	Glass	Flat	Window Glass		
Water St. 2011-137	S9.5 W4	7-10 cm	1	lithic	coal	fragment		
Water St. 2011-137	S9.5 W4	7-10 cm	1	lithic	Rhyolite	uniface		
Water St. 2011-137	S9.5 W4	7-10 cm	1	Metal	Cuprus	thimble		
Water St. 2011-137	S9.5 W4	7-10 cm	1	Metal	iron	Hand-wrought nail		
Water St. 2011-138	S9.5 W4 extension	0-10 cm SW	31	ceramic	Brick	fragments		
Water St. 2011-138	S9.5 W4 extension	0-10 cm SW	2	ceramic	kaolin	Pipe		
Water St. 2011-138	S9.5 W4 extension	0-10 cm SW	3	ceramic	kaolin	Pipe	rouletted and burned	
Water St. 2011-138	S9.5 W4 extension	0-10 cm SW	5	ceramic	north devon gravel tempered	interior glazed		
Water St. 2011-138	S9.5 W4 extension	0-10 cm SW	1	ceramic	redware	interior and exterior glazed	molded bands on exterior	

Water St. 2011-138	S9.5 W4 extension	0-10 cm SW	10	ceramic	redware	interior glazed exterior unglazed	
Water St. 2011-138	S9.5 W4 extension	0-10 cm SW	11	ceramic	redware	Exterior unglazed interior surface missing	
Water St. 2011-138	S9.5 W4 extension	0-10 cm SW	3	ceramic	slipware	exterior and interior glazed	
Water St. 2011-138	S9.5 W4 extension	0-10 cm SW	1	clay	Mortar or daub	fragment	
Water St. 2011-138	S9.5 W4 extension	0-10 cm SW	1	Faunal	Bone	cattle astragalous	
Water St. 2011-138	S9.5 W4 extension	0-10 cm SW	1	Faunal	Bone	cattle rib	
Water St. 2011-138	S9.5 W4 extension	0-10 cm SW	1	Faunal	Bone	medium mammal flatbone	chopped
Water St. 2011-138	S9.5 W4 extension	0-10 cm SW	6	Faunal	Bone	medium mammal flatbone calcined	
Water St. 2011-138	S9.5 W4 extension	0-10 cm SW	1	Faunal	Bone	medium mammal longbone burned	
Water St. 2011-138	S9.5 W4 extension	0-10 cm SW	1	Faunal	Bone	swine humerus	
Water St. 2011-138	S9.5 W4 extension	0-10 cm SW	2	Faunal	shell	quahog	
Water St. 2011-138	S9.5 W4 extension	0-10 cm SW	8	Floral	charcoal/ burned wood	fragments	
Water St. 2011-138	S9.5 W4 extension	0-10 cm SW	1	Glass	curved	bottle glass	
Water St. 2011-138	S9.5 W4 extension	0-10 cm SW	1	Glass	Flat	Window Glass	
Water St. 2011-138	S9.5 W4 extension	0-10 cm SW	1	Glass	Flat	window?	
Water St. 2011-138	S9.5 W4 extension	0-10 cm SW	1	Glass	Flat	window?	
Water St. 2011-138	S9.5 W4 extension	0-10 cm SW	1	lithic	Rhyolite	Flake	
Water St. 2011-138	S9.5 W4 extension	0-10 cm SW	2	Metal	iron	Hand-wrought nail	
Water St. 2011-138	S9.5 W4 extension	0-10 cm SW	1	Metal	iron	Hand-wrought nail	large head
Water St. 2011-138	S9.5 W4 extension	0-10 cm SW	3	Metal	iron	Hand-wrought nail	
Water St. 2011-138	S9.5 W4 extension	0-10 cm SW	1	Metal	iron	Hand-wrought nail	
Water St. 2011-138	S9.5 W4 extension	0-10 cm SW	2	Metal	iron	horseshoe nails	
Water St. 2011-139	S9.5 W4 extension	20-30 cm	6	ceramic	Brick	fragments	
Water St. 2011-139	S9.5 W4 extension	20-30 cm	4	ceramic	kaolin	Bowl	unburned unrouletted
Water St. 2011-139	S9.5 W4 extension	20-30 cm	1	ceramic	kaolin	stem	
Water St. 2011-139	S9.5 W4 extension	20-30 cm	2	ceramic	kaolin	stem	
Water St. 2011-139	S9.5 W4 extension	20-30 cm	1	ceramic	kaolin	stem	
Water St. 2011-139	S9.5 W4 extension	20-30 cm	1	ceramic	kaolin	stem	
Water St. 2011-139	S9.5 W4 extension	20-30 cm	1	ceramic	kaolin	stem	
Water St. 2011-139	S9.5 W4 extension	20-30 cm	1	ceramic	kaolin	Stem/ bowl	Burned
Water St. 2011-139	S9.5 W4 extension	20-30 cm	5	ceramic	redware	Exterior unglazed interior surface missing	
Water St. 2011-139	S9.5 W4 extension	20-30 cm	1	ceramic	slipware	Unglazed foot interior glazed	
Water St. 2011-139	S9.5 W4 extension	20-30 cm	1	ceramic	Tin-Glazed	Undecorated light tan body	reworked to small dish 1.9 cm high
Water St. 2011-139	S9.5 W4 extension	20-30 cm	1	Faunal	Bone	cattle incisor	
Water St. 2011-139	S9.5 W4 extension	20-30 cm	1	Faunal	Bone	cattle PM3	
Water St. 2011-139	S9.5 W4 extension	20-30 cm	1	Faunal	Bone	cattle tarsal	
Water St. 2011-139	S9.5 W4 extension	20-30 cm	1	Faunal	Bone	cattle tibia	
Water St. 2011-139	S9.5 W4 extension	20-30 cm	11	Faunal	Bone	medium mammal flatbone calcined	
Water St. 2011-139	S9.5 W4 extension	20-30 cm	11	Faunal	Bone	Medium mammal longbone	
Water St. 2011-139	S9.5 W4 extension	20-30 cm	1	Faunal	Bone	sheep humerus	
Water St. 2011-139	S9.5 W4 extension	20-30 cm	1	Faunal	Bone	swine canine	
Water St. 2011-139	S9.5 W4 extension	20-30 cm	2	Faunal	Bone	swine incisors	
Water St. 2011-139	S9.5 W4 extension	20-30 cm	1	Faunal	shell	unidentified	
Water St. 2011-139	S9.5 W4 extension	20-30 cm	5	Floral	Charcoal	fragments	large
Water St. 2011-139	S9.5 W4 extension	20-30 cm	1	Glass	curved	Hand Blown Bottle	
Water St. 2011-139	S9.5 W4 extension	20-30 cm	3	Glass	Flat	Window Glass	
Water St. 2011-139	S9.5 W4 extension	20-30 cm	4	Metal	iron	Hand-wrought nail	
Water St. 2011-140	S9.5 W4 extension	30-40 cm SE quad	27	ceramic	Brick	fragments	
Water St. 2011-140	S9.5 W4 extension	30-40 cm SE quad	1	ceramic	kaolin	Pipe	
Water St. 2011-140	S9.5 W4 extension	30-40 cm SE quad	1	ceramic	kaolin	Pipe	Burned interior
Water St. 2011-140	S9.5 W4 extension	30-40 cm SE quad	3	ceramic	kaolin	Pipe	Unburned interior
Water St. 2011-140	S9.5 W4 extension	30-40 cm SE quad	1	ceramic	kaolin	Pipe	Burned interior
Water St. 2011-140	S9.5 W4 extension	30-40 cm SE quad	1	ceramic	kaolin	Pipe	Burned interior
Water St. 2011-140	S9.5 W4 extension	30-40 cm SE quad	1	ceramic	redware	Exterior unglazed interior missing	
Water St. 2011-140	S9.5 W4 extension	30-40 cm SE quad	1	ceramic	Slipware-Dotted	Brown exterior yellow interior	
Water St. 2011-140	S9.5 W4 extension	30-40 cm SE quad	1	ceramic	Tin-Glazed	exterior glaze missing interior glazed pink body	
Water St. 2011-140	S9.5 W4 extension	30-40 cm SE quad	1	Faunal	Bone	medium mammal flatbone calcined	

Water St. 2011-140	S9.5 W4 extension	30-40 cm SE quad	1	Faunal	Bone	Medium mammal longbone
Water St. 2011-140	S9.5 W4 extension	30-40 cm SE quad	1	Faunal	Bone	swine phalange calcined
Water St. 2011-140	S9.5 W4 extension	30-40 cm SE quad	11	Floral	Charcoal	fragments
Water St. 2011-140	S9.5 W4 extension	30-40 cm SE quad	1	Glass	curved	hand-blown
Water St. 2011-140	S9.5 W4 extension	30-40 cm SE quad	1	Glass	Flat	Window Glass
Water St. 2011-140	S9.5 W4 extension	30-40 cm SE quad	1	Glass	Flat	Case Bottle?
Water St. 2011-140	S9.5 W4 extension	30-40 cm SE quad	1	Metal	iron	Hand-wrought nail
Water St. 2011-140	S9.5 W4 extension	30-40 cm SE quad	3	Metal	iron	Hand-wrought nail
Water St. 2011-140	S9.5 W4 extension	30-40 cm SE quad	1	Metal	iron	Hand-wrought nail
Water St. 2011-140	S9.5 W4 extension	30-40 cm SE quad	1	Metal	iron	Hand-wrought nail
Water St. 2011-140	S9.5 W4 extension	30-40 cm SE quad	2	Metal	iron	Hand-wrought nail
Water St. 2011-140	S9.5 W4 extension	30-40 cm SE quad	1	Metal	Lead	window quarrel
Water St. 2011-141	S9.5 W4 Exterior SE	0-20 cm	58	ceramic	Brick	fragments
Water St. 2011-141	S9.5 W4 Exterior SE	0-20 cm	1	ceramic	kaolin	Pipe
Water St. 2011-141	S9.5 W4 Exterior SE	0-20 cm	1	ceramic	kaolin	Pipe
Water St. 2011-141	S9.5 W4 Exterior SE	0-20 cm	3	ceramic	redware	interior and exterior surfaces missing
Water St. 2011-141	S9.5 W4 Exterior SE	0-20 cm	1	ceramic	Tin-Glazed	glaze missing buff body
Water St. 2011-141	S9.5 W4 Exterior SE	0-20 cm	1	ceramic	whiteware	undecoated
Water St. 2011-141	S9.5 W4 Exterior SE	0-20 cm	1	Glass	Flat	Case Bottle?
Water St. 2011-141	S9.5 W4 Exterior SE	0-20 cm	1	Glass	Flat	Window Glass
Water St. 2011-141	S9.5 W4 Exterior SE	0-20 cm	1	Glass	Flat	Window Glass
Water St. 2011-141	S9.5 W4 Exterior SE	0-20 cm	2	Glass	Flat	Window Glass
Water St. 2011-141	S9.5 W4 Exterior SE	0-20 cm	1	Glass	Flat	Window Glass
Water St. 2011-141	S9.5 W4 Exterior SE	0-20 cm	3	lithic	Quartz	shatter
Water St. 2011-141	S9.5 W4 Exterior SE	0-20 cm	1	Metal	iron	Hand-wrought nail
Water St. 2011-141	S9.5 W4 Exterior SE	0-20 cm	2	Metal	iron	Hand-wrought nails
Water St. 2011-142	S9.5 W4 NW Ext.	10-20 cm	90	ceramic	Brick	fragments
Water St. 2011-142	S9.5 W4 NW Ext.	10-20 cm	1	ceramic	creamware	Undecoated
Water St. 2011-142	S9.5 W4 NW Ext.	10-20 cm	5	ceramic	kaolin	Pipe
Water St. 2011-142	S9.5 W4 NW Ext.	10-20 cm	1	ceramic	pearlware	green edged
Water St. 2011-142	S9.5 W4 NW Ext.	10-20 cm	7	ceramic	redware	Exterior unglazed interior missing
Water St. 2011-142	S9.5 W4 NW Ext.	10-20 cm	1	ceramic	redware	Glazed interior and exterior
Water St. 2011-142	S9.5 W4 NW Ext.	10-20 cm	2	ceramic	redware	Glazed exterior interior missing
Water St. 2011-142	S9.5 W4 NW Ext.	10-20 cm	1	ceramic	redware	Glazed interior exterior missing
Water St. 2011-142	S9.5 W4 NW Ext.	10-20 cm	1	ceramic	slipware	brown band on exterior
Water St. 2011-142	S9.5 W4 NW Ext.	10-20 cm	5	ceramic	Tin-Glazed	glaze missing buff body
Water St. 2011-142	S9.5 W4 NW Ext.	10-20 cm	3	Faunal	Bone	medium mammal flatbone
Water St. 2011-142	S9.5 W4 NW Ext.	10-20 cm	4	Faunal	Bone	medium mammal flatbone calcined
Water St. 2011-142	S9.5 W4 NW Ext.	10-20 cm	1	Faunal	Bone	Sheep phalange 2 calcined
Water St. 2011-142	S9.5 W4 NW Ext.	10-20 cm	1	Floral	Charcoal	fragment
Water St. 2011-142	S9.5 W4 NW Ext.	10-20 cm	1	Glass	curved	Machine-made
Water St. 2011-142	S9.5 W4 NW Ext.	10-20 cm	1	Glass	Flat	Window Glass
Water St. 2011-142	S9.5 W4 NW Ext.	10-20 cm	1	Glass	Flat	Window Glass
Water St. 2011-142	S9.5 W4 NW Ext.	10-20 cm	1	Glass	Flat	Window Glass
Water St. 2011-142	S9.5 W4 NW Ext.	10-20 cm	3	Glass	Flat	Window Glass
Water St. 2011-142	S9.5 W4 NW Ext.	10-20 cm	1	Metal	iron	Hand-wrought nail
Water St. 2011-142	S9.5 W4 NW Ext.	10-20 cm	1	Metal	iron	Hand-wrought spike
Water St. 2011-142	S9.5 W4 NW Ext.	10-20 cm	1	Metal	iron	Machine-cut nail
Water St. 2011-143	S9.5 W4 S1/2	20-30 cm	45	ceramic	Brick	fragments
Water St. 2011-143	S9.5 W4 S1/2	20-30 cm	3	ceramic	kaolin	Pipe
Water St. 2011-143	S9.5 W4 S1/2	20-30 cm	2	ceramic	kaolin	Pipe
Water St. 2011-143	S9.5 W4 S1/2	20-30 cm	8	ceramic	kaolin	Pipe
Water St. 2011-143	S9.5 W4 S1/2	20-30 cm	1	ceramic	kaolin	Pipe
Water St. 2011-143	S9.5 W4 S1/2	20-30 cm	3	ceramic	redware	Interior glazed exterior unglazed
Water St. 2011-143	S9.5 W4 S1/2	20-30 cm	1	ceramic	redware	Interior glazed exterior unglazed
Water St. 2011-143	S9.5 W4 S1/2	20-30 cm	9	ceramic	redware	Interior glazed exterior unglazed
Water St. 2011-143	S9.5 W4 S1/2	20-30 cm	8	ceramic	redware	Exterior unglazed interior glaze missing
Water St. 2011-143	S9.5 W4 S1/2	20-30 cm	1	ceramic	slipware	interior and exterior glazed

Late 17<sup>th</sup> century large belly bowl

Water St. 2011-143	S9.5 W4 S1/2	20-30 cm	1	ceramic	Tin-Glazed	interior hand painted purple and blue	
Water St. 2011-143	S9.5 W4 S1/2	20-30 cm	2	ceramic	Tin-Glazed	glaze missing buff body	
Water St. 2011-143	S9.5 W4 S1/2	20-30 cm	11	Faunal	Bone	cattle longbone	
Water St. 2011-143	S9.5 W4 S1/2	20-30 cm	7	Faunal	Bone	medium mammal flatbone calcined	
Water St. 2011-143	S9.5 W4 S1/2	20-30 cm	1	Faunal	Bone	sheep molar	Worn
Water St. 2011-143	S9.5 W4 S1/2	20-30 cm	1	Faunal	Bone	swine canine	
Water St. 2011-143	S9.5 W4 S1/2	20-30 cm	1	Faunal	Bone	swine incisor	Worn
Water St. 2011-143	S9.5 W4 S1/2	20-30 cm	13	Floral	Charcoal	fragments	
Water St. 2011-143	S9.5 W4 S1/2	20-30 cm	2	Glass	Flat	Window Glass	
Water St. 2011-143	S9.5 W4 S1/2	20-30 cm	1	Glass	Flat	Window Glass	
Water St. 2011-143	S9.5 W4 S1/2	20-30 cm	1	lithic	Rhyolite	Uniface	
Water St. 2011-143	S9.5 W4 S1/2	20-30 cm	1	Metal	iron	Hand-wrought nail	
Water St. 2011-143	S9.5 W4 S1/2	20-30 cm	1	Metal	iron	Hand-wrought nail	
Water St. 2011-143	S9.5 W4 S1/2	20-30 cm	3	Metal	iron	Hand-wrought nails	
Water St. 2011-143	S9.5 W4 S1/2	20-30 cm	14	Metal	iron	Hand-wrought nails	
Water St. 2011-143	S9.5 W4 S1/2	20-30 cm	3	Metal	iron	Hand-wrought nails	
Water St. 2011-143	S9.5 W4 S1/2	20-30 cm	1	Metal	iron	Thin fragment, cut and bent	
Water St. 2011-143	S9.5 W4 S1/2	20-30 cm	2	Metal	Lead	kames	
Water St. 2011-144	S9.5 W4 S1/2	7-10 cm	5	ceramic	Brick	fragments	
Water St. 2011-144	S9.5 W4 S1/2	7-10 cm	1	Glass	curved	Hand Blown Bottle	
Water St. 2011-144	S9.5 W4 S1/2	7-10 cm	1	Glass	Flat	Window Glass	
Water St. 2011-145	S9.5 W4 SE Ext	20-30 cm	177	ceramic	Brick	fragments	
Water St. 2011-145	S9.5 W4 SE Ext	20-30 cm	2	ceramic	kaolin	Pipe	
Water St. 2011-145	S9.5 W4 SE Ext	20-30 cm	1	ceramic	kaolin	Pipe	
Water St. 2011-145	S9.5 W4 SE Ext	20-30 cm	2	ceramic	kaolin	Pipe	
Water St. 2011-145	S9.5 W4 SE Ext	20-30 cm	15	ceramic	kaolin	Pipe	
Water St. 2011-145	S9.5 W4 SE Ext	20-30 cm	9	ceramic	redware	Exterior unglazed interior glaze missing	
Water St. 2011-145	S9.5 W4 SE Ext	20-30 cm	1	ceramic	redware	interior glazed exterior unglazed	
Water St. 2011-145	S9.5 W4 SE Ext	20-30 cm	1	Faunal	Bone	medium mammal flatbone	
Water St. 2011-145	S9.5 W4 SE Ext	20-30 cm	8	Faunal	Bone	medium mammal flatbone calcined	
Water St. 2011-145	S9.5 W4 SE Ext	20-30 cm	2	Faunal	Bone	medium mammal longbone calcined	
Water St. 2011-145	S9.5 W4 SE Ext	20-30 cm	2	Faunal	Bone	sheep molar	
Water St. 2011-145	S9.5 W4 SE Ext	20-30 cm	8	Floral	Charcoal	fragments	
Water St. 2011-145	S9.5 W4 SE Ext	20-30 cm	1	Glass	cuprus	Case Bottle?	
Water St. 2011-145	S9.5 W4 SE Ext	20-30 cm	2	Glass	curved	Case Bottle?	
Water St. 2011-145	S9.5 W4 SE Ext	20-30 cm	1	Glass	curved	Case Bottle?	
Water St. 2011-145	S9.5 W4 SE Ext	20-30 cm	2	Glass	Flat	Window Glass	
Water St. 2011-145	S9.5 W4 SE Ext	20-30 cm	1	Glass	Flat	Window Glass	
Water St. 2011-145	S9.5 W4 SE Ext	20-30 cm	5	Glass	Flat	Window Glass	
Water St. 2011-145	S9.5 W4 SE Ext	20-30 cm	1	lithic	flint	Gunflint fragment	
Water St. 2011-145	S9.5 W4 SE Ext	20-30 cm	1	Metal	iron	chain link	
Water St. 2011-145	S9.5 W4 SE Ext	20-30 cm	2	Metal	iron	hand-wrought horsehoe nails	
Water St. 2011-145	S9.5 W4 SE Ext	20-30 cm	1	Metal	iron	Hand-wrought nail	Burned
Water St. 2011-145	S9.5 W4 SE Ext	20-30 cm	17	Metal	iron	Hand-wrought nails	
Water St. 2011-145	S9.5 W4 SE Ext	20-30 cm	14	Metal	iron	Hand-wrought nails	
Water St. 2011-145	S9.5 W4 SE Ext	20-30 cm	2	Metal	iron	Hand-wrought nails	
Water St. 2011-145	S9.5 W4 SE Ext	20-30 cm	1	Metal	iron	Horseshoe fragment	
Water St. 2011-145	S9.5 W4 SE Ext	20-30 cm	1	Metal	Silver	button cap	
Water St. 2011-145	S9.5 W4 SE Ext	20-30 cm	1	mortar	shell-tempered	fragment	
Water St. 2011-146	S9.5 W4 Sw	30-40 cm	20	ceramic	Brick	fragments	
Water St. 2011-146	S9.5 W4 Sw	30-40 cm	1	ceramic	kaolin	Pipe	
Water St. 2011-146	S9.5 W4 Sw	30-40 cm	2	ceramic	kaolin	Pipe	1 with line around it
Water St. 2011-146	S9.5 W4 Sw	30-40 cm	2	ceramic	kaolin	Pipe	
Water St. 2011-146	S9.5 W4 Sw	30-40 cm	7	ceramic	kaolin	Pipe	rouletted line around rim large belly bowl
Water St. 2011-146	S9.5 W4 Sw	30-40 cm	1	ceramic	kaolin	Pipe	
Water St. 2011-146	S9.5 W4 Sw	30-40 cm	5	ceramic	redware	Interior glazed exterior unglazed	
Water St. 2011-146	S9.5 W4 Sw	30-40 cm	2	ceramic	redware	Interior glazed exterior unglazed	
Water St. 2011-146	S9.5 W4 Sw	30-40 cm	3	ceramic	redware	glaze missing	

Water St. 2011-146	S9.5 W4 Sw	30-40 cm	2	ceramic	redware	Interior glazed exterior unglazed	
Water St. 2011-146	S9.5 W4 Sw	30-40 cm	2	ceramic	slipware	exterior fine and broad combed slip	
Water St. 2011-146	S9.5 W4 Sw	30-40 cm	1	ceramic	Tin-Glazed	Interior glazed exterior missing buff body	
Water St. 2011-146	S9.5 W4 Sw	30-40 cm	1	ceramic	Tin-Glazed	Interior and exterior glazed hp bird interior	
Water St. 2011-146	S9.5 W4 Sw	30-40 cm	1	ceramic	Tin-Glazed	Interior glazed exterior missing buff body	
Water St. 2011-146	S9.5 W4 Sw	30-40 cm	1	ceramic	Tin-Glazed	Interior and exterior glaze missing	
Water St. 2011-146	S9.5 W4 Sw	30-40 cm	1	clay	burned- daub or mortar		
Water St. 2011-146	S9.5 W4 Sw	30-40 cm	2	Faunal	Bone	cattle incisor	
Water St. 2011-146	S9.5 W4 Sw	30-40 cm	6	Faunal	Bone	medium mammal flatbone	
Water St. 2011-146	S9.5 W4 Sw	30-40 cm	2	Faunal	Bone	medium mammal flatbone calcined	
Water St. 2011-146	S9.5 W4 Sw	30-40 cm	7	Faunal	Bone	Medium mammal longbone	
Water St. 2011-146	S9.5 W4 Sw	30-40 cm	1	Faunal	Bone	sheep tibia	Chopped, fused epiphysis
Water St. 2011-146	S9.5 W4 Sw	30-40 cm	1	Faunal	Bone	Swine I1	Worn
Water St. 2011-146	S9.5 W4 Sw	30-40 cm	1	Faunal	Bone	Swine M3	Unerupted
Water St. 2011-146	S9.5 W4 Sw	30-40 cm	1	Faunal	Bone	swine rib	
Water St. 2011-146	S9.5 W4 Sw	30-40 cm	1	Faunal	shell	oyster	
Water St. 2011-146	S9.5 W4 Sw	30-40 cm	2	Faunal	shell	quahog	
Water St. 2011-146	S9.5 W4 Sw	30-40 cm	65	Floral	Charcoal	fragments	
Water St. 2011-146	S9.5 W4 Sw	30-40 cm	1	Glass	Flat	Window Glass	
Water St. 2011-146	S9.5 W4 Sw	30-40 cm	2	Glass	Flat	Window Glass	
Water St. 2011-146	S9.5 W4 Sw	30-40 cm	1	lithic	flint	Gunflint	Handmade
Water St. 2011-146	S9.5 W4 Sw	30-40 cm	1	lithic	granite	hammerstone	
Water St. 2011-146	S9.5 W4 Sw	30-40 cm	1	Metal	iron	Ax fragment	
Water St. 2011-146	S9.5 W4 Sw	30-40 cm	1	Metal	iron	Gun lock Part?	
Water St. 2011-146	S9.5 W4 Sw	30-40 cm	1	Metal	iron	Gun screw- snaphaunce	
Water St. 2011-146	S9.5 W4 Sw	30-40 cm	1	Metal	iron	Hand-wrought nail	
Water St. 2011-146	S9.5 W4 Sw	30-40 cm	1	Metal	iron	Hand-wrought nail	
Water St. 2011-146	S9.5 W4 Sw	30-40 cm	1	Metal	iron	Hand-wrought nail	
Water St. 2011-146	S9.5 W4 Sw	30-40 cm	6	Metal	iron	Hand-wrought nails	
Water St. 2011-146	S9.5 W4 Sw	30-40 cm	4	Metal	iron	Hand-wrought nails	
Water St. 2011-146	S9.5 W4 Sw	30-40 cm	1	Metal	iron	Horseshoe	
Water St. 2011-146	S9.5 W4 Sw	30-40 cm	1	Metal	iron	Pitchfork	
Water St. 2011-146	S9.5 W4 Sw	30-40 cm	1	Metal	Lead	thin rod	
Water St. 2011-146	S9.5 W4 Sw	30-40 cm	1	mortar	shell-tempered	fragment	
Water St. 2011-147	S9.5 W4 SW Ext	20-30 cm	178	ceramic	Brick	fragments	
Water St. 2011-147	S9.5 W4 SW Ext	20-30 cm	1	ceramic	kaolin	Pipe	
Water St. 2011-147	S9.5 W4 SW Ext	20-30 cm	10	ceramic	kaolin	Pipe	
Water St. 2011-147	S9.5 W4 SW Ext	20-30 cm	4	ceramic	kaolin	Pipe	
Water St. 2011-147	S9.5 W4 SW Ext	20-30 cm	4	ceramic	kaolin	Pipe	
Water St. 2011-147	S9.5 W4 SW Ext	20-30 cm	1	ceramic	kaolin	Pipe	Stamped ..VANS (EVANS)
Water St. 2011-147	S9.5 W4 SW Ext	20-30 cm	6	ceramic	kaolin	Pipe	
Water St. 2011-147	S9.5 W4 SW Ext	20-30 cm	7	ceramic	redware	Interior glazed exterior unglazed	
Water St. 2011-147	S9.5 W4 SW Ext	20-30 cm	1	ceramic	redware	interior missing exterior unglazed	
Water St. 2011-147	S9.5 W4 SW Ext	20-30 cm	21	ceramic	redware	interior missing exterior unglazed	
Water St. 2011-147	S9.5 W4 SW Ext	20-30 cm	7	ceramic	redware	Interior glazed exterior unglazed	
Water St. 2011-147	S9.5 W4 SW Ext	20-30 cm	3	ceramic	Slipware	Light Yellow glaze wide brown band	
Water St. 2011-147	S9.5 W4 SW Ext	20-30 cm	3	ceramic	Slipware	dark yellow glaze wide comb	
Water St. 2011-147	S9.5 W4 SW Ext	20-30 cm	1	ceramic	Tin-Glazed	interior hand painted	
Water St. 2011-147	S9.5 W4 SW Ext	20-30 cm	4	ceramic	Tin-Glazed	Undecorated	
Water St. 2011-147	S9.5 W4 SW Ext	20-30 cm	1	Faunal	Bone	Cattle metapodium	
Water St. 2011-147	S9.5 W4 SW Ext	20-30 cm	11	Faunal	Bone	medium mammal flatbone	
Water St. 2011-147	S9.5 W4 SW Ext	20-30 cm	16	Faunal	Bone	medium mammal flatbone calcined	
Water St. 2011-147	S9.5 W4 SW Ext	20-30 cm	6	Faunal	Bone	sheep molar fragments	
Water St. 2011-147	S9.5 W4 SW Ext	20-30 cm	6	Faunal	Bone	swine canine male	
Water St. 2011-147	S9.5 W4 SW Ext	20-30 cm	2	Faunal	Bone	swine incisors	
Water St. 2011-147	S9.5 W4 SW Ext	20-30 cm	1	Faunal	shell	quahog	
Water St. 2011-147	S9.5 W4 SW Ext	20-30 cm	1	Faunal	shell	soft shell clam	

Water St. 2011-147	S9.5 W4 SW Ext	20-30 cm	32	Floral	Charcoal	fragments	
Water St. 2011-147	S9.5 W4 SW Ext	20-30 cm	1	Glass	curved	Thin fragment	
Water St. 2011-147	S9.5 W4 SW Ext	20-30 cm	2	Glass	curved	Small Bottle	
Water St. 2011-147	S9.5 W4 SW Ext	20-30 cm	1	Glass	Flat	Window Glass	
Water St. 2011-147	S9.5 W4 SW Ext	20-30 cm	2	Glass	Flat	Window Glass	
Water St. 2011-147	S9.5 W4 SW Ext	20-30 cm	1	Glass	Flat	Window Glass	
Water St. 2011-147	S9.5 W4 SW Ext	20-30 cm	5	Glass	Flat	Window Glass	
Water St. 2011-147	S9.5 W4 SW Ext	20-30 cm	2	Glass	Flat	Window Glass	
Water St. 2011-147	S9.5 W4 SW Ext	20-30 cm	2	Glass	Flat	Window Glass?	
Water St. 2011-147	S9.5 W4 SW Ext	20-30 cm	2	Glass	Flat	Window Glass	
Water St. 2011-147	S9.5 W4 SW Ext	20-30 cm	5	Glass	Flat	Window Glass	
Water St. 2011-147	S9.5 W4 SW Ext	20-30 cm	1	lithic	Argillite	Point	
Water St. 2011-147	S9.5 W4 SW Ext	20-30 cm	6	lithic	Quartz	shatter	
Water St. 2011-147	S9.5 W4 SW Ext	20-30 cm	2	Metal	cuprus	Strips with holes	
Water St. 2011-147	S9.5 W4 SW Ext	20-30 cm	1	Metal	iron	Bridal bit	
Water St. 2011-147	S9.5 W4 SW Ext	20-30 cm	1	Metal	iron	Flat twisted fragment	
Water St. 2011-147	S9.5 W4 SW Ext	20-30 cm	1	Metal	iron	Hand wrought nail?	Flat and wide shank and head horseshoe?
Water St. 2011-147	S9.5 W4 SW Ext	20-30 cm	1	Metal	iron	hand-wrought horseshoe nail	
Water St. 2011-147	S9.5 W4 SW Ext	20-30 cm	3	Metal	iron	Hand-wrought nail	Rose heads
Water St. 2011-147	S9.5 W4 SW Ext	20-30 cm	25	Metal	iron	Hand-wrought nail	Rose heads, 1 burned
Water St. 2011-147	S9.5 W4 SW Ext	20-30 cm	8	Metal	iron	Hand-wrought nail	
Water St. 2011-147	S9.5 W4 SW Ext	20-30 cm	2	Metal	iron	Knife blade fragments	
Water St. 2011-147	S9.5 W4 SW Ext	20-30 cm	1	Metal	iron	Mouth Harp	
Water St. 2011-147	S9.5 W4 SW Ext	20-30 cm	1	Metal	iron	Pintle	
Water St. 2011-147	S9.5 W4 SW Ext	20-30 cm	1	Metal	Lead	rectangular piece	
Water St. 2011-147	S9.5 W4 SW Ext	20-30 cm	1	Metal	Lead	Window kame	
Water St. 2011-147	S9.5 W4 SW Ext	20-30 cm	3	mortar	shell-tempered	fragments	
Water St. 2011-148	S9.5 W4?	Unknown	1	ceramic	kaolin	Pipe	
Water St. 2011-148	S9.5 W4?	Unknown	2	ceramic	redware	interior and exterior surfaces missing	
Water St. 2011-148	S9.5 W4?	Unknown	2	ceramic	Tin-Glazed	light yellow body pinkish glaze	
Water St. 2011-148	S9.5 W4?	Unknown	1	Faunal	Bone	medium mammal flatbone calcined	
Water St. 2011-148	S9.5 W4?	Unknown	2	Faunal	Bone	swine incisor	
Water St. 2011-148	S9.5 W4?	Unknown	2	Floral	Charcoal		
Water St. 2011-148	S9.5 W4?	Unknown	2	Glass	Flat	Window Glass	
Water St. 2011-149	S9.5 W5	10-20 cm	23	ceramic	Brick	fragments	
Water St. 2011-149	S9.5 W5	10-20 cm	37	ceramic	Brick	fragments	
Water St. 2011-149	S9.5 W5	10-20 cm	1	ceramic	kaolin	Pipe	
Water St. 2011-149	S9.5 W5	10-20 cm	1	ceramic	redware	Interior and exterior glaze missing	
Water St. 2011-149	S9.5 W5	10-20 cm	3	ceramic	redware	interior surface missing exterior unglazed	
Water St. 2011-149	S9.5 W5	10-20 cm	1	ceramic	slipware	wide brown band on exterior	
Water St. 2011-149	S9.5 W5	10-20 cm	2	Faunal	Bone	medium mammal flatbone calcined	
Water St. 2011-149	S9.5 W5	10-20 cm	2	Floral	Charcoal	fragments	
Water St. 2011-149	S9.5 W5	10-20 cm	1	Glass	Flat	Window Glass	
Water St. 2011-149	S9.5 W5	10-20 cm	1	Glass	Flat	Case Bottle?	
Water St. 2011-149	S9.5 W5	10-20 cm	1	Glass	Flat	Window Glass	
Water St. 2011-149	S9.5 W5	10-20 cm	1	Glass	Flat	Window Glass	
Water St. 2011-149	S9.5 W5	10-20 cm	1	lithic	Rhyolite	Drill	
Water St. 2011-149	S9.5 W5	10-20 cm	1	lithic	Rhyolite	Flake fragment	
Water St. 2011-149	S9.5 W5	10-20 cm	1	Metal	iron	Hand-wrought nail	
Water St. 2011-149	S9.5 W5	10-20 cm	2	Metal	iron	Hand-wrought nails	
Water St. 2011-149	S9.5 W5	10-20 cm	1	Metal	iron	Twisted thick iron	
Water St. 2011-150	S9.5 W5	20-30 cm	5	ceramic	Brick	fragments	
Water St. 2011-150	S9.5 W5	20-30 cm	1	ceramic	redware	Interior glazed exterior missing buff body	
Water St. 2011-150	S9.5 W5	20-30 cm	3	ceramic	redware	interior and exterior surfaces missing	
Water St. 2011-150	S9.5 W5	20-30 cm	1	Faunal	Bone	medium bird longbone calcined	
Water St. 2011-150	S9.5 W5	20-30 cm	1	Floral	Charcoal	fragment	
Water St. 2011-150	S9.5 W5	20-30 cm	1	Glass	Flat	Window Glass	
Water St. 2011-150	S9.5 W5	20-30 cm	1	lithic	Rhyolite	Flake	

Water St. 2011-150	S9.5 W5	20-30 cm	1	Metal	iron	Hand-wrought nail	
Water St. 2011-151	S9.5 W5	32 cm SE corner	1	Metal	iron	Hand-wrought nail	
Water St. 2011-152	S9.5 W5	7-10 cm	1	ceramic	Brick	fragment	
Water St. 2011-152	S9.5 W5	7-10 cm	1	Glass	curved	Machine-made	
Water St. 2011-153	S10 W3	10-20 cm	1	ceramic	kaolin	Pipe	No rouletting at rim
Water St. 2011-153	S10 W3	10-20 cm	1	ceramic	Stoneware- Bellarmine		
Water St. 2011-153	S10 W3	10-20 cm	1	Faunal	Bone	Medium mammal longbone	
Water St. 2011-153	S10 W3	10-20 cm	1	Glass	curved	wine bottle	
Water St. 2011-153	S10 W3	10-20 cm	2	Metal	iron	Hand-wrought nail	
Water St. 2011-153	S10 W3	10-20 cm	3	Metal	iron	Hand-wrought nail	
Water St. 2011-153	S10 W3	10-20 cm	1	Metal	Lead	Window lead	
Water St. 2011-154	S10 W3	20-30 cm	4	ceramic	Brick	fragments	
Water St. 2011-154	S10 W3	20-30 cm	2	ceramic	redware	Interior and exterior glaze missing	
Water St. 2011-154	S10 W3	20-30 cm	1	ceramic	redware	Interior glazed exterior unglazed	
Water St. 2011-154	S10 W3	20-30 cm	1	Faunal	Bone	medium bird longbone calcined	
Water St. 2011-154	S10 W3	20-30 cm	2	Floral	Charcoal	fragments	
Water St. 2011-154	S10 W3	20-30 cm	1	lithic	Quartz	shatter	
Water St. 2011-154	S10 W3	20-30 cm	3	Metal	iron	Hand-wrought nails	
Water St. 2011-155	S11.5 W4.5	10-20 cm	57	ceramic	Brick	fragments	
Water St. 2011-155	S11.5 W4.5	10-20 cm	1	ceramic	kaolin	Pipe	heelless funnel
Water St. 2011-155	S11.5 W4.5	10-20 cm	5	ceramic	redware	interior missing exterior unglazed	
Water St. 2011-155	S11.5 W4.5	10-20 cm	7	ceramic	redware	Interior glazed exterior unglazed	
Water St. 2011-155	S11.5 W4.5	10-20 cm	2	Faunal	Bone	medium bird longbone calcined	
Water St. 2011-155	S11.5 W4.5	10-20 cm	4	Faunal	Bone	medium mammal flatbone calcined	
Water St. 2011-155	S11.5 W4.5	10-20 cm	1	Faunal	Bone	swine calcaneus	
Water St. 2011-155	S11.5 W4.5	10-20 cm	8	Floral	Charcoal	fragments	
Water St. 2011-155	S11.5 W4.5	10-20 cm	2	Glass	Flat	Window Glass	
Water St. 2011-155	S11.5 W4.5	10-20 cm	1	lithic	Quartz	core	
Water St. 2011-155	S11.5 W4.5	10-20 cm	1	lithic	Quartz	Flake	
Water St. 2011-155	S11.5 W4.5	10-20 cm	1	Metal	iron	flat fragment with possible lip	
Water St. 2011-155	S11.5 W4.5	10-20 cm	1	Metal	iron	Hand-wrought nail	
Water St. 2011-156	Unknown-knoll	Unknown	36	ceramic	Brick		
Water St. 2011-156	Unknown-knoll	Unknown	3	ceramic	kaolin	Pipe	No rouletting at rim
Water St. 2011-156	Unknown-knoll	Unknown	5	ceramic	redware	Exterior unglazed interior missing	
Water St. 2011-156	Unknown-knoll	Unknown	2	ceramic	redware	Interior glazed exterior unglazed	
Water St. 2011-156	Unknown-knoll	Unknown	1	ceramic	slipware	brown trailed	
Water St. 2011-156	Unknown-knoll	Unknown	1	Class	kaolin	Pipe	
Water St. 2011-156	Unknown-knoll	Unknown	1	Class	kaolin	Pipe	
Water St. 2011-156	Unknown-knoll	Unknown	2	Faunal	Bone	medium mammal longbone calcined	
Water St. 2011-156	Unknown-knoll	Unknown	1	Faunal	Bone	medium mammal flatbone calcined	
Water St. 2011-156	Unknown-knoll	Unknown	4	Metal	iron	Hand-wrought nail	
Water St. 2011-156	Unknown-knoll	Unknown	1	Metal	iron	Hand-wrought nail	
Water St. 2011-156	Unknown-knoll	Unknown	1	Metal	iron	Machine-cut nail	
Water St. 2011-157	Backdirt	Unknown	2	ceramic	redware	Interior and exterior glaze missing	
Water St. 2011-157	Backdirt	Unknown	1	Faunal	Bone	large mammal longbone	
Water St. 2011-157	Backdirt	Unknown	1	lithic	Rhyolite	Biface stage 2	
Water St. 2011-157	Backdirt	Unknown	1	lithic	Rhyolite	core	
Water St. 2011-157	Backdirt	Unknown	1	Metal	iron	Hand-wrought nail	
Water St. 2011-157	Backdirt	Unknown	1	Metal	iron	Hand-wrought nail	
Water St. 2011-157	Backdirt	Unknown	1	Metal	iron	Hand-wrought nail	
Water St. 2011-157	Backdirt	Unknown	1	Metal	iron	Machine-cut nail	
Water St. 2011-158	Found on surface at S. end of Dave testing	Unknown	1	lithic	Rhyolite	core	