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A Technical Report Prepared for
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SECTION I

INTRODUCTION

This report analyzes fragments of Kaolin tobacco pipes recovered at the Pritchard Shipyard archaeological site (38CH1049) in an attempt to assess the site's stratigraphic integrity. Kaolin tobacco pipes, as a class of archaeological material has the potential to address this question because of their temporal attribute: the direct relationship between bore diameter to manufacturing period. As a result, tobacco pipes offer insight into the following questions: 1) When was the site's earliest possible occupation? 2) On average, what were the most intensive occupational periods? 3) What was the site's maximum possible occupational range? 4) To what extent is the site's stratigraphy modified? Ultimately, one class of artifact alone cannot answer these questions in full; however, when the analysis of Kaolin tobacco pipe fragments are combined with other classes of recovered artifacts they can provide the site with a strong temporal anchor. For the sake of time, this report does not discuss decorative motifs or evidence of manufacturing technique.

Figure 1: Location of Pritchard Shipyard

HISTORICAL BACKGROUND

Site number 38CH1049 –Pritchard's Shipyard- is likely one of the largest of its type in the state of South Carolina (SCIAA: date unknown). In addition, Mark M. Newell, Et. All., point out that this site, located on Hobcaw Creek, has the potential to play an important role in understanding the naval history of the state (Newell, Et. All.: Date unknown, 2).

The site first appears in the historic record as a shipyard in 1753, when John Rose and James Stewart owned it. However, the original land records precede Rose and Stewart's ownership. Beginning in 1681 the land was in the possession of Lt. Col. John Godfrey. By 1682, it was owned by Richard Dearsley of Barbados. By 1701, the property had passed to Maj. George Dearsley, Richard's son. In 1709, Benjamin Quelch owned the shipyard. Next, it was passed on to Quelch's wife Elizabeth; then, to Andrew, his son. Thomas Bolton obtained the property at a public auction when Andrew could no longer fulfill a mortgage on it. Finally, Rose and Stewart purchased it at a price of 2,900 pounds sterling. And by Stewart's death in 1755, Rose was the shipyard's primary owner (Newell, Et. All.: Date unknown, 4).

By 1763, the most notable of the ships launched at the shipyard began to appear in the press. These include: in 1763, the 180-ton ship *Heart of Oak* and in 1767, the 160-ton ship *Liberty*. Both ships sailed between South Carolina and Europe. By 1769, the shipyard was owned by William Begbie and Daniel Manson. In addition, the shipyard probably produced many craft of smaller size (Amer and Naylor: Unknown date, 4). By 1770 a 200-ton ship, the *Magna Charta* was launched. Soon after, the 200-ton ship, *Carolina Packet* hit the water in 1771 (Newell, Et all,: Date unknown, 5).

Seven years later, in 1778, the shipyard was again sold. This time, Abraham Livingston and Paul Pritchard purchased it. Since that time, it has been known as Pritchard's shipyard. In that same year, the Commissioners of the Navy of South Carolina acquired a three-quarter interest in the shipyard. The property included 15 "Negroes" who were employed at the yard (Newell, Et. All.: Date unknown, 5).

Under the Navy's tenure, the ships *Bricole*, *Truite*, and *Notre Dame* were sent to the shipyard for repairs. As Newell, Et. All., point out these ships comprise only part of the total number of repair and construction efforts conducted at the shipyard during this period (Newell, Et. All.: Date unknown, 5).

After the American Revolution, Pritchard is listed as the only owner of the shipyard. As Christopher Amer and Carlton A. Naylor relate, the shipbuilding industry went through a depression after the Revolution. In the late 1790's it revived for a short time. By 1853, the shipyard was sold to Robert Muirhead. By 1865, the industry finally collapsed in South Carolina (Amer and Naylor: 1995, 3). The property passed into the possession of a land company and H.L. Erkmann. Finally, the shipyard site was bought in 1953 by R.M. McGillivray (Newell, Et. All.: Date unknown, 5).

EXCAVATION HISTORY

As one views the property today, the majority of it is subdivided as a residential space. The exception is a 7.5-acre area on Hobcaw Creek, owned by the Hernandez family since 1991 and the primary location of the shipyard itself. Archaeological reconnaissance was begun by the South Carolina Institute of Archaeology and Anthropology in the 1980's (Amer and Naylor: 1995, 6).

Soon after, when plans were being made to remove a tree, it was discovered that the tree had "…grown up through a brick structure and was surrounded by wall footings and colonial artifacts" (Amer and Naylor: 1995, 7). As Amer and Naylor state in their excavation report:

> Salvage excavation of the Tree House was conducted in August 1993 amid a flurry of changing deadlines and under threat that any day the tree could be cut and uprooted, thereby destroying the integrity of the structure and its colonial contents. The limited objective of the excavation was to attempt to gather enough data to date the occupation(s) of the Tree House and delineate it's function within the historical context of the site. During a one-week period we excavated 30% of the interior of the structure and exposed and mapped the site's main features, recovering some 13,000 artifacts…The Tree House consisted of the lower remains of three brick walls forming an approximately 7-meter-square enclosure, a hearth and an unidentified section of brick masonry. Only the south wall remained intact to it's 7.35 meter length while the west wall extended 6.9 meters to the north. A 2 meter section of the east wall remained intact. The brick that once comprised the remainder of the wall was largely absent…No evidence for a wall enclosing the north side of the structure was found, nor were remains of a builder's trench located, as had been recorded under the other walls. Both the north and east areas of the structure have been heavily disturbed, probably during construction of the dam and dike on either side of the property, when heavy machinery and construction components were stored there. (Amer and Naylor: 1995, 8-9)

ARTIFACT ASSEMBLADGE AND FEATURES

Amer and Naylor relate that recovered artifacts include: numerous pipe stems (most dating from 1750 to 1800+), ceramics and glass (dating from the 18th and 19th centuries), iron and copper fasteners, glass beads, buckles, thimbles, buttons, a horse's bit, a 1720 Dutch trade token, wine glass stems, an adz, axe heads, dividers, and large amounts of faunal remains (pig, deer, bird, and fish) (Amer and Naylor: 1995, 9).

In addition to these artifacts, historic documents also list several features located on the site. These include "houses, outhouses, storehouses, wharves, gardens, orchards, marshes, pastures, ways, passages, watercourses, trees, lights and easements." The Tree House feature (the primary focus of this excavation) could have been associated with any number of these listed structures (Amer and Naylor: 1995, 10).

SECTION II
RECOVERY OF KAOLIN PIPE FRAGMENTS

INTRODUCTION TO KAOLIN PIPE ANALYSIS

Kaolin tobacco pipe fragments have been recovered on American archaeological sites that date from the colonial period to the 19th century. In general, these fragments come from three areas of the pipe. The most common come from the pipe's stem. The next most common fragment type comes from the pipe's bowl. While the least common fragments come from the interface between the pipe bowl and stem. If the fragment was from the pipe's bowl, it might have a "cartouche" or maker's mark stamped on it.

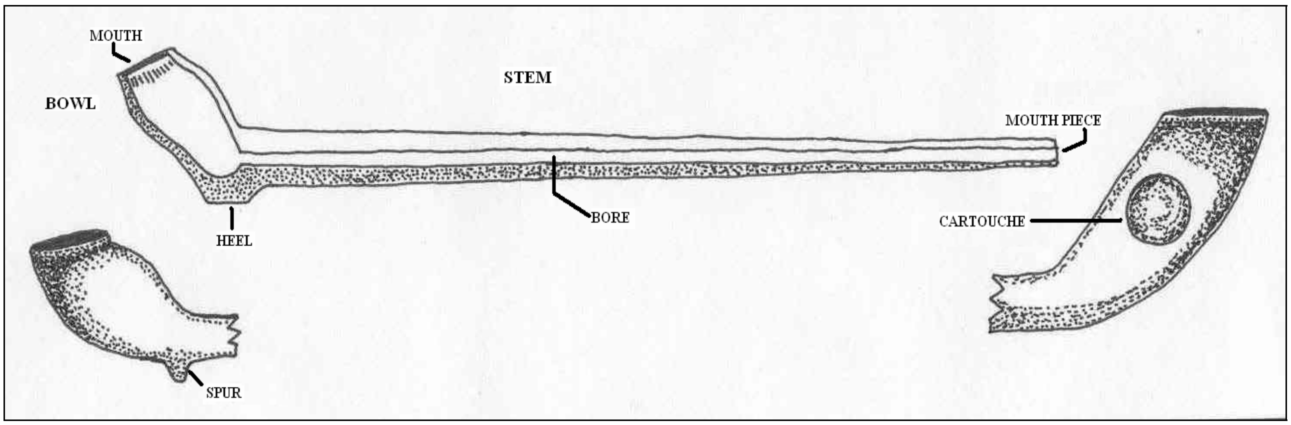


Figure 2: Kaolin Tobacco Pipe Morphology

(After Noël Hume: 1991, 297.)

This mark can then be used to assign a chronological period to the fragment that can then be used to help date a site's occupation. However, the vast majority of fragments recovered are broken segments from the pipe's stem. Some of these stems are decoratively etched which may also aid in assigning a date. However, the vast majority of stem fragments recovered from archaeological sites are undecorated. It was not until J.C. Harrington's work that undecorated pipe stem fragments began to be seen as chronologically ordered. He observed that fragments from kaolin pipe stems appeared to be normally distributed by the diameters of their bores. This could be verified by correlating recovered pipe stem fragments with other, diagnostic artifacts that appeared in the same levels.

Harrington derived a relationship between bore diameters (in /64") to various time periods, the larger the bore the older the fragment: 4/64" to the period 1750-1800, 5/64" to the period 1710-1750, 6/64" to the period 1680-1710, 7/64" to the period 1650-1680, and 8/64" to the period 1620-1650 (Harrington: 1954, 9-13). In the following passage, Ivor Noël Hume relates the reception of Harrington's observation within the historical archaeological community:

> At first, what has come to be known as the "Harrington Theory" was received with considerable merriment among pundits of the pipe, but it soon became apparent to those who took the trouble to test the chart that there was a good deal of truth in it-though Harrington himself had made it very clear from the start that he considered the sampling too small and that much refinement would be necessary when more

groups of archaeologically datable pipes became available for study. He also pointed out that associations of only twenty or thirty pipes would probably be insufficient to produce an accurate answer. (Noël Hume: 1991, 298-99)

Later, Lewis Binford took Harrington's system and derived a straight-line regression formula. In essence, this formula allows archaeologists to calculate a mean pipe stem date (MPSD) regardless of sample size. In this formula, **Y=1931.85-38.26X**, **Y** equals the unknown MPSD. **1931.85** represents the year at which the pipe stem's bore diameter would completely disappear. **38.26** represents the average number of years between each /64" bore diameter. And finally, **X** represents the mean bore diameter of the recovered sample (Binford: 1978, 66-67).

However, some caution should be used in applying the mean pipe stem formula. Noël Hume notes that often, with later samples and sample sizes under a thousand, the mean pipe stem dates are often earlier than those derived from the combination dates for other artifact classes (Noël Hume: 1991, 300-01). Exactly why this occurs is unclear, however, it seems prudent that pipe stems should not be the last word when it comes to arriving at an absolute date whether it be for a stratigraphic level, a feature, or an entire site. Having said this, it does seem appropriate to use pipe stem dates in developing relative dating schemes throughout a site since they are the product of the same formula and trends in bore size.

METHOD OF ANALYSIS AND HYPOTHESIS TESTING

Following previous work employing Kaolin pipe fragments as a means to assign a temporal dimension to historic period sites, this section relates the frequencies of kaolin pipe fragments as they were recovered in each excavated unit.

The discussion of each unit or feature is divided into sections that address the following topics: recovery, dating, stratigraphy, and stratigraphic integrity. In the section entitled *RECOVERY*, total counts of datable pipe stem fragments are related for each unit or feature. In addition, these counts are subdivided by their corresponding temporal period. In the section entitled *DATING*, a maximum possible occupational range is assigned to the unit or feature based on counts of datable pipe stem fragments. This estimate results from combining the earliest date from the earliest range and the latest date from the latest date range. In addition, an overall MPSD is calculated for the entire unit of feature. In the section entitled *STRATIGRAPHY*, the numbers of levels excavated as well as their interval and overall depths are related. An MPSD is also calculated for each level. In the final section, entitle *STRATIGRAPHIC INTEGRITY*, the unit or feature's stratigraphic integrity is assessed based on the order of MPSDs relative to the frequencies of stem fragments by chronological period.

The assessment of stratigraphic integrity is based upon several criteria. First, this analysis takes as its central theorems the laws of Superposition and Uniformitarianism. Thus, it is assumed that the site's depositional history will reflect both an undisturbed and uniform process of layering in the production of stratigraphy. It is therefore, not the purpose of this analysis to prove stratigraphic integrity. Rather, it is the purpose of this analysis to disprove stratigraphic integrity. In this way, Kaolin pipe fragments are used as a first and preliminary sort in a process of elimination. This process will not be complete until this artifact class is correlated with other artifact classes that can be assigned to an absolute temporal dimension.

In essence, the task of disproving stratigraphic integrity can be seen as disproving the null hypothesis. Such a hypothesis asserts that there is not difference between the undisturbed stratigraphy assumed to lie under the surface of an archaeological site (conforming to the laws of Superposition and Uniformitarianism) and the stratigraphic record encountered through systematic archaeological excavation. Disproving such a null hypothesis to show that there is some form of post-depositional disturbance that lies behind the difference between predicted and observed stratigraphy means testing each unit against the following four, additive, criteria.

1. The unit or feature must be excavated in more than one arbitrary level. Without multiple levels, a diachronic perspective cannot be employed to test against the Law of Superposition.

2. Recovered pipe stem fragments must come from multiple levels and there must be more than one bore diameter represented within the sample. Without these two criteria, a diachronic perspective cannot be employed and temporal disturbance cannot be assessed to test against the Laws of Uniformitarianism or Superposition.

3. Mean pipe stem dates (MPSDs) calculated for each unit or feature must ascend in temporal order as one moves from deeper levels toward the surface. Again, this is essential in creating a diachronic perspective to test against the Law of Superposition.

4. Frequencies of recovered pipe stem fragments must show a uniform increase or decrease by excavated level. Earlier fragments cannot be present in lower levels, absent in higher levels, and then reappear in a level near the surface. This is essential to test against the Law of Uniformitarianism.

If the unit or feature fails to meet the first two criteria, then stratigraphic integrity cannot be assessed and the null hypothesis cannot be tested until other artifact classes are analyzed. If the unit or feature fails to meet the second two criteria, then stratigraphic integrity can be assessed and the null hypothesis can be rejected. However, since this analysis is not complete without the analysis of other artifact classes, it is possible to reject the null hypothesis while only tentatively accepting it. The end result of testing is subtractive. And units or features where the null hypothesis may be tentatively accepted are still subject to further rejection with the analysis of more artifact classes.

Table 1: Counts of Recovered Kaolin Pipe Fragments by Excavated Unit

unit	level	stem frags	bowl frags	stem/bowl frags	total	unit	level	stem frags	bowl frags	stem/bowl frags	total
1	1,2,3	7	3	0	10	footprint of house	surf	4	0	2	6
2	1,2,3,4,5	17	2	1	20	feature 3	surf to sterile	107	2	7	116
3	1,3	10	0	0	10	feature 4	surf to sterile	47	6	8	61
4	1,2,4	8	0	1	9	feature 5	surf to sterile	76	1	10	87
5	1,2,3	12	3	3	18	feature 6	surf to sterile	79	9	9	97
6	1,2,3	2	2	1	5	feature 7	surf to sterile	36	2	3	41
7	1,3	2	0	0	2	feature 8	surf to sterile	19	1	0	20
8	1,2	2	0	0	2	feature 9	surf to sterile	22	2	2	26
9	3	1	0	0	1	feature 10	surf to sterile	54	4	2	60
11	1,2,3	15	0	0	15	feature 13	surf to sterile	8	0	1	9
14	1	8	1	1	10	feature 15	surf to sterile	11	0	0	11
16	2	4	0	0	4	feature 16	surf to sterile	18	0	5	23
17	1,2,3,4	12	1	0	13	feature 16A	surf to sterile	60	2	4	66
20	1,2,3	19	0	0	19	feature 17	surf to sterile	27	0	1	28
22	1,2	12	0	0	12	feature 18	surf to sterile	27	3	0	30
24	1	1	0	0	1	feature 19	surf to sterile	30	1	0	31
26	2,3	4	0	1	5	feature 100	1,2	7	1	1	9
29	1,2	17	1	2	20	trench A (unit 0)	1,2,3	30	4	2	36
31	1,2,3,4,5	16	6	2	24	trench B	1	1	0	0	1
32	1	1	0	0	1	trench 4	surf to sterile	11	0	1	12
33	1,2,3,4	12	1	3	16		subtotal	674	38	58	770
36	1,2,3	5	1	0	6		**total**	**916**	**71**	**75**	**1062**
37	1	5	1	0	6						
38	1	1	0	0	1						
40	2,3	7	1	0	8						
43	1,2,3	13	3	0	16						
46&55	1	8	0	2	10						
47-49	1	1	0	0	1						
50&59	3,4	11	2	0	13						
53	1,2	4	4	0	8						
56&57	surf to sterile	0	1	0	1						
67&68	1	5	0	0	5						
	subtotal	242	33	17	292						

RECOVERY OF KAOLIN PIPE FRAGMENTS: EXCAVATED UNITS

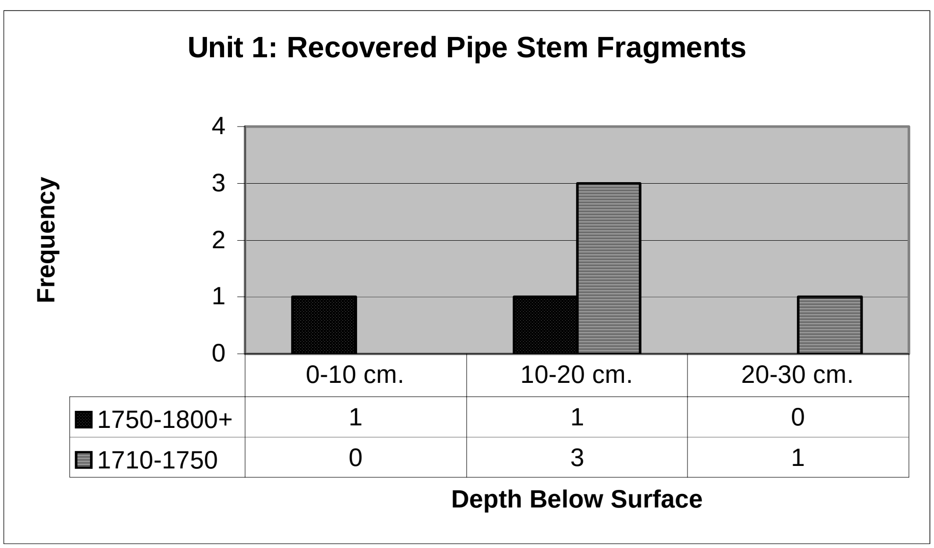
UNIT 1

RECOVERY: Unit 1 produced a total of six fragments with datable bores. Of these, two dated to a period from 1750-1800+ while another four dated to the period 1710-1750.

DATING: Based on the pipe stem fragments recovered from Unit 1, we can approximately date its maximum possible occupational range from 1710 to 1800+. An overall MPSD for Unit 1 is 1753.18.

STRATIGRAPHY: Pipe stems were recovered from Unit 1 in three arbitrary levels of ten centimeters each (0-10 cm., 10-20 cm., and 20-30 cm.). Level 3 (20-30 cm.) produced one fragment dating to the period 1710-1750 and producing the oldest MPSD at 1740.55. Level 2 (10-20 cm.) produced one fragment dating from 1750 to 1800+ while another three dated from 1710 to 1750. These fragments returned the second oldest MPSD at 1750.12. Level 1 produced only one fragment dating to a period from 1750-1800+. This proved to be the youngest level with a MPSD at 1778.81.

STRATIGRAPHIC INTEGRITY: Based on the MPSDs discussed above, Unit 1 appears to have maintained its stratigraphic integrity. In addition, the frequencies of pipe stem date ranges attest to this. Older fragments are found in the lowest level. They dominate in the middle level while the youngest fragments appear for the first time in the highest level. Finally, in the highest level the oldest fragments disappear all together.

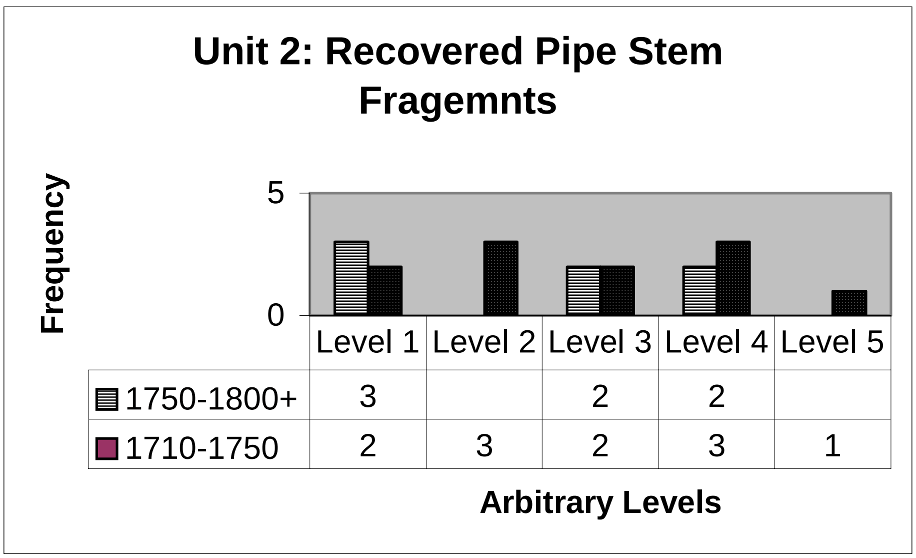


UNIT 2

RECOVERY: Unit 2 produced a total of 18 datable fragments. Of these, seven fragments dated to a period from 1750 to 1800+ while 11 dated to the period 1710-1750.

DATING: Unit 2 produced pipe stems that reveal a maximum possible occupational range from 1710 to 1800+ and an overall MPSD of 1755.47.

STRATIGRAPHY: Pipe stems were recovered from Unit 2 in five arbitrary levels excavated in 10-centimeter increments (0-10 cm., 10-20 cm., 20-30 cm., 30-40 cm., and 40-50 cm.). Levels 1 and 3 (0-10 cm. and 20-30 cm.) returned the oldest MPSDs at 1763.51 and 1759.68 respectively. Level 4 (30-40 cm.) was the next oldest at 1755.85. Level 2 (10-20 cm.) and Level 5 (40-50 cm.) returned the youngest MPSDs, both at 1740.55.



STRATIGRAPHIC INTEGRITY: When we look at the distribution of MPSDs per level in Unit 2, we see that the date for level 2 (1740.55) is as old as the date for the deepest level. In addition, when we observe the frequencies of each type per level we see that level 2 shows both an absence of young fragments and a second peak in older fragments where there should be a decline in the one and an increase in the other. Thus, it is doubtful that Unit 2 has retained its stratigraphic integrity.

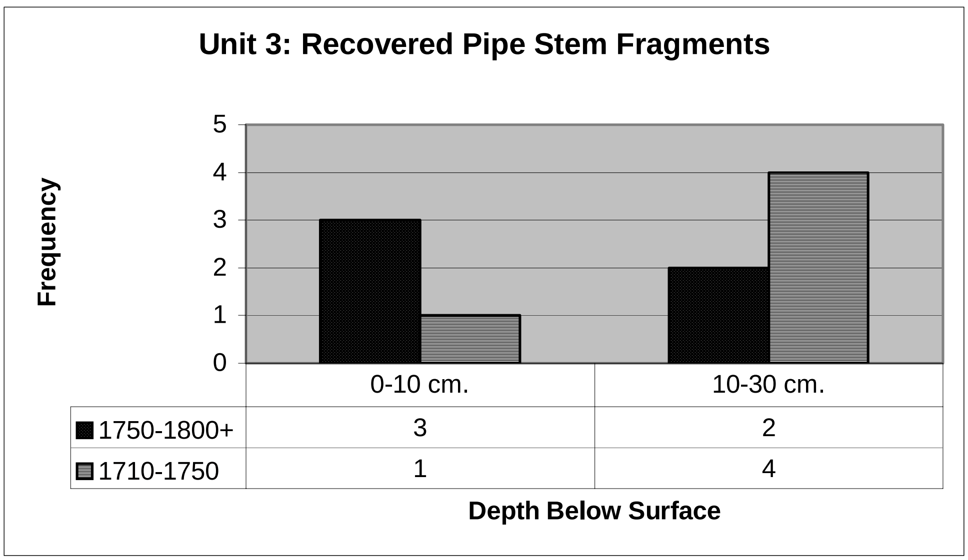
UNIT 3

RECOVERY: Unit 3 produced a total of 10 fragments with datable bores. Of these, five dated to a period from 1750 to 1800+ while another five dated to the period 1710-1750.

DATING: Recovered fragments from Unit 3 reveal a maximum possible occupational range between 1710 and 1800+ and an overall MPSD of 1759.68.

STRATIGRAPHY: Pipe stems were recovered from Unit 3 in two arbitrary levels, excavated in 10-centimeter increments. The first, in an increment of ten centimeters while the second was excavated at an increment of 20 centimeters (0-10 cm. and 10-30 cm.). Level 2, the deepest (10-

30 cm.), returned the oldest MPSD at 1753.18. Level 1 (0-10 cm.) returned a MPSD of 1769.25.



STRATIGRAPHIC INTEGRITY: Unit #3 appears to have retained its stratigraphic integrity. This is evidenced by the fact that the MPSDs are earlier as one moves from higher the lower levels. This conclusion is reinforced by an increase in frequency of younger fragments while older fragments decrease as one moves from deep to more shallow levels. Therefore, we can tentatively accept the null hypothesis.

UNIT 4

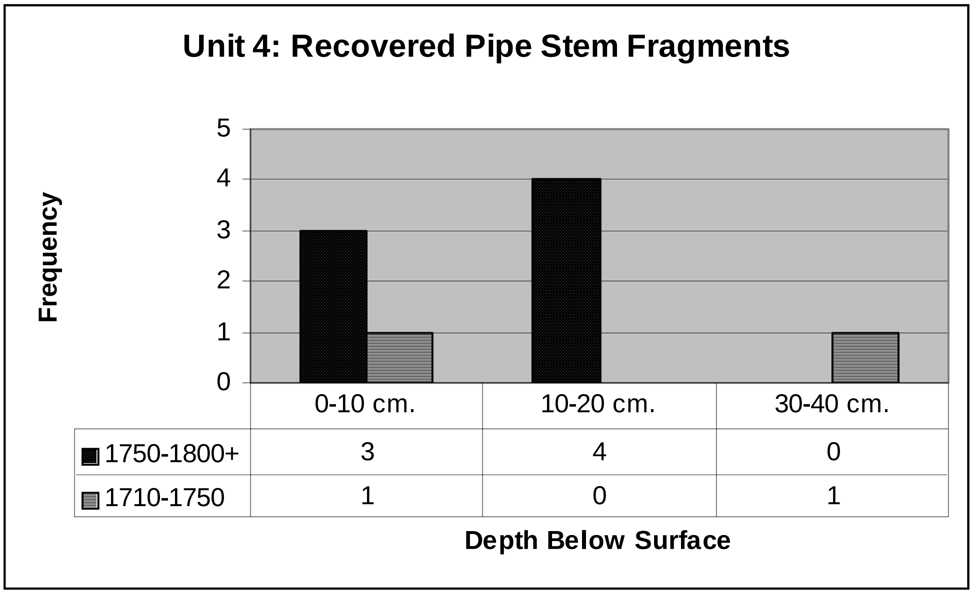
RECOVERY: Unit 4 produced a total of nine fragments with datable bores. Of these, seven dated to a period from 1750 to 1800+ while another two fragments dated to the period 1710-1750.

DATING: Unit 4 produced fragments that give it a maximal possible occupational range from 1710 to 1800+. The overall MPSD for Unit 4 is 1770.39.

STRATIGRAPHY: Pipe stems were recovered from Unit 4 in three arbitrary levels, excavated in 10-centimeter intervals (0-10 cm., 10-20 cm., 30-40 cm.). The deepest level (3) returned the oldest

MPSD at 1740.55. Level 1 (0-10 cm.) returned the next youngest MPSD at 1769.25. Level 2 (10-20 cm.) returned an MPSD of 1778.81.

STRATIGRAPHIC INTEGRITY: Because Unit 4's middle level has the youngest MPSD of its three levels the stratigraphic integrity is questionable. In addition, the distribution of types between levels show the absence of older fragments in level 2 while the appear again in level 1.



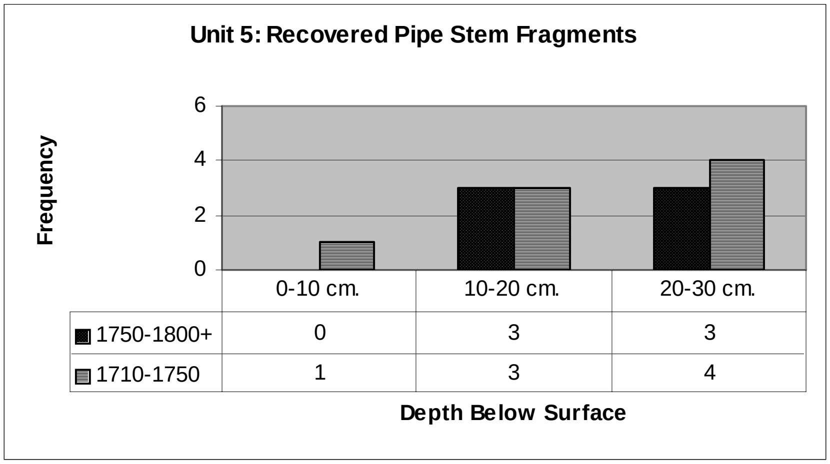
UNIT 5

RECOVERY: Unit 5 produced a total of 15 fragments with datable bores. Of these, six dated to a period from 1750 to 1800+ while another eight dated to a period from 1710 to 1750.

DATING: Fragments recovered from Unit 5 reveal a maximum possible occupational range from 1710 to 1800+ and an overall MPSD of 1757.00.

STRATIGRAPHY: Pipe stem fragments were recovered from Unit 5 in three arbitrary levels of 10-centimeters each (0-10 cm., 10-20 cm., and 20-30 cm.). Level 1 (0-10 cm.) returned the earliest MPSD at 1740.55. Level 3 (20-30 cm.) returned a MPSD of 1757.00. Level 2 (10-20 cm.) returned the latest MPSD at 1759.68.

STRATIGRAPHIC INTEGRITY: Unit 5 does not appear to have maintained its stratigraphic integrity. Since level 1 returned the earliest MPSD while Level 3 (the deepest) returned the latest MPSD.



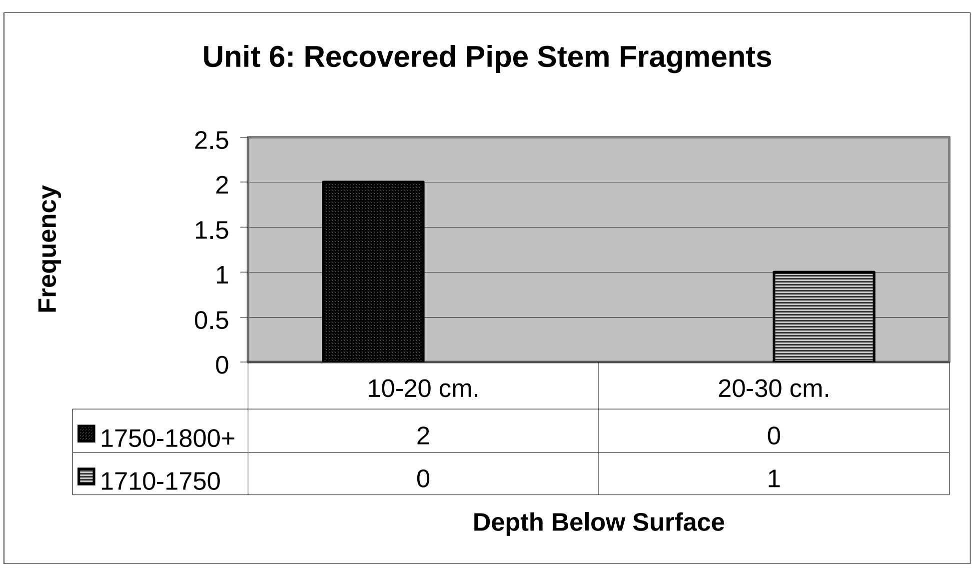
UNIT 6

RECOVERY: Unit 6 produced a total of three fragments with datable bores. Of these, two dated to the period 1750-1800+ while another fragment dated to a period from 1710 to 1750.

DATING: Unit 6 produced a maximum possible occupational range between 1710 and 1800+ and an overall MPSD of 1766.18.

STRATIGRAPHY: Pipe stem fragments were recovered from Unit 6 in two arbitrary levels of 10 centimeters each (10-20 cm. and 20-30 cm.). Fragments recovered from 20-30 centimeters returned the oldest MPSD at 1740.55 while fragments from 10-20 centimeters returned an MPSD of 1778.81.

STRATIGRAPHIC INTEGRITY: Unit 6 appears to have maintained its stratigraphic integrity. Not only do the MPSDs for each level get younger as one travels toward the surface, the oldest type frequencies dominate while the most recent dominate the shallow.



UNIT 7

RECOVERY: Unit 7 produced a total of two fragments with datable bores. Both of these fragments dated to a period from 1710 to 1750.

DATING: The fragments from Unit 7 reveal a maximum possible occupational range from 1710 to 1750 with an overall MPSD of 1740.55.

STRATIGRAPHY: Pipe stem fragments were recovered from Unit 7 in two arbitrary levels of ten centimeters each (0-10 cm. and 20-30 cm.). Both levels contained fragments with a MPSD of 1740.55.

STRATIGRAPHIC INTEGRITY: This Unit's stratigraphic integrity appears to be questionable. Both levels returned the same MPSDs. This unit's stratigraphic integrity cannot be ascertained and the null hypothesis cannot be tested on the basis of Kaolin pipe fragments alone.

UNIT 8

RECOVERY: Unit 8 produced a total of two fragments with datable bores. Both of these fragments dated to a period from 1710 to 1750.

DATING: Fragments from Unit 8 reveal a maximum possible occupational range between 1710 and 1750. Unit 8 returned an overall MPSD of 1740.55.

STRATIGRAPHY: Pipe stem fragments were recovered from Unit 8 in two arbitrary levels. Both levels were excavated in 10-centimeter increments (0-10 cm. and 10-20 cm.). Both levels produced a MPSD of 1740.55.

STRATIGRAPHIC INTEGRITY: Unit 8's stratigraphic integrity appears questionable. This unit produced the same MPSD and frequencies per level. This unit's stratigraphic integrity cannot be ascertained and the null hypothesis cannot be tested on the basis of Kaolin pipe fragments alone.

UNIT 9

RECOVERY: Unit 9 produced one fragment with a datable bore. This fragment dated to a period from 1710-1750.

DATING: Recovered fragments from Unit 9 reveal a maximum possible occupational range between 1710 and 1750 and an overall MPSD of 1740.55.

STRATIGRAPHY: The one fragment recovered from Unit 9 was excavated at an increment of ten centimeters (20-30 cm.).

STRATIGRAPHIC INTEGRITY: Since only one fragment was recovered in one arbitrary level from Unit 9, it does not reflect a diachronic perspective. And because it fails to meet condition 1 and condition 2, this unit's stratigraphic integrity cannot be ascertained and the null hypothesis cannot be tested on the basis of Kaolin pipe fragments alone.

UNIT 11

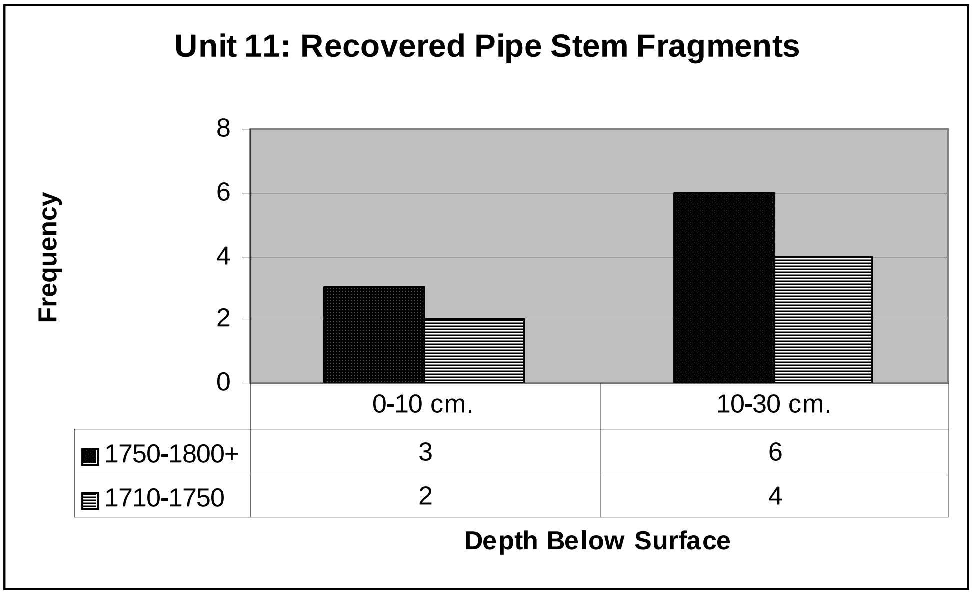
RECOVERY: Unit 11 produced a total of 15 fragments with datable bores. Of these, nine dated to the period 1750-1800+ while another six dated to a period between 1710 and 1750.

DATING: Recovered fragments from Unit 11 produced a maximum possible occupational range from 1710 to 1800+. Unit 11 returned an overall MPSD of 1763.51.

STRATIGRAPHY: Pipe stem fragments were recovered from unit 11 in three arbitrary levels. Two levels were excavated in 10-centimeter increments (0-10 cm., 10-20 cm.) while the third (10-30 cm.) was excavated in an increment of 20 cm. For the sake of analysis, levels two and three

were combined due to their overlapping depth. As a result, level 2 (10-30 cm.) returned the earliest MPSD at 1744.38. Level 1 (0-10 cm.) returned the latest MPSD at 1763.51.

STRATIGRAPHIC INTEGRITY: While it does not appear readily apparent when looking strictly at the frequencies of pipe stem fragments per level since the frequency of fragments dating to the period 1750-1800+ decrease. However, the fragments for the period 1710-1750 also decrease. Ultimately, the mean pipe stem dates show a progressive trend as one moves toward the surface. Therefore, it appears likely that Unit 11 has maintained its stratigraphic integrity.



	0-10 cm.	10-30 cm.
1750-1800+	3	6
1710-1750	2	4

UNIT 14

RECOVERY: Unit 14 produced a total of nine fragments with datable bores. Of these, five dated to the period 1750-1800+ while another four dated from 1710 to 1750.

DATING: Fragments recovered from Unit 14 returned a maximum possible occupational date range from 1710 to 1800+ and an overall MPSD of 1761.98.

STRATIGRAPHY: Pipe stem fragments were recovered from Unit 14 in one arbitrary level (0-10 cm.).

STRATIGRAPHIC INTEGRITY: Efforts to determine this unit's stratigraphic integrity through pipe stem fragment dating proved inconclusive. Since fragments were recovered from only one arbitrary level we cannot assess this unit from a diachronic perspective. Such a perspective would tell us whether this level represents the rise in popularity of more recent fragments and the decline of older fragments. Since this unit fails to meet criteria 1, this unit's stratigraphic integrity cannot be ascertained and the null hypothesis cannot be tested on the basis of Kaolin pipe fragments alone.

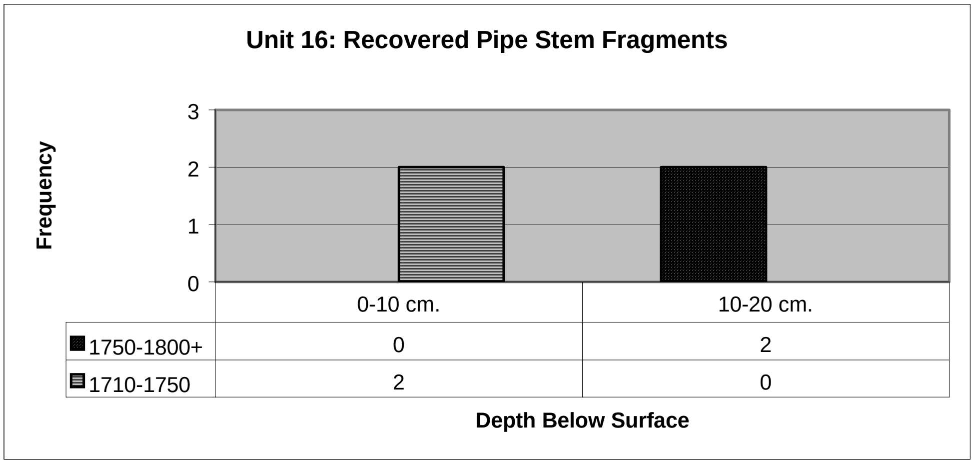
UNIT 16

RECOVERY: Unit 16 produced a total of four fragments with datable bores. Of these, two fragments dated to the period 1750-1800+ while another two dated from 1710 to 1750.

DATING: Recovered fragments from unit 16 reveal a maximum possible occupational range from 1710 to 1800+. Unit 16 returned an overall MPSD of 1759.68.

STRATIGRAPHY: Fragments were recovered from Unit 16 in two arbitrary levels. Both were excavated in 10-centimeter increments (0-10 cm. and 10-20 cm.). Level 1 (0-10 cm.) returned an MPSD of 1740.55 while the deeper level (10-20 cm.) returned the latest MPSD at 1778.81.

STRATIGRAPHIC INTEGRITY: Unit 16 does not appear to have maintained its stratigraphic integrity. The following supports this conclusion: First, fragments dating to a more recent period (1750-1800+) appear exclusively in the earlier of the two levels. Second, fragments dating to an older period (1710-1750) appear exclusively in the most recent level.



UNIT 17

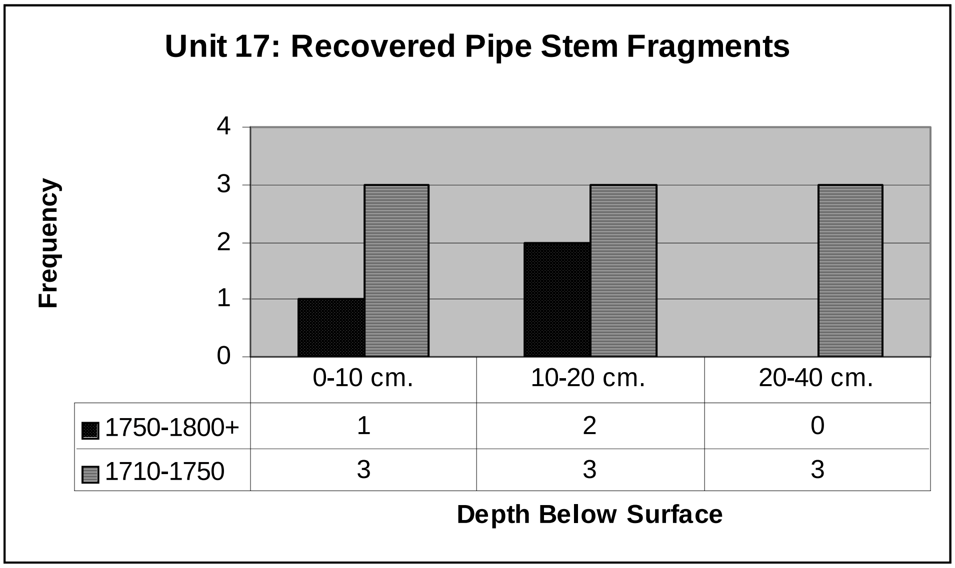
RECOVERY: Unit 17 produced a total of 12 fragments with datable bores. Of these, three dated to a period from 1750 to 1800+ while another nine dated to a period from 1710 to 1750.

DATING: Recovered fragments from Unit 17 reveal a maximum possible occupational range from 1710 to 1800+. Unit 17 also returned an overall MPSD of 1750.12.

STRATIGRAPHY: Unit 17 was excavated in 6 arbitrary levels. Two levels were excavated in 10-centimeter increments (0-10 cm. and 10-20 cm.). Another three levels were excavated in increments of 5 centimeters each (10-15 cm., 15-20 cm., and 30-35 cm.). One level was excavated in an increment of 20 centimeters (20-40 cm.). For the sake of analysis, several levels were combined due to their overlapping depth. This resulted in the following three levels: level 1 at 0-10

cm., level 2 at 10-20 cm., and level 3 at 20-35 cm. Of these, level 3 (20-40 cm.) returned the earliest MPSD at 1740.55. Level 1 (0-10 cm.) returned the next oldest MPSD at 1750.12 while level 2 (10-20 cm.) returned the most recent MPSD at 1755.85.

STRATIGRAPHIC INTEGRITY: The stratigraphic integrity of Unit 17 is dubious because of the MPSD for level 2 (1755.85). While one would expect some overlap in fragments from time periods that immediately pre- and postdate each other as seen in the presence of fragments from 1750-1800+ in levels one and two. The fact that fragments from 1710-1750 remain constant through all levels while those from 1750-1800+ actually decline makes it difficult to reconcile with the estimated MPSDs for each level.



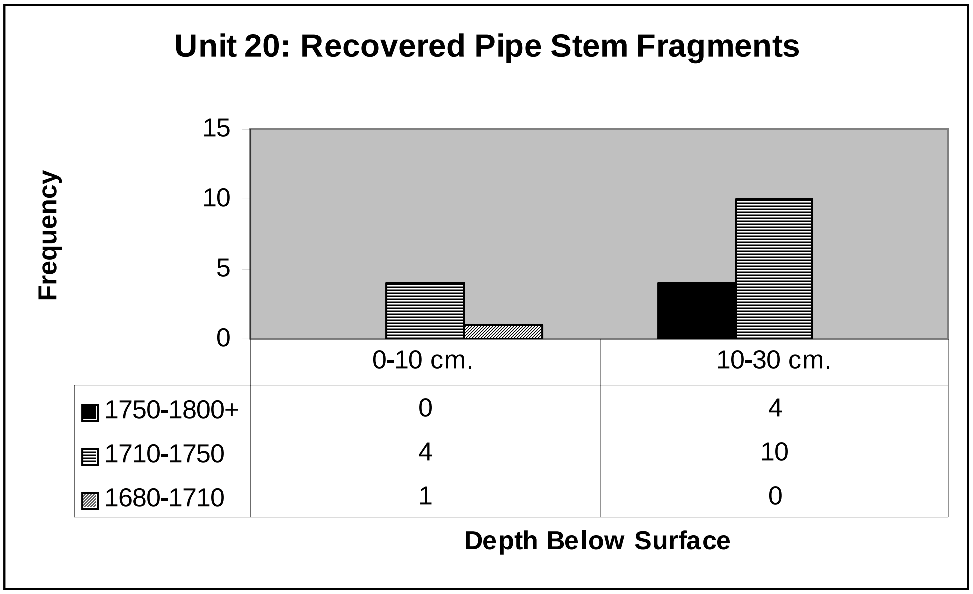
UNIT 20

RECOVERY: Unit 20 produced a total of 19 fragments with datable bores. Of these, four dated to a period from 1750 to 1800+ while another 14 dated to a period from 1710 to 1750 and one fragment dated to a period from 1680-1710.

DATING: Recovered fragments from Unit 20 reveal a maximum possible occupational range from 1680 to 1800+ and an overall MPSD of 1748.58.

STRATIGRAPHY: Pipe stem fragments were recovered from Unit 20 in four arbitrary levels. Three levels (0-10 cm., 10-20 cm. and 20-30 cm.) were excavated in increments of ten centimeters each. One level (10-25 cm.) was excavated in an increment of 15 centimeters. For the sake of analysis, these were combined to create two, distinct levels (0-10 cm. and 10-30 cm.). Level 1 returned the latest MPSD at 1732.90 while level 2 returned the oldest MPSD at 1752.03.

STRATIGRAPHIC INTEGRITY: Unit 20's stratigraphic integrity appears dubious. This conclusion is based on the following lines of evidence. First, while both levels produced fragments dating from 1710 to 1750, only level 2 contained fragments dating to the period 1750-1800+. In addition, level 1 was the only level to contain the oldest fragments at 1680 to 1710. Based on the presence of later fragments in level 2, their absence in level 1, and the additional presence of the oldest fragments, also in level 1, it seems likely that the observed frequencies do not reflect a uniform processes of deposition through time. Thus, we are lead to reject the null hypothesis.



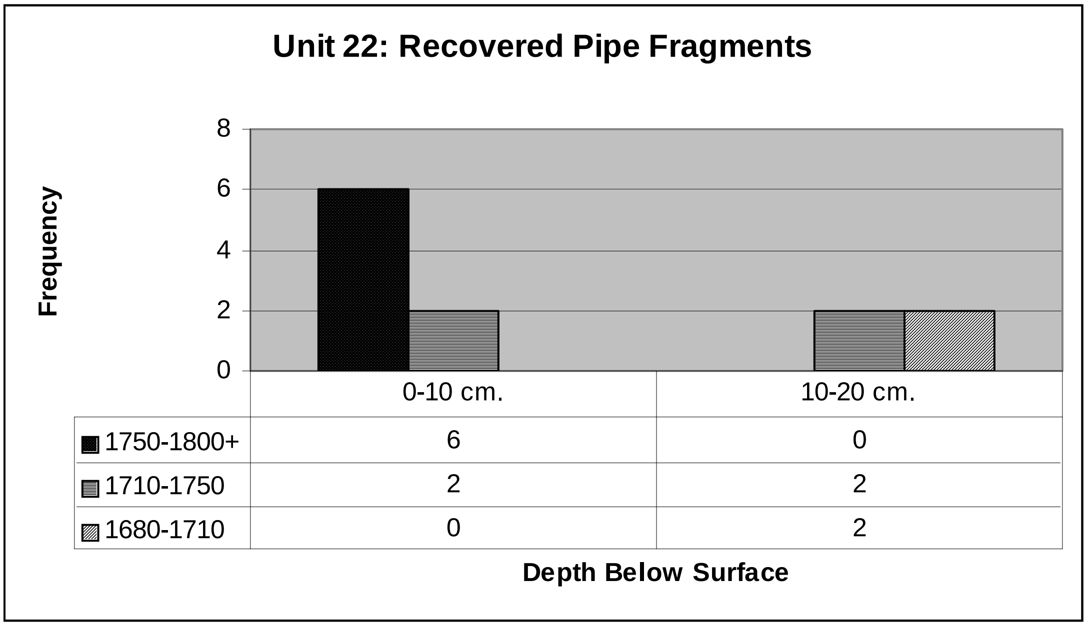
UNIT 22

RECOVERY: Unit 22 produced a total of 12 pipe fragments with datable bores. Of these, six fragments dated to the period 1750-1800+. Another four fragments dated to a period from 1710 to 1750 while an additional two dated between 1680 and 1710.

DATING: Recovered pipe fragments from Unit 22 reveal a maximum possible occupational range from 1680 to 1800+. These fragments also returned an overall MPSD of 1753.18.

STRATIGRAPHY: Datable pipe fragments were recovered from Unit 22 in two arbitrary levels, 0-10 and 10-20 centimeters below surface. The first level (0-10 cm.) returned an MPSD of 1769.25 while the second level (10-20 cm.) returned an MPSD of 1721.42.

STRATIGRAPHIC INTEGRITY: Based on the comparison between arbitrary levels, the stratigraphic integrity of Unit 22 appears intact. This conclusion is supported by the following observations. First, the MPSDs of each level, relative to each other show that the higher level (0-10 cm.) returned a later date than that for the level below (10-20 cm.). Second, this seems strengthened by the presence of pipe stems dating to the period 1680-1710 in the deeper of the two levels while fragments dating to the period 1750-1800+ are absent.



UNIT 24

RECOVERY: Unit 24 produced a total of one fragment with a datable bore. This fragment dated to the period 1750-1800+ and has an MPSD of 1778.81.

DATING: The recovered fragment from Unit 24 reveals a maximum possible occupational range between 1750-1800+.

STRATIGRAPHY: This fragment was recovered from a level excavated at an increment of 10 centimeters (0-10 cm.).

STRATIGRAPHIC INTEGRITY: Attempts to assess this unit's stratigraphic integrity on the basis of recovered Kaolin pipe fragments alone proved to be inconclusive. Since only one fragment was recovered, and that fragment came from a single arbitrary level, we cannot assess the unit from a diachronic perspective until other artifact groups are included for analysis. Therefore, the null hypothesis cannot be tested.

UNIT 26

RECOVERY: Unit 26 produced a total of five fragments with datable bores. All of these fragments dated to a period from 1710 to 1750.

DATING: Recovered fragments from Unit 26 reveal a maximum possible occupational range between 1710 and 1750 and an overall MPSD of 1740.55.

STRATIGRAPHY: Pipe stem fragments were recovered from Unit 26 in two arbitrary levels. Level 1 was excavated at in increment of 20 centimeters (0-20 cm.). Level 2 was excavated in an increment of 10 centimeters (20-30 cm.). Both levels returned a MPSD of 1740.55.

STRATIGRAPHIC INTEGRITY: The stratigraphic integrity of Unit 26 is dubious. Since fragments dating to the same period (1710-1750) were recovered from both arbitrary levels, we cannot assess this unit from a diachronic perspective. Therefore, we cannot be certain that this represents two depositional levels where some form of disturbance would account for the lack of change between levels. Or, if this represents one depositional level arbitrarily divided during excavation. Since Unit 26 does not meet criteria 2, its stratigraphic integrity cannot be assessed and the null hypothesis cannot be tested on the basis of Kaolin pipe fragments alone.

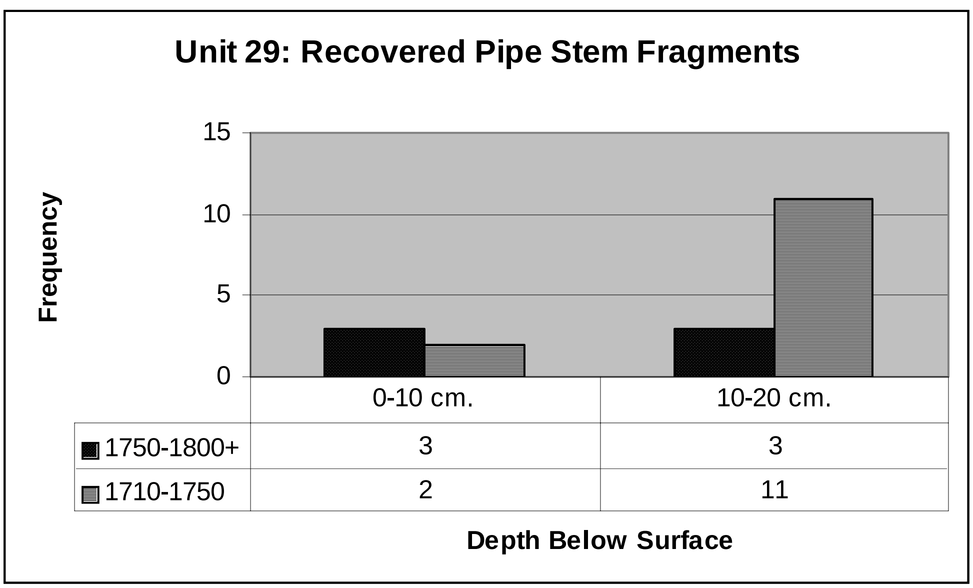
UNIT 29

RECOVERY: Unit 29 produced a total of 19 fragments with datable bores. Of these, six dated to the period 1750-1800+ while another 13 dated to a period from 1710 to 1750.

DATING: Fragments recovered from Unit 29 reveal a maximum possible occupational range from 1710 to 1800+ and an overall MPSD of 1752.79.

STRATIGRAPHY: Pipe stem fragments were recovered from Unit 29 in two arbitrary levels. These levels were excavated in increments of ten centimeters each (0-10 cm. and 10-20 cm.). Level 2 (10-20 cm.) returned the earliest MPSD at 1748.58 while level 1 (0-10 cm.) returned the latest MPSD at 1763.51.

STRATIGRAPHIC INTEGRITY: Unit 29 appears to have retained its stratigraphic integrity. This conclusion is based on the trend toward increasing mean dates as revealed through MPSDs. This conclusion is further supported by the overall decrease in pipe stem fragments dating from 1710 to 1750 as we move from level 2 to level 1.



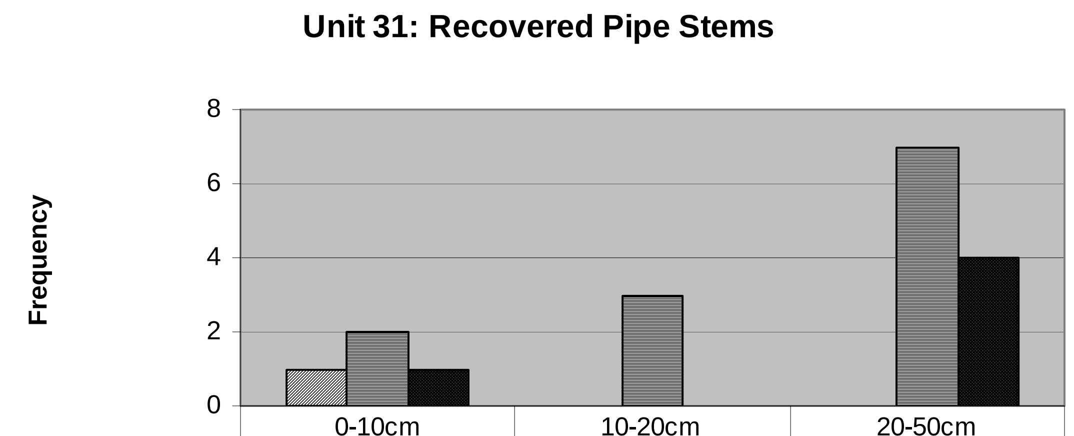
UNIT 31

RECOVERY: Unit 31 produced a total of 18 fragments with datable bores. Of these, five dated to a period from 1750 to 1800+ while another 12 dated to the period 1710-1750. One fragment dated to a period from 1680 to 1710.

DATING: Recovered fragments from Unit 31 reveal a maximum possible occupational range between 1680 and 1800+ and returned and overall MPSD of 1748.97.

STRATIGRAPHY: Pipe stem fragments were recovered from Unit 31 in six arbitrary levels. Four levels were excavated in an increment of 10 centimeters (0-10 cm., 10-20 cm., 20-30 cm. and 30-40 cm.). One level was excavated at an increment of 30 centimeters (20-50 cm.). Another level was excavated in an increment of 20 centimeters (30-50 cm.). For the sake of analysis, four overlapping levels were combined to create one level from 20 to 50 centimeters. As a result, level 3 (20-50 cm.) returned the latest MPSD at 1755.85 while both level 1 (0-10 cm.) and level 2 (10-20 cm.) returned an MPSD of 1740.55.

STRATIGRAPHIC INTEGRITY: Unit 31 does not appear stratigraphically intact. While recovered pipe stem fragments from the period 1710-1750 show a general decline through time, the presence of fragments dating from 1750 to 1800+ in the lowest level, their disappearance in level two and resurgence in level 1 contradict this trend. In addition, the presence of a fragment dating between 1680 and 1710 in the highest level and its absence in all lower levels further suggests that Unit 31 was subject to post-depositional disturbance.



	0-10cm	10-20cm	20-50cm
1680-1710	1	0	0
1710-1750	2	3	7
1750-1800+	1	0	4

UNIT 32

RECOVERY: Unit 32 produced one fragment with a datable bore. This fragment dated to a period from 1710 to 1750.

DATING: The recovered fragment from Unit 32 reveal a maximum occupational range between 1710-1750 and an overall MPSD of 1740.55.

STRATIGRAPHY: The sole fragment recovered from Unit 32 came from one arbitrary level. This level was excavated in an increment of 10 centimeters (0-10 cm.) and returned a MPSD of 1740.55.

STRATIGRAPHIC INTEGRITY: Attempts to assess this unit's stratigraphic integrity on the basis of recovered Kaolin pipe fragments alone proved inconclusive. Since only one fragment was recovered, and that fragment came from a single arbitrary level, we cannot assess the unit from a diachronic perspective until other artifact groups are included for analysis. Therefore, we cannot test the null hypothesis.

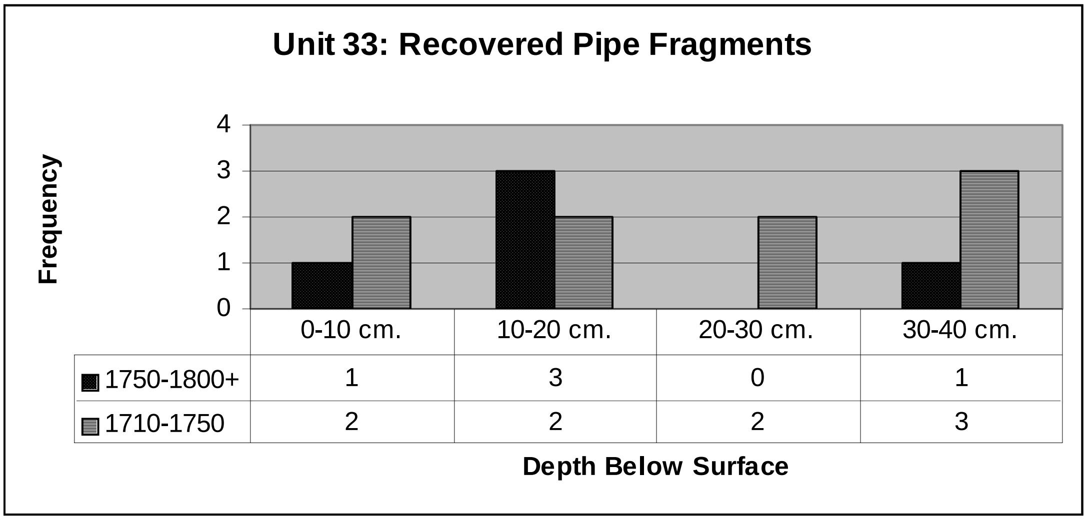
UNIT 33

RECOVERY: Unit 33 produced a total of 15 stem fragments with datable bores. Of these, five dated to the period 1750-1800+. An additional nine fragments dated from the period 1710-1750.

DATING: Recovered fragments from Unit 33 reveal a maximum possible occupation range from 1710 to 1800+ and an overall MPSD of 1729.45.

STRATIGRAPHY: Unit 33 was excavated in four arbitrary levels at increments of 10 centimeters each (0-10 cm., 10-20cm., 20-30 cm. and 30-40 cm.). Level 1 returned an MPSD of 1753.18. Level 2 returned the latest MPSD at 1763.51 while level 3 returned the earliest at 1740.55. Finally, level 4 returned an MPSD of 1750.12 making it chronologically older than level 1 but younger than both level 2 and level 3.

STRATIGRAPHIC INTEGRITY: The stratigraphic integrity of Unit 33 is doubtful. While the MPSDs returned for levels 1 and 4 conform to expectation, with level 4 being older than level 1, the returned MPSD for level 3 is earlier than that for level 1 and level 3's MPSDs are earlier than that of level 4. Thus, the alternating of older and younger MPSDs between levels suggests that Unit 33 has been subjected to some form of post-depositional disturbance.



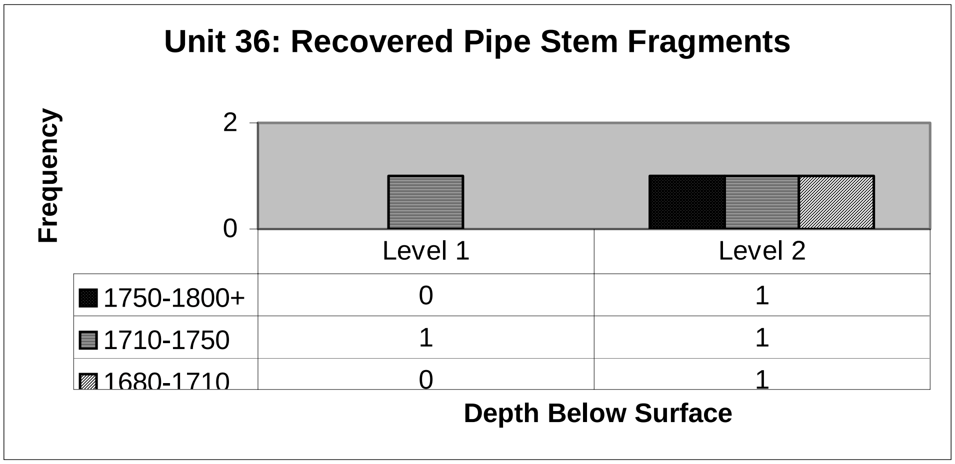
UNIT 36

RECOVERY: Unit 36 produced a total of four fragments with datable bores. Of these, one dated to the period 1750-1800+. Another two fragments dated from 1710 to 1750, and one fragment dated the period 1680-1710.

DATING: Recovered fragments from Unit 36 reveal a maximum possible range of occupation from 1750 to 1800+ and an overall MPSD of 1740.55.

STRATIGRAPHY: Pipe stem fragments were recovered from Unit 36 in three arbitrary levels, two of which overlap. Level 1 was excavated in an increment of ten centimeters (0-10 cm.) while level 2 was removed in a 15-centimeter increment (10-25 cm.) and level 3 was excavated in twenty centimeters (10-30 cm.). Due to their overlapping depths, levels 2 and 3 are combined for the sake of analysis. Both level 1 and 2 returned MPSDs of 1740.55.

STRATIGRAPHIC INTEGRITY: That both arbitrary levels returned identical MPSDs (1740.55) suggests that these levels do not reflect the site's stratigraphy. In addition, the presence of pipe stem fragments in level 2, each dating to three consecutive periods, and the absence of any fragments post-dating the period 1710-1750 in level 1 makes the unit's stratigraphic integrity doubtful.



UNIT 37

RECOVERY: Unit 37 produced a total of five pipe stem fragments with datable bores. Of these, two fragments dated to a period 1750-1800+ while another two dated to a period from 1710 to 1750, and one dated between 1680 and 1710.

DATING: Recovered fragments from Unit 37 reveal the maximum possible occupational range from 1680 to 1800+ and an overall MPSD of 1748.20.

STRATIGRAPHY: Unit 37 was excavated in one arbitrary level at an increment of 0-10 centimeters below surface, resulting in the MPSD cited above.

STRATIGRAPHIC INTEGRITY: Since material was removed from this unit in one arbitrary level, its stratigraphic integrity cannot be assessed.

UNIT 38

RECOVERY: Unit 38 produced a total of one pipe stem fragment with a datable bore. This fragment dated to a period between 1750 and 1800+.

DATING: Recovered fragments from Unit 38 reveal a maximum possible occupation period from 1750 to 1800+ and an overall MPSD of 1740.55.

STRATIGRAPHY: Unit 38 produced one pipe stem fragment in one level, excavated in a 5-centimeter increment (5-10 cm.). This fragment returned the MPSD cited above.

STRATIGRAPHIC INTEGRITY: Because the unit was excavated in one arbitrary level, it is not possible to assess the unit’s stratigraphic integrity through the analysis of pie stem fragments alone.

UNIT 40

RECOVERY: A total of seven pipe stem fragments with datable bores were recovered from Unit 40. All of these fragments dated from 1710 to 1750.

DATING: Recovered fragments from Unit 40 reveal a maximum possible occupational range between 1710 and 1750. The unit returned an MPSD of 1740.55.

STRATIGRAPHY: Pipe stem fragments were recovered from Unit 40 in two arbitrary levels. Both levels were excavated at an increment of 10 centimeters (10-20 cm. and 20-30 cm.). And both levels returned an MPSD of 1740.55.

STRATIGRAPHIC INTEGRITY: Since all recovered pipe stem fragments date to a period between 1710 and 1750, the unit's stratigraphic integrity cannot be assessed through the analysis of pipe stem fragments alone.

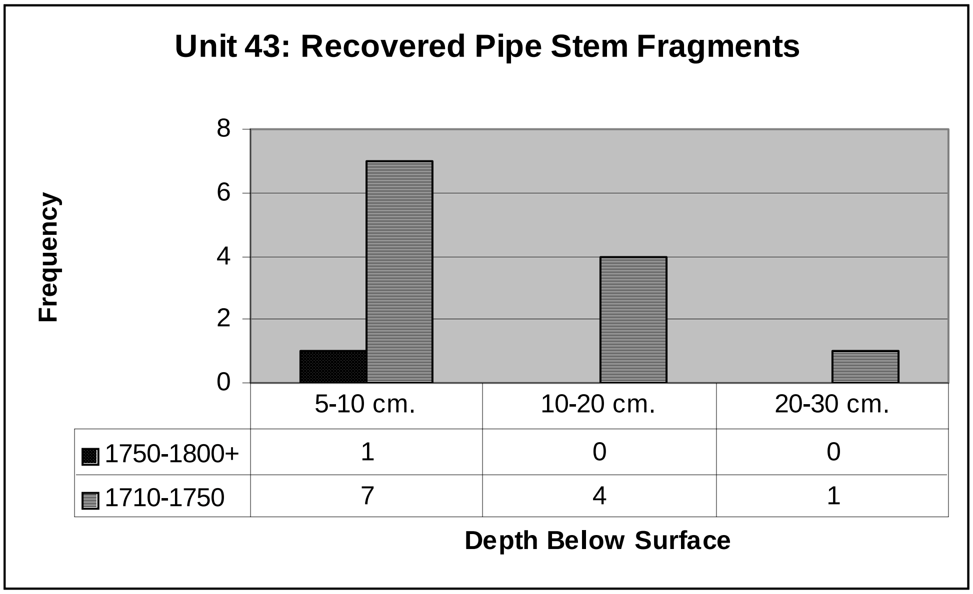
UNIT 43

RECOVERY: Unit 43 produced a total of 13 pipe stem fragments with datable bores. Of these, one dated to the period 1750-1800+ while the remaining 12 dated from 1710 to 1750.

DATING: Recovered fragments from Unit 43 reveal a maximum possible occupational range between 1710 and 1800+. This unit returned an overall MPSD of 1743.61.

STRATIGRAPHY: Pipe stem fragments were recovered from Unit 43 in three arbitrary levels. One level was excavated at an increment of five centimeters (5-10 cm.). While the remaining levels were excavated in increments of 10 centimeters each (10-20 cm. and 20-30 cm.). The deepest levels produced the oldest MPSD, each at 1740.55. The latest level (5-10 cm.) produced a later MPSD at 1745.14.

STRATIGRAPHIC INTEGRITY: While the arbitrary levels at which artifacts were removed from Unit 43 do not appear to reflect the unit's stratigraphy, the relative frequencies of between pipe stems dating to earlier and later periods suggests that the unit's stratigraphy may be intact. While the presence of a pipe stem dating between 1750 and 1800+ in a level equal to or higher than earlier fragments suggests this, perhaps the strongest evidence lies in its absence from the two earlier levels that underlying it.



UNIT 53

RECOVERY: Unit 53 produced a total of four fragments with datable bores. Three fragments dated to a period from 1750 to 1800+ while one remaining fragment dated to a period between 1710 and 1750.

DATING: Pipe stem fragments from Unit 53 returned a maximum possible range of occupation from 1710 to 1800+ and an over all MPSD of 1769.25.

STRATIGRAPHY: Pipe stem fragments were recovered from Unit 53 in one 10-centimeter arbitrary, level (0-10 cm.). This level returned the MPSD cited above.

STRATIGRAPHIC INTEGRITY: Because datable fragments were recovered in only one arbitrary level, the stratigraphic integrity of Unit 53 cannot be assessed through the analysis of kaolin pipe stems alone.

UNIT 46 & 55

RECOVERY: Units 46 and 55 produced a total of 10 fragments with datable bores. Of these, five dated to the period 1750-1800+ while the remaining five dated to the period 1710-1750.

DATING: Recovered pipe stem fragments from Units 46 and 55 reveal a maximum possible range of occupation from 1710 to 1800+ and an overall MPSD of 1759.68.

STRATIGRAPHY: Pipe stem fragments were recovered from Units 46 and 55 in one arbitrary level, excavated at an increment of 10 centimeters, from 0-10 centimeters below surface. This returned the MPSD cited above.

STRATIGRAPHIC INTEGRITY: Because datable fragments were recovered in only one arbitrary level, the stratigraphic integrity of Units 46 & 55 cannot be assessed through the analysis of kaolin pipe stems alone.

UNIT 47 - 49

RECOVERY: Units 47 - 49 produced a total of one fragment with a datable bore. This fragment dated to a period between 1710 and 1750.

DATING: The sole fragment recovered from Units 47 - 49 reveal a maximum possible occupational range between 1710 and 1750 and an MPSD of 1740.55.

STRATIGRAPHY: The only pipe stem fragment was recovered from Units 47 - 49 in one arbitrary level, excavated at an increment of five centimeters, from 0-5 centimeters below surface. This fragment returned the MPSD cited above.

STRATIGRAPHIC INTEGRITY: Due to the fact that only one fragment was recovered and it was recovered within one arbitrarily excavated level, the stratigraphic integrity of Units 47 - 49 cannot be assessed.

UNIT 50 & 59

RECOVERY: Units 50 and 59 produced a total of 10 fragments with datable bores. Of these, four dated to a period from 1750-1800+ while another six fragments dated to a period 1710-1750.

DATING: Recovered fragments from Units 50 and 59 reveal a maximum possible occupational range from 1710 to 1800+ and an overall MPSD of 1755.85.

STRATIGRAPHY: Pipe stem fragments were recovered from Units 50 and 59 in two arbitrary levels. The first level was removed in a 20-centimeter increment; from 10 to 30 centimeters below surface and returned an MPSD of 1752.03. The second level was removed in a 10-centimeter increment; from 30 to 40 centimeters below surface and returned an MPSD of 1759.68.

STRATIGRAPHIC INTEGRITY: Based on calculated MPSDs, the stratigraphic integrity of Units 50 and 59 appears doubtful. Since an earlier MPSD was returned in the more shallow of the layers and a later date was returned in the deeper of the two layers it is the exact opposite of what we would expect if the stratigraphy had remained intact. And while both dates are relatively close to each other, even if we assumed that they actually overlap, it would show that the stratigraphy of Units 50 and 59 could not be differentiated through the analysis of Kaolin pipe fragments alone.

UNIT 56 & 57

RECOVERY: Units 56 and 57 produced a total of one fragment; part of a pipe bowl and no datable stem fragments. Therefore, the stratigraphy and stratigraphic integrity of Units 56 and 57 could not be dated or assessed through the analysis of pipe stem fragments.

UNIT 67 & 68

RECOVERY: Units 67 and 68 produced a total of five fragments with datable bores, all of which dated to a period between 1710 and 1750.

DATING: Recovered fragments from Units 67 and 68 reveal a maximum possible occupational range between 1710 and 1750 and an overall MPSD of 1740.55.

STRATIGRAPHY: Pipe stem fragments were recovered from Units 67 and 68 in one arbitrary level, 10-centimeter increment from 0 to 10 centimeters below surface.

STRATIGRAPHIC INTEGRITY: Since only one arbitrary level of Units 67 and 68 produced pipe stem fragments, the stratigraphic integrity of these units cannot be assessed through this method of analysis.

SECTION III
RECOVERY OF KAOLIN PIPE FRAGMENTS: EXCAVATED FEATURES

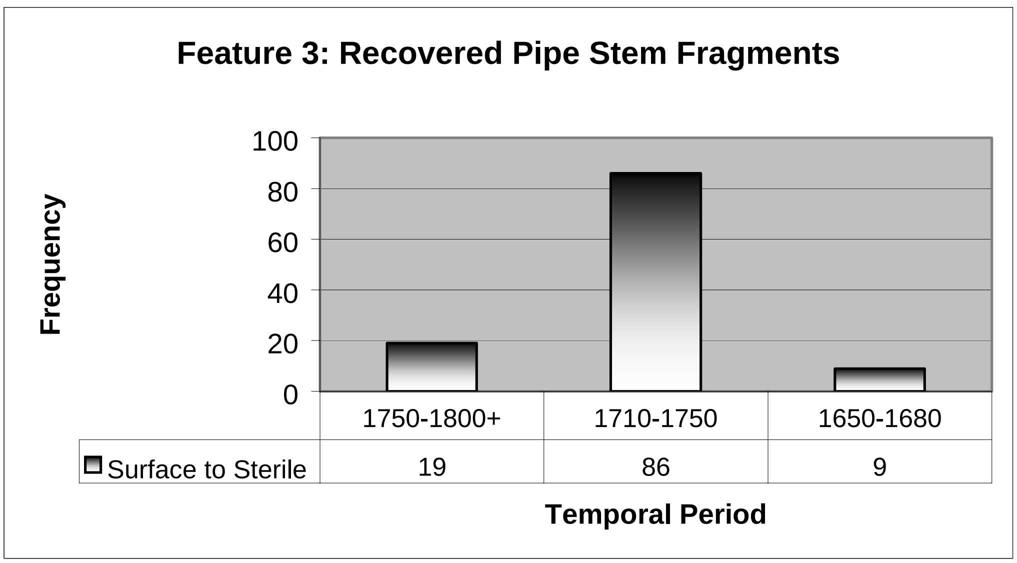
FEATURE 3

RECOVERY: Feature 3 produced a total of 114 pipe stem fragments with datable bores. Of these, 19 dated to a period from 1750 to 1800+. Eighty-six fragments dated to the period 1710-1750 while an additional nine dated between 1650 and 1680.

DATING: Recovered fragments from Feature 3 returned a maximum possible occupational range from 1650 to 1800+ and an overall MPSD of 1740.93.

STRATIGRAPHY: Feature 3 was excavated in one arbitrary level, from the surface to sterile.

STRATIGRAPHIC INTEGRITY: Because feature 3 was excavated in one arbitrary level, this recovery method prevents a diachronic analysis and assessment of stratigraphic integrity proves inconclusive.



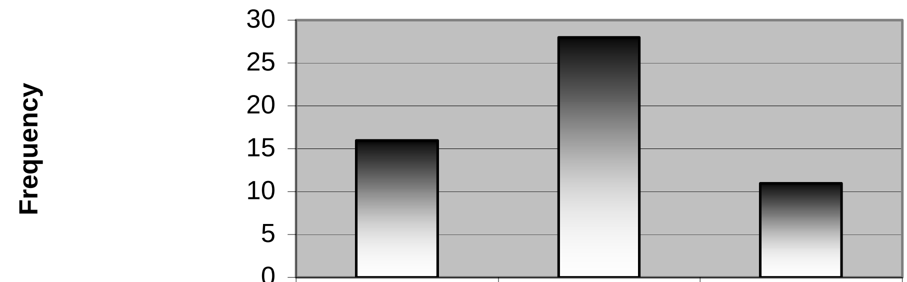
FEATURE 4

RECOVERY: Feature 4 produced a total of 55 fragments with datable bores. Of these, 16 fragments dated to a period from 1750 to 1800+. Twenty-eight fragments dated to a period between 1710 and 1750 while an additional 11 dated from 1680 to 1710.

DATING: Recovered fragments from Feature 4 reveal a maximum possible occupational range from 1680 to 1800+ and an overall MPSD of 1743.99.

STRATIGRAPHY: Feature 4 was excavated in one arbitrary level, from surface to sterile.

STRATIGRAPHIC INTEGRITY: Because feature 3 was excavated in one arbitrary level (from surface to sterile) this recovery method prevents analyzing this feature from a diachronic perspective. Thus, the assessment of stratigraphic integrity from pipe stem fragments alone is inconclusive.



	1750-1800+	1710-1750	1680-1710
Surface to Sterile	16	28	11

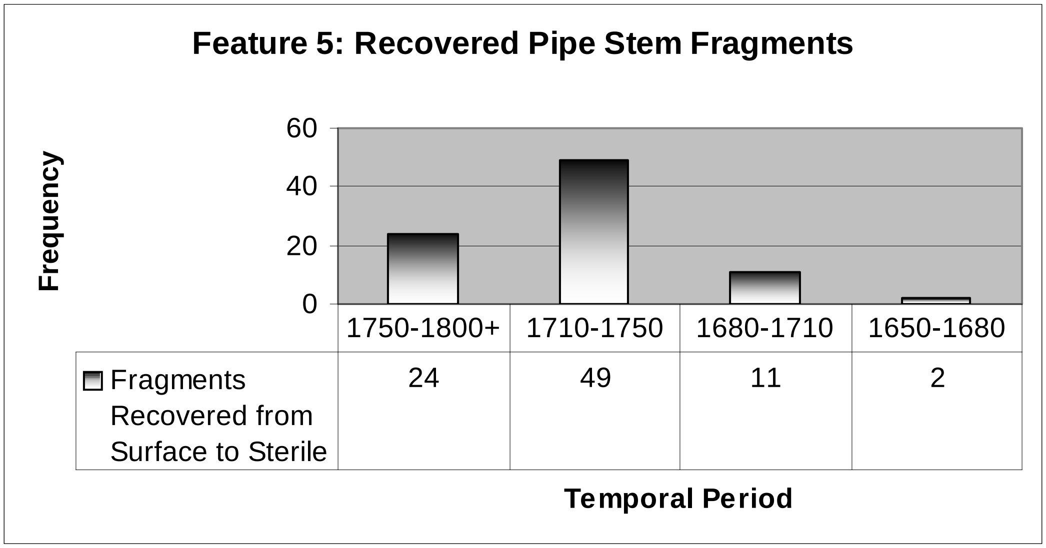
FEATURE 5

RECOVERY: Feature 5 produced a total of 86 fragments with datable bores. Of these, 24 fragments dated to the period 1750-1800+. 49 fragments dated between 1710 and 1750. An additional 11 fragments dated to a period from 1680 to 1710 while two more dated between 1650 and 1680.

DATING: Recovered fragments from Feature 5 reveal a maximum possible occupational range from 1680 to 1800+. Feature 5 returned an overall MPSD of 1744.38.

STRATIGRAPHY: Pipe stem fragments were recovered from Feature 5 in one arbitrary level; excavated from surface to sterile.

STRATIGRAPHIC INTEGRITY: Since Feature 5 was excavated in one arbitrary level (from surface to sterile) this recovery method prevents analyzing this feature from a diachronic perspective. Thus, the assessment of stratigraphic integrity from pipe stem fragments alone is inconclusive.



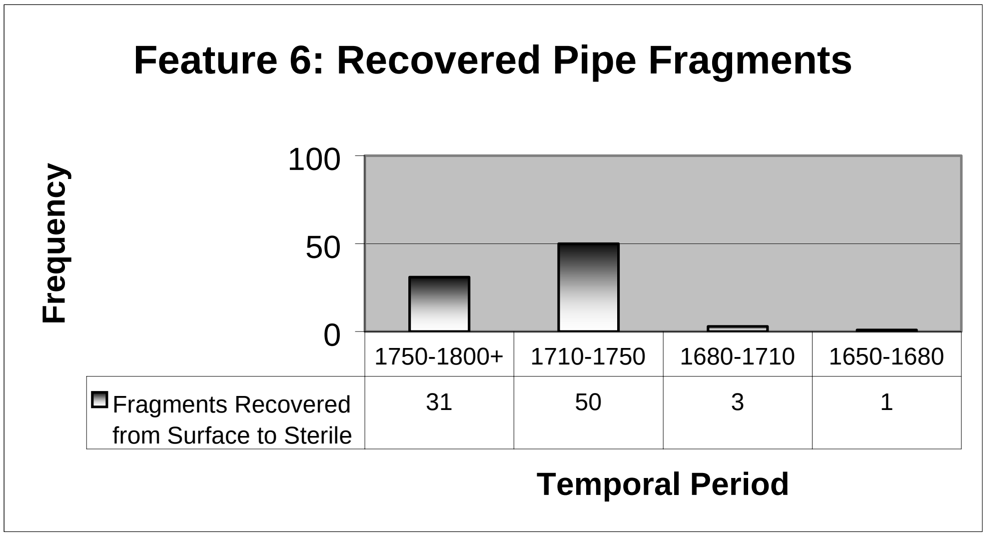
FEATURE 6

RECOVERY: Feature 6 produced a total of 85 fragments with datable bores. Of these fragments, 31 dated to a period from 1750 to 1800+. Another 50 fragments dated to the period 1710-1750. Three fragments dated to a period from 1680 to 1710. Only one fragment dated to a period between 1650 and 1680.

DATING: Recovered pipe fragments from Feature 6 reveal a maximum possible occupational range from 1650 to 1800+ and an overall MPSD of 1752.41.

STRATIGRAPHY: Pipe stem fragments were recovered from Feature 6 in one arbitrary level; excavated from surface to sterile.

STRATIGRAPHIC INTEGRITY: Because feature 6 was excavated in one arbitrary level, the assessment of stratigraphic integrity from pipe stem fragments alone proves inconclusive. This is due to the fact that the method of recovery prevents analyzing this feature from a diachronic perspective.



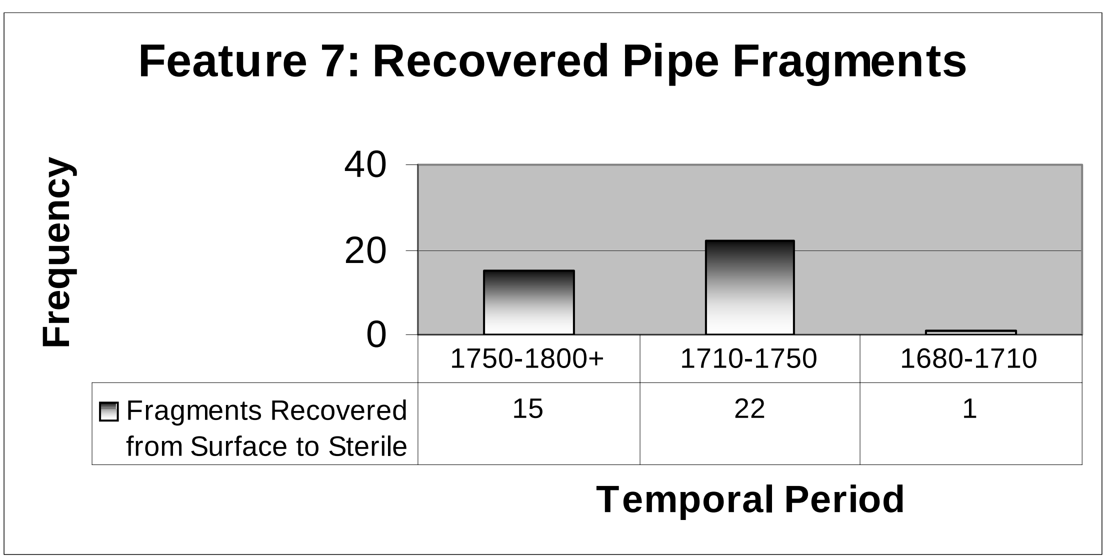
FEATURE 7

RECOVERY: Feature 7 produced a total of 39 pipe fragments with datable bores. Of these, 15 fragments dated to a period from 1750 to 1800+. An additional 22 fragments dated to a period from 1710 to 1750 and one fragment dated between 1680 and 1710.

DATING: Pipe fragments recovered from Feature 7 reveal a maximum possible occupational range from 1680 to 1800+ and returned an overall MPSD of 1754.71.

STRATIGRAPHY: Datable pipe fragments were recovered from Feature 7 in one arbitrary level; from the surface to sterile.

STRATIGRAPHIC INTEGRITY: Since Feature 7 was excavated in one arbitrary level; the assessment of stratigraphic integrity through the analysis of pipe fragments is inconclusive. This is due to the fact that this method of recovery prevents analysis from a diachronic perspective.



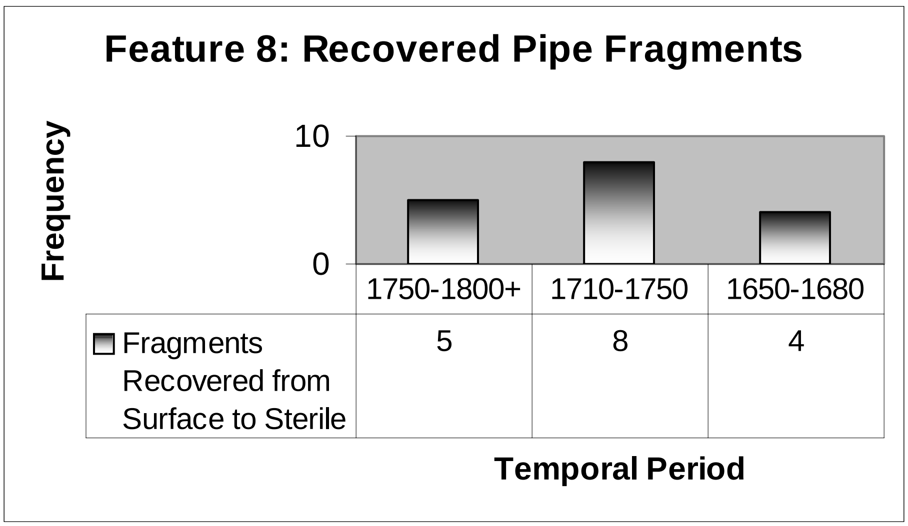
FEATURE 8

RECOVERY: Feature 8 produced a total of 19 fragments with datable bores. Of these, five fragments dated to a period from 1750 to 1800+. Another eight fragments dated to a period between 1710 and 1750. And four fragments dated to the period 1650-1680.

DATING: Recovered pipe fragments from Feature 8 reveal a maximum possible occupational range from 1710 to 1800+. These fragments returned an overall MPSD for Feature 8 of 1733.66.

STRATIGRAPHY: Datable pipe fragments were recovered from Feature 8 in one arbitrary level, from the surface to sterile.

STRATIGRAPHIC INTEGRITY: Since Feature 8 was excavated in one arbitrary level; the assessment of stratigraphic integrity through the analysis of pipe fragments is inconclusive. This is due to the fact that this method of recovery prevents analysis from a diachronic perspective.



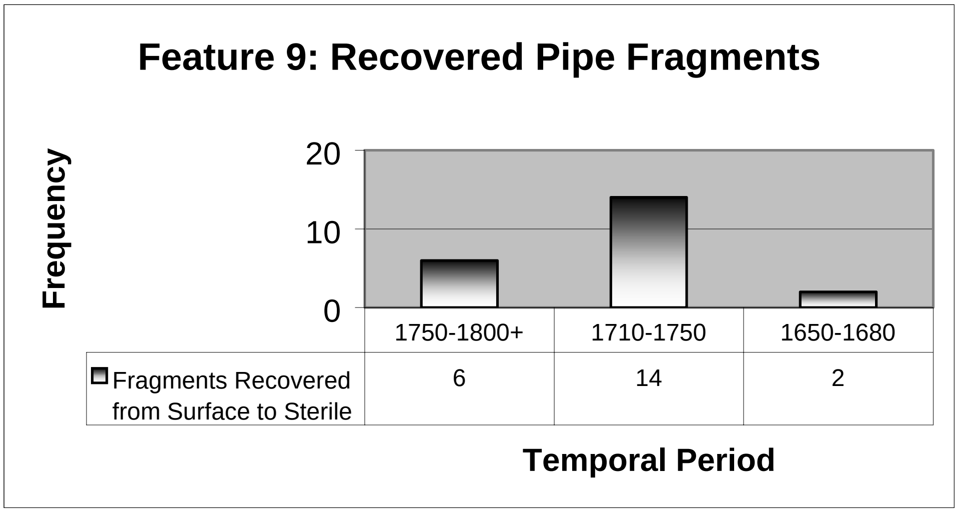
FEATURE 9

RECOVERY: Feature 9 produced a total of 22 pipe fragments with datable bores. Of these, six fragments dated to a period from 1750 to 1800+. Fourteen fragments dated to the period 1710-1750 while only two dated between 1650 and 1680.

DATING: Recovered pipe fragments from Feature 9 reveal a maximum possible occupational range from 1650 to 1800+ and an overall MPSD of 1743.99.

STRATIGRAPHY: Datable pipe fragments were recovered from Feature 9 in one arbitrary level, from the surface to sterile.

STRATIGRAPHIC INTEGRITY: Since Feature 9 was excavated in one arbitrary level (from surface to sterile) this recovery method prevents analyzing this feature from a diachronic perspective. Thus, the assessment of stratigraphic integrity from pipe stem fragments alone is inconclusive.



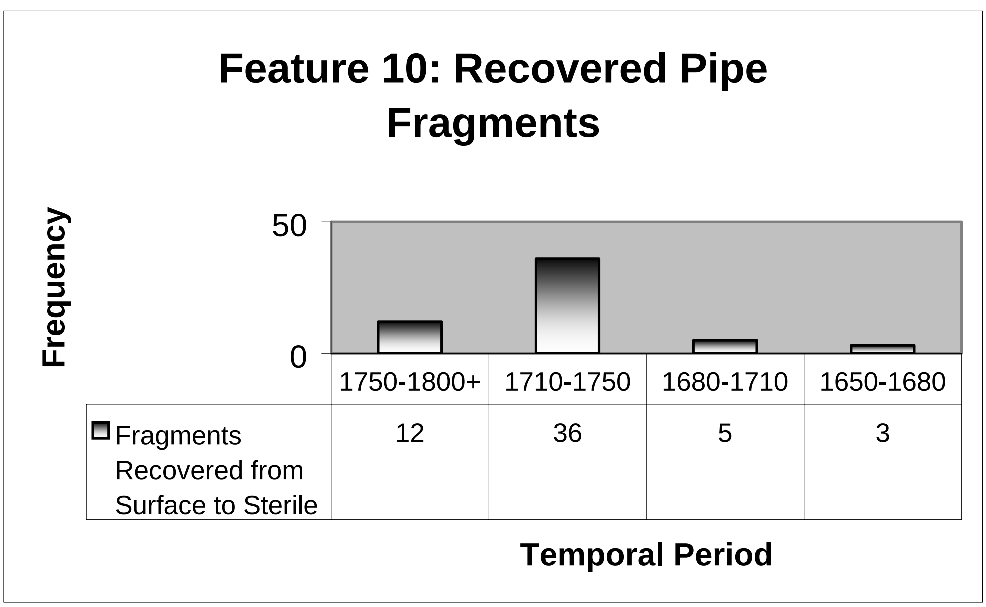
FEATURE 10

RECOVERY: Feature 10 produced a total of 56 fragments with datable bores. Of these, 12 fragments dated to the period 1750-1800+. Thirty-six fragments dated to a period from 1710 to 1750 while another five dated to the period 1680-1710 and three dated to a period between 1650 and 1680.

DATING: Fragments recovered from Feature 10 reveal a maximum possible occupational range between 1650 and 1800+ and an overall MPSD of 1741.32.

STRATIGRAPHY: Pipe stem fragments were recovered from Feature 10 in one arbitrary level, excavated from the surface to sterile.

STRATIGRAPHIC INTEGRITY: Because feature 10 was excavated in one arbitrary level, this recovery method prevents a diachronic analysis and assessment of stratigraphic integrity proves inconclusive.



FEATURE 13

RECOVERY: Feature 13 produced a total of eight pipe fragments with datable bores. Of these, seven fragments dated between 1710 and 1750. One additional fragment dated to the period 1650-1680.

DATING: Datable pipe fragments recovered from Feature 13 reveal a maximum possible occupational range from 1650 to 1750 and an overall MPSD of 1730.99.

STRATIGRAPHY: Datable pipe fragments were recovered from Feature 13 in one arbitrary level; from surface to sterile.

STRATIGRAPHIC INTEGRITY: Because Feature 13 was excavated in one arbitrary level, this recovery method prevents a diachronic analysis and the assessment of stratigraphic integrity proves inconclusive.

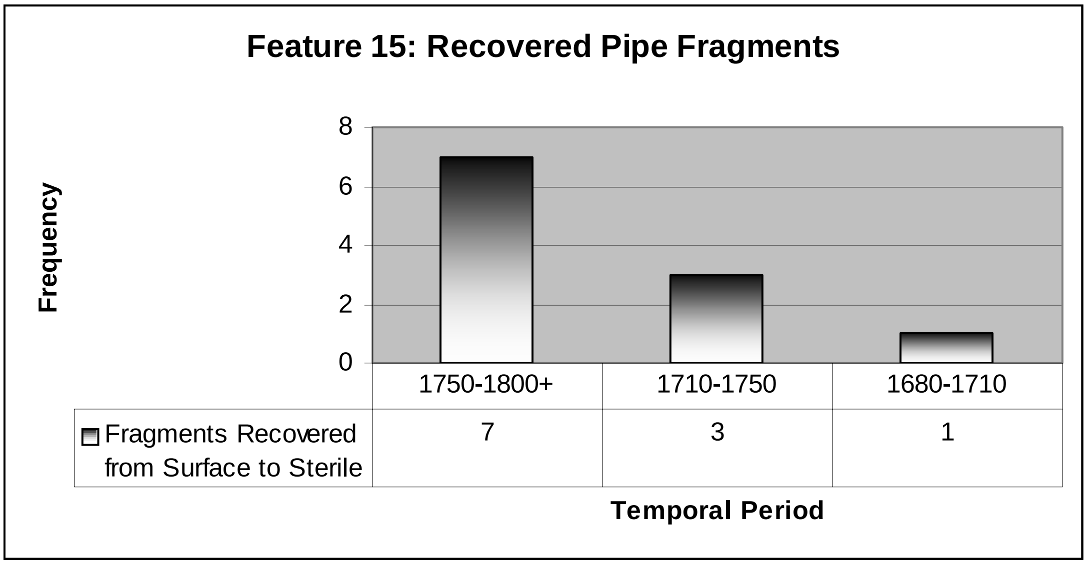
FEATURE 15

RECOVERY: A total of 11 pipe fragments with datable bores were recovered from Feature 15. Of these, seven fragments dated from 1750 to 1800+. Another three fragments dated to the period 1710-1750 while one additional fragments dated to a period between 1680 and 1710.

DATING: Pipe fragments recovered from Feature 15 reveal a maximum possible occupational range from 1680 to 1800+. These pipe fragments also returned an overall MPSD of 1761.59.

STRATIGRAPHY: Feature 15 was excavated in one arbitrary level, from surface to sterile.

STRATIGRAPHIC INTEGRITY: Because feature 15 was excavated in one arbitrary level, this recovery method prevents a diachronic analysis and assessment of stratigraphic integrity proves inconclusive.



	1750-1800+	1710-1750	1680-1710
Fragments Recovered from Surface to Sterile	7	3	1

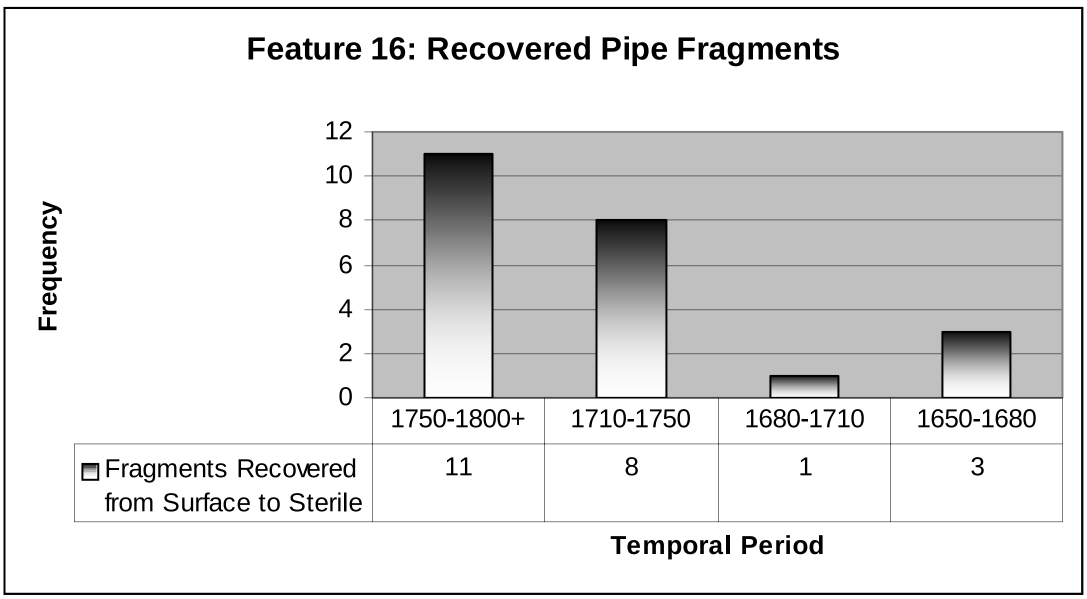
FEATURE 16

RECOVERY: Twenty-three pipe fragments with datable bores were recovered from Feature 16. Of these, 11 fragments dated to the period 1750-1800+. An additional eight fragments dated to a period from 1710 to 1750. One fragment dated between 1680 and 1710 while three more dated between 1650 and 1680.

DATING: Recovered fragments from Feature 16 reveal a maximum possible occupational range from 1650 to 1800+ and an overall MPSD of 1747.05.

STRATIGRAPHY: Pipe stem fragments were recovered from Feature 16 in one arbitrary level; excavated from the surface to sterile.

STRATIGRAPHIC INTEGRITY: Since this feature was excavated in one arbitrary level (from surface to sterile) attempts to assess its stratigraphic integrity from pipe stem fragments alone prove inconclusive. This recovery method prevents analyzing this feature from a diachronic perspective.



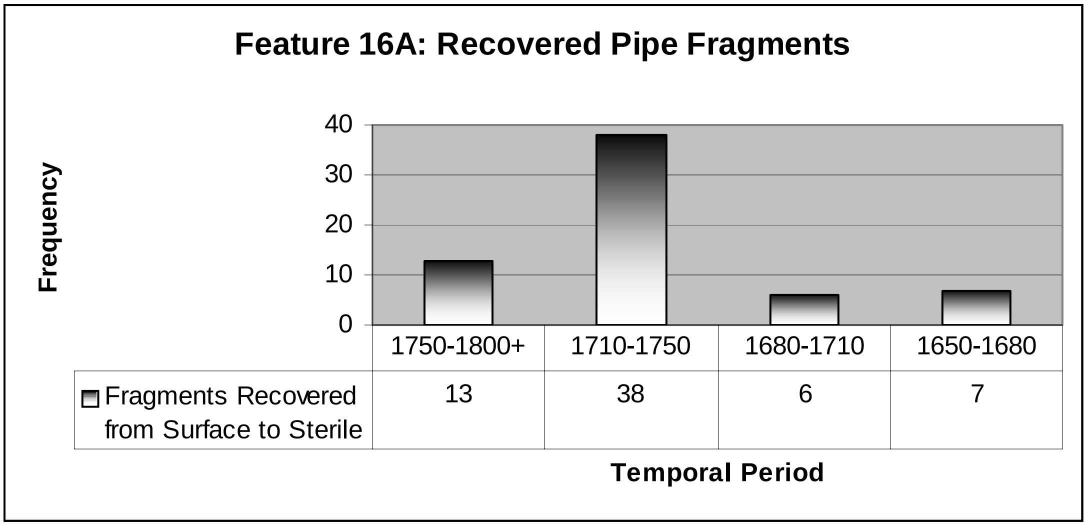
FEATURE 16A

RECOVERY: A total of 64 pipe fragments with datable bores were recovered from Feature 16A. Of these, 13 fragments dated from 1750 to 1800+. Thirty-eight fragments dated to the period 1710-1750. Another six fragments dated between 1680 and 1710 while an additional seven dated from 1650 to 1680.

DATING: Fragments recovered from Feature 16A reveal a maximum possible occupational range from 1650 to 1800+ and an overall MPSD of 1736.34.

STRATIGRAPHY: Datable pipe fragments were recovered from Feature 16A in one arbitrary level, from surface to sterile.

STRATIGRAPHIC INTEGRITY: Since this feature was excavated in one arbitrary level (from surface to sterile) attempts to assess its stratigraphic integrity from pipe stem fragments alone prove inconclusive. This recovery method prevents analyzing this feature from a diachronic perspective.



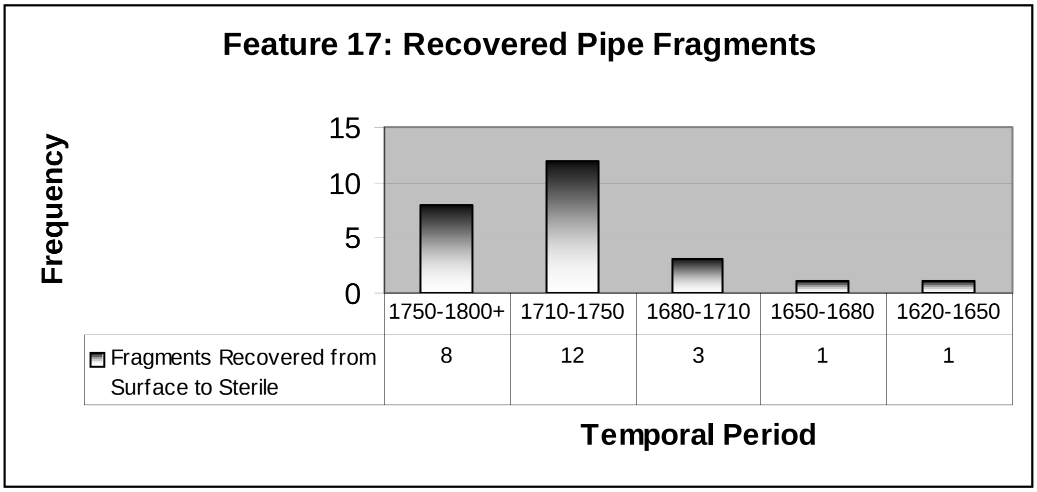
FEATURE 17

RECOVERY: Feature 17 produced to a total of 5 pipe fragments with datable bores. Of these, eight fragments dated to a period from 1750 to 1800+. Twelve fragments dated to a period between 1710 and 1750. Another three fragments dated to the period 1680-1710 while one dated between 1650 and 1680 and one fragment dated to a period from 1620 to 1650.

DATING: Recovered fragments from Feature 17 reveal a maximum possible occupational range between 1650 and 1800+ and returned an overall MPSD of 1740.55.

STRATIGRAPHY: Pipe fragments were recovered from Feature 17 in one arbitrary level; excavated from the surface to sterile.

STRATIGRAPHIC INTEGRITY: Since this feature was excavated in one arbitrary level, attempts to assess its stratigraphic integrity from pipe stem fragments alone prove inconclusive. Due to this recovery method, it is not possible to analyze this feature from a diachronic perspective.



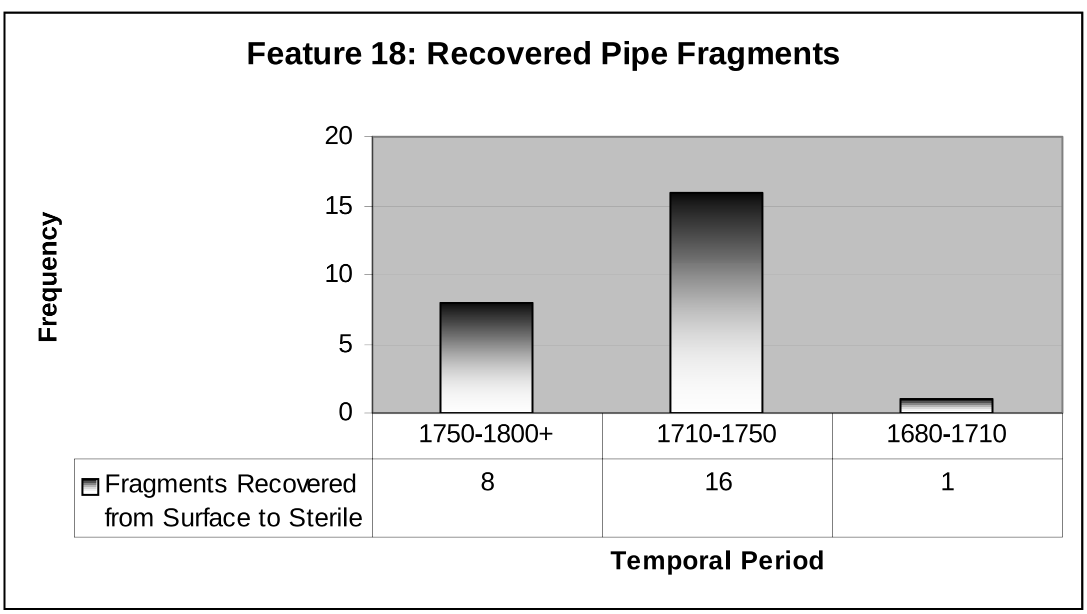
FEATURE 18

RECOVERY: Feature 18 produced a total of 25 fragments with datable bores. Of these, eight fragments dated to the period 1750-1800+. Another 16 fragments dated to a period from 1710 to 1750 while one additional fragment dated between 1680 and 1710.

DATING: Recovered fragments from Feature 18 reveal a maximum possible occupational range from 1680 to 1800+ and an overall MPSD of 1751.26.

STRATIGRAPHY: Datable pipe stem fragments were recovered from Feature 18 in one arbitrary level; excavated from the surface to sterile.

STRATIGRAPHIC INTEGRITY: Because Feature 18 was excavated in one arbitrary level (from surface to sterile) the method of recovery prevents a diachronic analysis. Therefore, the assessment of stratigraphic integrity based on pipe stem fragments alone proves inconclusive.



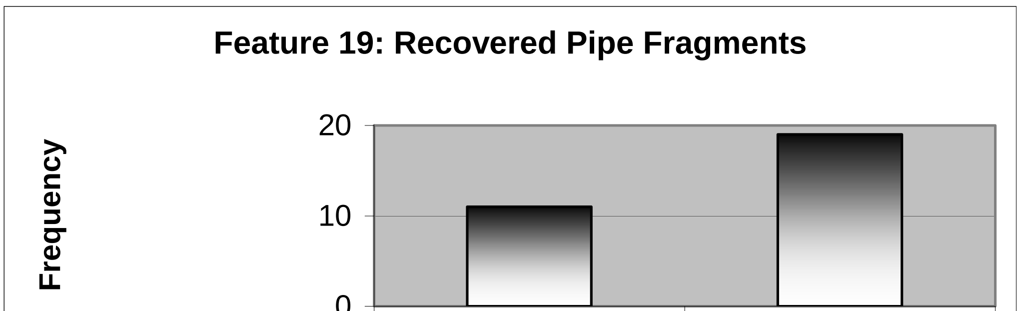
FEATURE 19

RECOVERY: Feature 19 produced a total of 30 fragments with datable bores. Of these, 11 fragments dated to the period 1750-1800+. Another 19 fragments dated to a period between 1710 and 1750.

DATING: Recovered fragments from Feature 19 reveal a maximum possible occupational range from 1710 to 1800+ and an MPSD of 1754.71.

STRATIGRAPHY: Pipe stem fragments were recovered from Feature 19 in one arbitrary level; excavated from surface to sterile.

STRATIGRAPHIC INTEGRITY: Because feature 19 was excavated in one arbitrary level (from surface to sterile) this recovery method prevents analyzing this feature from a diachronic perspective. Thus, the assessment of stratigraphic integrity from pipe stem fragments alone is inconclusive.



	1750-1800+	1710-1750
Fragments Recovered from Surface to Sterile	11	19

FEATURE 100 (FS 100)

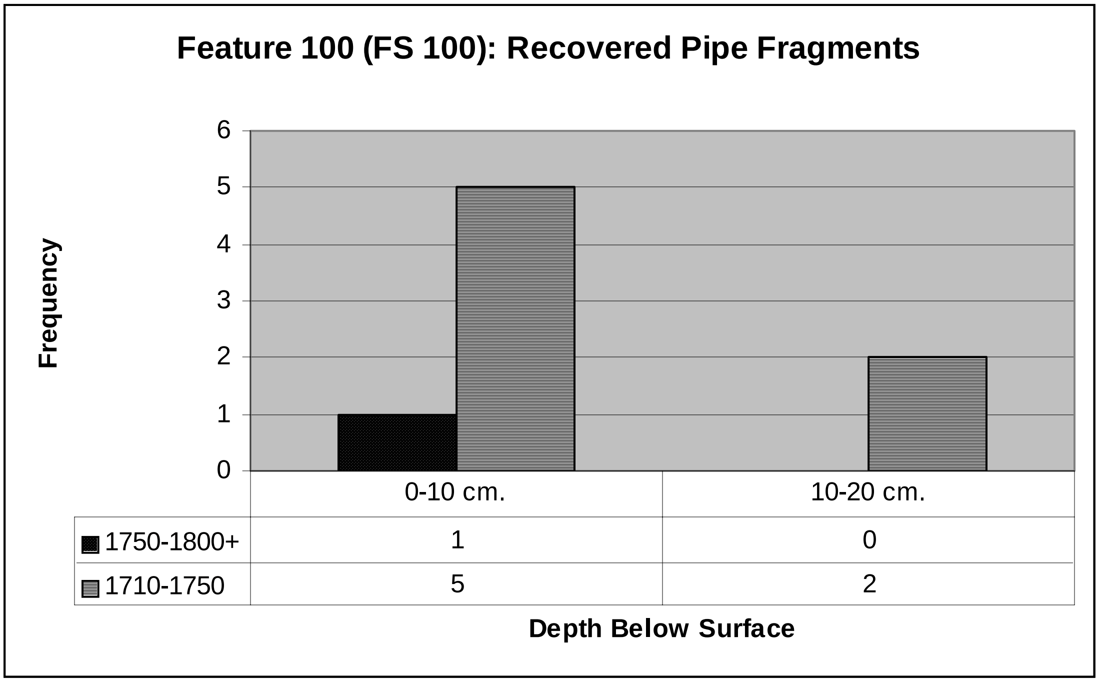
RECOVERY: Feature 100 (FS 100) produced a total of eight fragments with datable bores. Of these, two fragments dated to the period 1750-1800+ while another six fragments dated from 1710 to 1750.

DATING: Recovered fragments from Feature 100 (FS 100) reveal a maximum possible occupational range from 1710 to 1800+ and an overall MPSD of 1750.12.

STRATIGRAPHY: Pipe stem fragments were recovered from Feature 100 (FS 100) in two arbitrary levels; both excavated in 10-centimeter increments (0-10 and 10-20 cm.). Level 1 (0-10 cm.) returned the latest MPSD at 1747.05. Level 2 (10-20 cm.) produced the oldest MPSD of the two of 1740.55.

STRATIGRAPHIC INTEGRITY: Because Feature 100 (FS 100) was excavated in multiple levels we can compare the MPSDs of each level. Since the higher level returned a later date while an earlier date was returned from the strata below, we can assume that the feature has retained its

stratigraphic integrity. In addition, the absence of earlier fragments in the deeper of the two levels supports this conclusion.



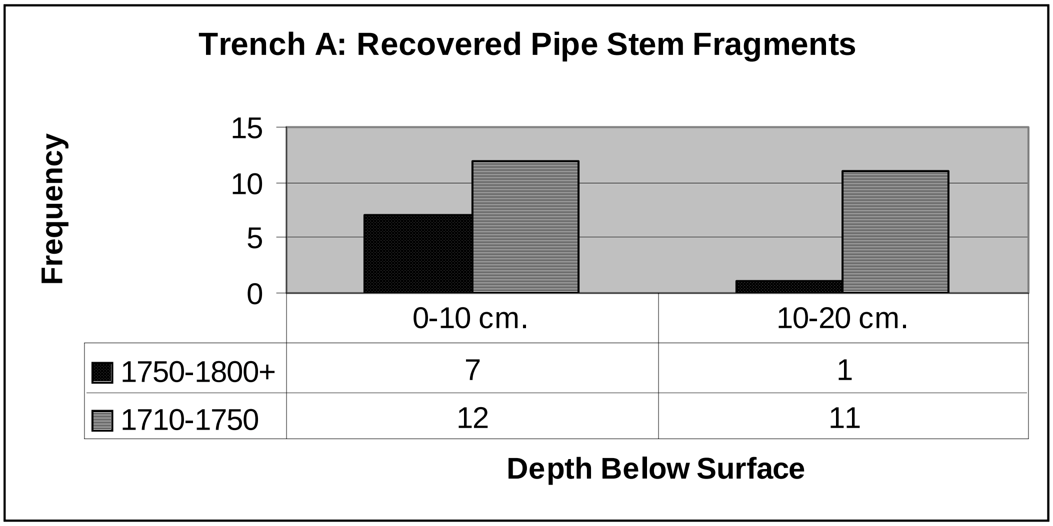
TRENCH A (Unit 0)

RECOVERY: Trench A produced a total of 31 pipe fragments with measurable bores. Of these, 8 fragments dated to the period 1750-1800+. An additional 23 fragments dated between 1710 and 1750.

DATING: Datable pipe fragments recovered from Trench A (Unit 0) reveal a maximum possible occupational range from 1710 to 1800+ with an overall MPSD of 1750.50.

STRATIGRAPHY: Pipe stem fragments with datable bores were recovered from Trench A (Unit 0) in two arbitrary levels; excavated in 10-centimeter increments each. The first level (0-10 cm.) produced seven fragments dating to the period 1750-1800+ with an additional 12 dating from 1710 to 1750. This level returned the later MPSD of the two at 1754.71. The second level (10-20 cm.) produced one pipe fragment dating to the period 1750-1800+ while eleven more fragments dated between 1710 and 1750. The second level returned the earliest MPSD at 1743.61.

STRATIGRAPHIC INTEGRITY: The increase in frequencies for pipe stems dating from the period 1750-1800+ from deeper to more shallow levels indicates that the stratigraphic integrity of Trench A (Unit 0) has remained intact. The frequency of pipe stems dating from the period 1710-1750 also increases. As both Harrington and Binford note, bore diameters are normally distributed, thus, there should be some natural overlap (Harrington 1978, Binford 1978).



TRENCH B

RECOVERY: Trench B produced a total of one fragment with a datable bore. This fragment dated to the period 1750-1800+.

DATING: The pipe fragment recovered from Trench B reveals a maximum possible occupational range from 1750 to 1800+ and an overall MPSD of 1778.81.

STRATIGRAPHY: The sole datable pipe fragment was recovered from Trench B in one arbitrary level; excavated from surface to ten centimeters below surface.

STRATIGRAPHIC INTEGRITY: Because Trench B produced only one pipe fragment with a datable bore, the assessment of Trench B's stratigraphic integrity proved inconclusive.

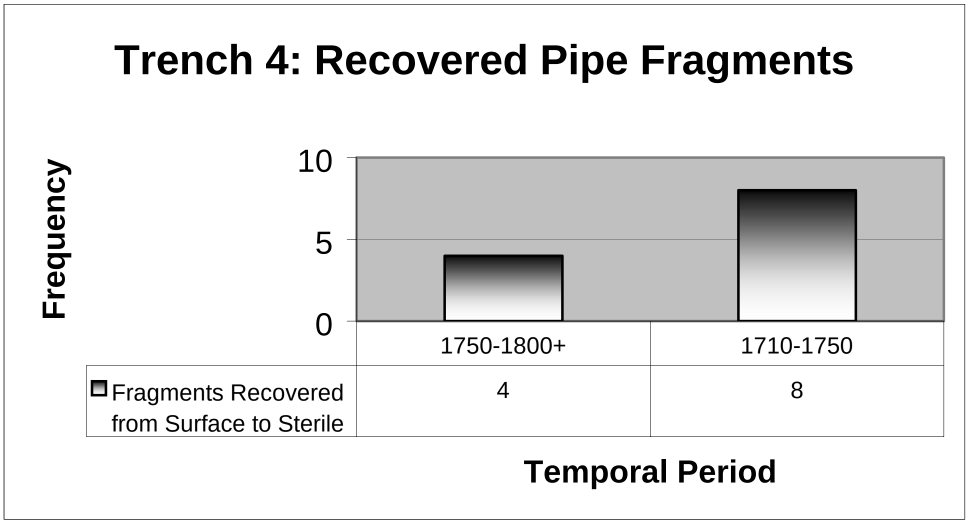
TRENCH 4

RECOVERY: Trench 4 produced a total of 12 fragments with datable bores. Of these, four dated to a period from 1750 to 1800+. An additional eight fragments date from 1710 to 1750.

DATING: Recovered fragments from Trench 4 reveal a maximum possible occupational range from 1710 to 1800+ and an overall MPSD of 1753.18.

STRATIGRAPHY: Trench 4 was excavated in one arbitrary level, from surface to sterile.

STRATIGRAPHIC INTEGRITY: Because Trench 4 was excavated in one arbitrary level; the assessment of its stratigraphic integrity from pipe stem fragments alone proves inconclusive. Due to this recovery method, it is not possible to analyzing this feature from a diachronic perspective.



FOOTPRINT OF HOUSE

RECOVERY: A total of six pipe fragments with datable bores were recovered from the Footprint of the House. Of these, three fragments dated to the period 1750-1800+. An additional three fragments dated between 1710 and 1750.

DATING: Datable pipe fragments recovered from the Footprint of the House reveal a maximum possible occupational range from 1710 to 1800+. These fragments also returned an overall MPSD of 1759.68.

STRATIGRAPHY: Datable pipe stem fragments were collected from the Footprint of the House at the surface.

STRATIGRAPHIC INTEGRITY: Since pipe fragments were collected on the surface they cannot be compared diachronically. Thus, efforts to assess the stratigraphic integrity of the Footprint of the House through the analysis of pipe fragments prove inconclusive.

SECTION IV
SUMMARY AND CONCLUSION

STRATIGRAPHIC ASSESSMENT: EXCAVATED UNITS

This report has shown how the analysis of Kaolin tobacco pipe stem fragments can be used in the initial assessment of an archaeological site's stratigraphic integrity. However, as stated earlier, care must be taken and as with any analysis that rests upon the use of only one class of archaeological artifact, it has its limitations. Due to small sample sizes, the skewing of dates toward earlier periods, and the degree of overlap in populations that are normally distributed, the real strength of pipe stems lie in their use in creating relative chronologies. As long as the criteria for outlined in Section II are met, then the comparison of one level's mean pipe stem date to another's will produce a reliable, if conservative, assessment of the extent to which the archaeological site in question has been disturbed.

The following table (Table 2) presents a summary of the preceding assessment of stratigraphy based on datable Kaolin pipe stem fragments. The table subdivided by excavated unit and level and presents this report's findings in the following six areas: MPSDs by level, MPSDs by unit, Estimated Maximum Occupational Ranges (O.R.) by unit, and Assessment of Stratigraphy by unit. Excavated depths below surface are shown for each unit. In some cases, these have been combined due to overlapping depth.

Next, MPSDs by level are shown in sequence with those levels whose results appear out of chronological sequence highlighted in bold. Returned MPSDs by level ranged from as early as 1721.42 to as late as 1778.81. Overall, the average MPSD was 1746.63.

Then, table 2 lists an estimated maximum possible occupational range for each unit. These estimates range from as broad as from 1680 to 1800+ to as narrowly as 1710 to 1750. By far the mode, or most common estimated range, was from 1710 to 1800+; a span of over 90 years.

Finally, the table presents an assessment of the unit's stratigraphic integrity based on both mean pipe stem dates and relative frequencies of pipe stem fragments. These assessments are broken down into three possibilities: Intact, Questionable, and Indeterminate. Intact units are those whose sequence of MPSDs and relative frequencies appear to progress chronologically as one moves from deeper layers toward the surface. Questionable units consist of those whose chronological sequence does not move progressively through time from one layer to the next as one moves toward the surface. In this case, those layers that appear to defy the overall trend are highlighted in bold. Finally, units whose stratigraphic integrity appears indeterminate are those that do not meet the first two criteria for assessment outlined in the method and hypothesis testing section of this report. Namely, they either did not produce stem fragments from more than one level or recovered fragments represented only one bore size. In total, only six units were deemed stratigraphically intact, 12 were deemed questionable, and 13 were indeterminate.

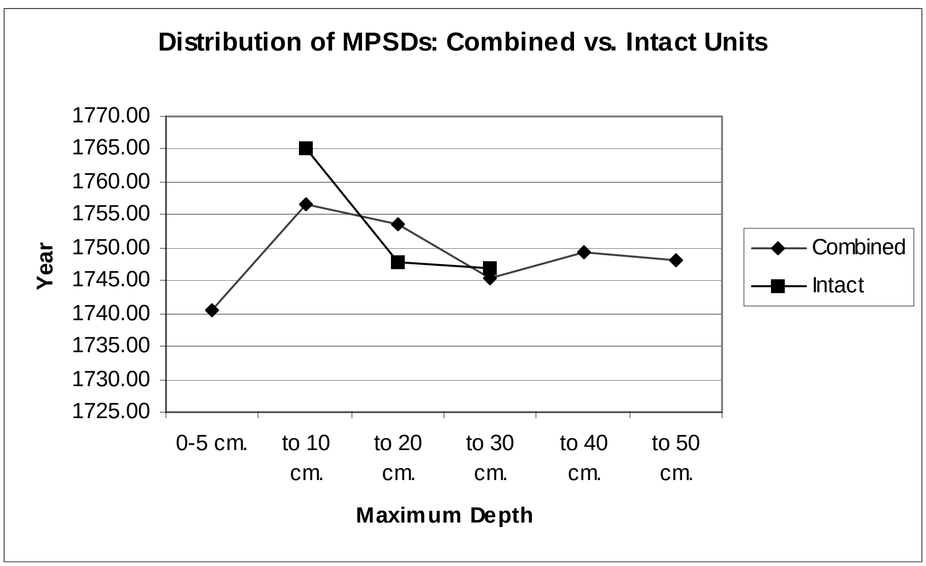
Table 2: Stratigraphic Assessment of Excavated Units

Unit	Depth (below surface)	Level M.P.S.D.	Unit M.P.S.D.	Estimated Max O.R.	Assessment of Stratigraphy
1			1753.18	1710-1800+	Intact
	0-10 cm	1778.81			
	10-20 cm	1750.12			
	20-30 cm	1740.55			
2			1755.47	1710-1800+	Questionable
	0-10 cm	1763.51			
	10-20 cm	**1740.55**			
	20-30 cm	1759.68			
	30-40 cm	1755.85			
	40-50 cm	1740.55			
3			1759.68	1710-1800+	Intact
	0-10 cm	1769.25			
	10-30 cm	1753.18			
4			1770.39	1710-1800+	Questionable
	0-10 cm	1769.25			
	10-20 cm	**1778.81**			
	30-40 cm	1740.55			
5			1757	1710-1800+	Questionable
	0-10 cm	**1740.55**			
	10-20 cm	1759.68			
	20-30 cm	1757.00			
6			1766.18	1710-1800+	Intact
	10-20 cm	1778.81			
	20-30 cm	1740.55			
7			1740.55	1710-1750	Questionable
	0-10 cm	1740.55			
	20-30 cm	1740.55			
8			1740.55	1710-1750	Questionable
	0-10 cm	1740.55			
	10-20 cm	1740.55			
9			1740.55	1710-1750	Indeterminate
	20-30 cm	1740.55			
11			1763.51	1710-1800+	Questionable
	0-10 cm	1763.51			
	10-30 cm	1744.38			
14			1761.98	1710-1800+	Indeterminate
	0-10 cm	1761.98			
16			1759.68	1710-1800+	Questionable
	0-10 cm	**1740.55**			
	10-20 cm	1778.81			
17			1750.12	1710-1800+	Questionable
	0-10 cm	1750.12			
	10-20 cm	1755.85			
	20-40 cm	1740.55			
20			1748.58	1680-1800+	Questionable
	0-10 cm	1732.90			
	10-30 cm	1752.03			

22			1753.18	1680-1800+	Intact
	0-10 cm	1769.25			
	10-20 cm	1721.42			
24			1778.81	1750-1800+	Indeterminate
	0-10 cm	1778.81			
26			1740.55	1710-1750	Indeterminate
	0-20 cm	1740.55			
	20-30 cm	1740.55			
29			1752.79	1710-1800+	Intact
	0-10 cm	1763.51			
	10-20 cm	1748.58			
31			1748.97	1680-1800+	Questionable
	0-10 cm	1740.55			
	10-20 cm	1740.55			
	20-50 cm	1755.85			
32			1740.55	1710-1750	Indeterminate
	0-10 cm	1740.55			
33			1729.45	1710-1800+	Questionable
	0-10 cm	**1753.18**			
	10-20 cm	1763.51			
	20-30 cm	**1740.55**			
	30-40 cm	1750.12			
36			1740.55	1750-1800+	Indeterminate
	0-10 cm	1740.55			
	10-30 cm	1740.55			
37			1748.2	1680-1800+	Indeterminate
	0-10 cm	1748.20			
38			1740.55	1750-1800+	Indeterminate
	5-10 cm	1740.55			
40			1740.55	1710-1750	Indeterminate
	10-20 cm	1740.55			
	20-30 cm	1740.55			
43			1743.61	1710-1800+	Intact
	5-10 cm	1745.14			
	10-20 cm	1740.55			
	20-30 cm	1740.55			
53			1769.25	1710-1800+	Indeterminate
	0-10 cm	1769.25			
46&55			1759.68	1710-1800+	Indeterminate
	0-10 cm	1759.68			
47-49			1740.55	1710-1750	Indeterminate
	0-5 cm	1740.55			
50&59			1755.85	1710-1800+	Questionable
	10-30 cm	**1752.03**			
	30-40 cm	1759.68			
67&68			1740.55	1710-1750	Indeterminate
	0-10 cm	1740.55			

MEAN PIPE STEM DATES BY LEVEL

The overall average MPSD and minimum and maximum MPSD range per level is as follows. From 0 to 5 centimeters below surface the mean MPSD was 1740.55. Since pipe stems were recovered from only one unit excavated from 0-10 centimeters below surface, the minimum and maximum are the same as the mean. The arbitrary level 0-10 centimeters below surface returned a mean MPSD of 1755.93 with a minimum of 1732.90 and maximum of 1778.81. Pipe stem fragments were recovered from only one unit excavated at a depth of 0-20 centimeters below surface. This unit returned a mean, minimum, and maximum MPSD of 1740.55. The level 5-10 centimeters below surface returned a mean MPSD of 1742.85 and ranged from 1740.55 to 1745.14. Units with levels excavated from 10 to 20 centimeters below surface returned a mean MPSD of 1752.74. They also returned a minimum and maximum of 1721.42 and 1778.81, respectively. The level 10-30 centimeters below surface returned a mean MPSD of 1747.67 and ranged from 1740.55 to 1753.18. A mean MPSD of 1744.11 was returned for the level excavated from 20 to 30 centimeters below surface with a minimum of 1740.55 and maximum of 1759.68. The levels 20-40 and 20-50 returned a mean, minimum, and maximum MPSD of 1740.55 and 1755.85 each. At a depth of 30 to 40 centimeters below surface, the overall MPSD was 1751.55 and ranged from 1740.55 to 1759.68. Finally, a unit excavated from 40 to 50 centimeters below surface returned a mean, minimum, and maximum MPSD of 1740.55.



The graph above shows the distribution of MPSDs by depth below surface. The first series represents the mean MPSD of each level when all units are combined regardless of whether their stratigraphic integrity was assessed as being intact, questionable, or indeterminate. This is contrasted with the second series, representing mean MPSDs from only those units assessed as intact.

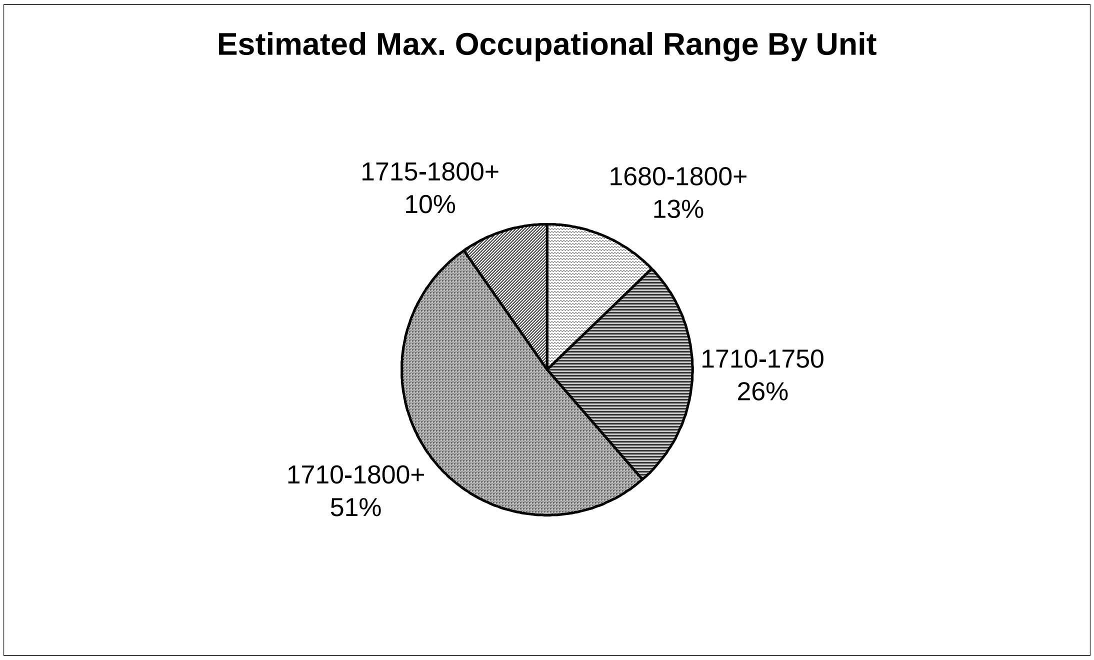
While the combined series shows mean MPSDs through the entire range of arbitrary levels, the trend of chronological increase from one level to the next is more erratic. From 50 to 40 centimeters below surface we see a slight increase. Again, from 30 to 10 centimeters below surface there is an even more marked increase. However, there are chronological decreases between 40 and 30 and between 10 and the surface that reflect the inclusion of units with questionable stratigraphy.

By contrast, the series composed only of those units whose stratigraphy was deemed intact shows only a positive. And while this series covers only a limited range of arbitrary levels, its positive growth toward the surface more accurately reflects the site's original stratigraphy.

ESTIMATED MAXIMUM OCCUPATIONAL RANGE

In addition to mean pipe stem dates for each level and excavated unit, an estimated maximum possible occupational range (Max. OR) was calculated. Of these, by far the most numerous Max. OR was from 1710 to 1800+, at 51 percent of excavated units. Next, at 26 percent, were units with an estimated Max. OR from 1710 to 1750. Next in popularity were units that ranged from 1680 to 1800+ at 13 percent, closely followed by units with a range from 1715 to 1800+ at 10 percent.

As stated above, 51 percent of excavated units returned estimated Max. Ors from 1710 to 1800+, a range of over 90 years. However, the longest possible span was from 1680 to 1800+, over 120 years represented only 13 percent of excavated units. The third largest possible time, 85 years from 1715 to 1800+ represented only 10 percent of excavated units while 26 percent of excavated units had a 40 year span, the least, from 1710 to 1750.



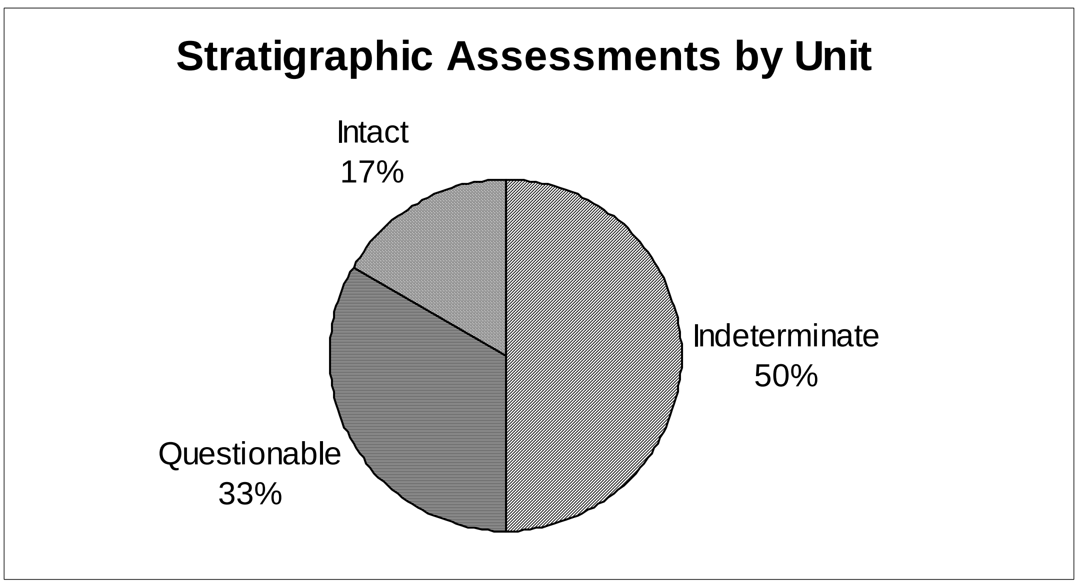
STRATIGRAPHIC ASSESSMENT

As introduced in section II, the ultimate aim of this analysis is to offer a preliminary assessment of stratigraphic integrity for excavated units at 38CH1049, the Pritchard Shipyard site. To do this, the following criteria must be met. First, tobacco pipe stem fragments with datable bores must be recovered from more than one arbitrary level. Second, recovered pipe stems must include examples of more than one bore diameter. Any sample failing to meet both of these criteria will result in an indeterminate result. The stratigraphy of the unit in question may well be intact;

however, determining its stratigraphic integrity will need to include the analysis of other artifact classes.

Excavated units are deemed stratigraphically questionable when it is determined that the dates for each arbitrary level are out of chronological sequence. This results when the returned MPSDs for each unit do not increase chronologically as they move from lower to higher levels. In some cases the deviation may be isolated to only one level with the levels above and below progressing in chronological order. In cases such as these, the unit is still deemed stratigraphically questionable, however this level may reflect some form of limited disturbance and should be investigated further.

Units deemed stratigraphically intact are those that meet the two criteria discussed above and show a chronological increase from lower to higher levels. In addition, frequencies of stem fragments with different bore sizes should appear to conform to a normal distribution relative to each other with one bore size giving way as another takes its place and so on. Newer fragments that appear in deep levels, then disappear, only to reappear again in higher levels or older fragments suddenly appearing in shallow levels makes the unit's stratigraphy suspect.



The graph above summarizes the assessment of stratigraphic integrity for excavated units. From a total of 36 excavated units producing datable pipe stem fragments the majority, 50 percent or 18 units, did not meet the criteria needed to assess their stratigraphic integrity. The second largest group, 12 units, approximately 33 percent of the sample, were deemed questionable due to erratic mean pipe stem dates and or bore sizes. The remainder, 6 units, approximately 17 percent, were deemed stratigraphically intact.

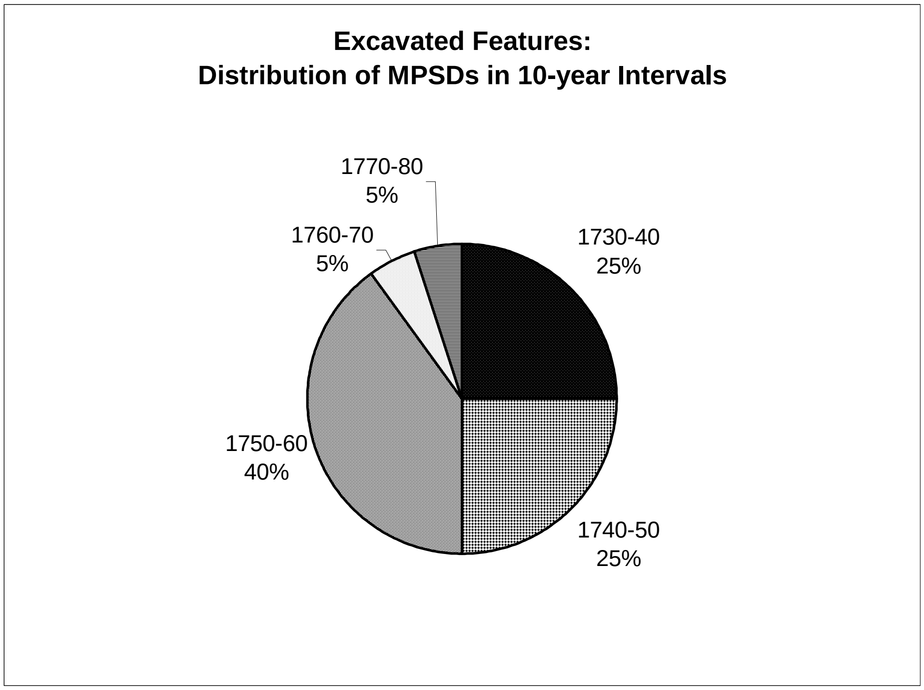
EXCAVATED FEATURES

Although the stratigraphic integrity of excavated features cannot be assessed due to their removal in one arbitrary level, from surface to sterile, overall MPSDs and estimated maximum occupational ranges can be assigned. Table 3 below summarizes the analysis of Kaolin pipe stems recovered from excavated features.

Table 3: Stratigraphic Assessment of Features

Unit	Depth (below surface)	Feature M.P.S.D.	Estimated Max O.R.	Assessment of Stratigraphy
Feature 3	surface to sterile	1740.93	1650-1800+	Indeterminate
Feature 4	surface to sterile	1743.99	1680-1800+	Indeterminate
Feature 5	surface to sterile	1744.38	1680-1800+	Indeterminate
Feature 6	surface to sterile	1752.41	1650-1800+	Indeterminate
Feature 7	surface to sterile	1754.71	1680-1800+	Indeterminate
Feature 8	surface to sterile	1733.66	1710-1800+	Indeterminate
Feature 9	surface to sterile	1743.99	1650-1800+	Indeterminate
Feature 10	surface to sterile	1741.32	1650-1800+	Indeterminate
Feature 13	surface to sterile	1730.99	1650-1750	Indeterminate
Feature 15	surface to sterile	1761.59	1680-1800+	Indeterminate
Feature 16	surface to sterile	1747.05	1650-1800+	Indeterminate
Feature 16A	surface to sterile	1736.34	1650-1800+	Indeterminate
Feature 17	surface to sterile	1740.55	1650-1800+	Indeterminate
Feature 18	surface to sterile	1751.26	1680-1800+	Indeterminate
Feature 19	surface to sterile	1754.71	1710-1800+	Indeterminate
Feature100	surface to sterile	1750.5	1750-1800+	Indeterminate
Trench A	surface to sterile	1750.5	1710-1800+	Indeterminate
Trench B	surface to sterile	1778.81	1750-1800+	Indeterminate
Trench 4	surface to sterile	1753.18	1710-1800+	Indeterminate
foot print hou.	surface to sterile	1759.68	1710-1800+	Indeterminate

On average, returned MPSDs for excavated features ranged from as early as 1730.99 to as late as 1778.81 with a mean date of 1748.53. In addition, the estimated maximum possible occupational ranges spanned from as small as 1750-1800+ to as large as 1650-1800+ with a mode of 1650-1800+. The graph below shows the percentage distribution of MPSDs for excavated features in 10-year intervals.



As shown in the graph above, the greatest percentage of features dates between 1750 and 1760 at 40 percent. The next greatest percentage is divided between 1730-1740 and 1740-1750 at 25 percent each. The smallest percentage of MPSDs fall between 1760-1770 and 1770-1780 at 5 percent each. When the three greatest percentile groups are combined, 90 percent of feature MPSDs fall between 1730 and 1760 while only 10 percent fall after 1760.

While Kaolin tobacco pipes offer limited results when used to derive absolute dates for excavated levels, they prove considerably more effective when analyzing archaeological features. Perhaps of greatest interest in the case of Pritchard's Shipyard site is the fact that the majority of features returned mean pipe stem dates that fell between 1730 and 1760, a 30-year period prior to the to the appearance of the shipyard's most notable vessels in the press. Of this period, 50 percent of the total features in which pipe stem fragments were recovered returned dates at the lower end (from 1730 to 1750). This suggests that this period may have been a high point in activity at the shipyard. And while any one of these features may have been created during this period or even afterward, depending upon their relationship to the site's strata, the date of the material deposited strongly suggests this is the case. Ultimately, while pipe fragments offer a preliminary assessment of the site's stratigraphic integrity and the probable dates for its features, a more thorough picture of Pritchard's Shipyard will only emerge when the analysis of Kaolin tobacco pipes are integrated with the analysis of other artifact classes.

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SECTION V
APPENDICES

APPENDIX A

Data Management Methods

Information on provenance, measurement, and analysis was put into *Microsoft Excel*. Data sheets (see appendix *Sheet 1, pages 1-29*) included the following columns: *Unit*, *Quadrant*, *Level*, *Bowl Frag*, *Stem Frag*, *Length mm*., *Width mm*., *Bore /64"*, *Date Range*, and *Weight g*.

A. **Unit:** This field includes the unit as labeled on each bag. The majority are single units, however, some comprise a combination of more than one. These measurements are recorded as ordinal scale variables.

B. **Quadrant:** This field includes the quadrant of each unit as labeled on each bag. The majority are by cardinal direction. However, some are designated as *tr*. (This refers to a trench). These measurements are recorded as nominal scale variables.

C. **Level:** This field is recorded in arbitrary levels. Most are in 10 centimeter increments. However, a significant portion are recorded as *s-s* (surface to sterile) and some are recorded in increments as small as 5 and as large as 20 cm. These measurements are recorded as a range of ratio scale variables.

D. **Bowel Frag:** This field refers to the presence or absence of a diagnostic attribute that would lead one to believe that the fragment was part of a bowl. In general, these fragments are thin in cross section, non-cylindrical, and have a more gentile slope than stem fragments. An *X* denotes their presence while an * denotes their absence. There were 74 discrete bowl fragments in the total sample of recovered fragments. These measurements are recorded as nominal scale variables.

E. **Stem Frag:** This field refers to the presence or absence of fragments with the diagnostic attributes of a pipe stem. These include a conical shape and bore. There were 916 discrete stem fragments in the total sample recovered. Fragments with both bowl and stem attributes were marked with an *X* in both fields. These total 75 fragments of the total recovered sample. These measurements are recorded as nominal scale variables.

F. **Length mm.:** This field refers to the length of the fragments as relevant to its type (see the discussion of length measurement in the Quantifying Methods section of this appendix). These measurements are recorded as ratio scale variables.

G. **Width mm.:** This field refers to the width of the fragment as relevant to its type (see the discussion of width measurement in the Quantifying Methods section of this appendix). These measurements are recorded as ratio scale variables.

H. **Bore /64":** This field refers to the internal bore diameter of pipe stem fragments (see the discussion of bore measurement in the Quantifying Methods section of this appendix). These measurements are recorded as ratio scale variables.

I. **Date Range:** This field refers to the date ranges of pipe manufacture as correlated with the measurements of bore diameters. These are as follows: 4/64"=1750-1800+, 5/64"=1710-1750, 6/64"=1680-1710, 7/64"=1650-1680, 8/64"=1620-1650 (see Harrington 1978). These measurements are recorded in the interval scale.

J. **Weight g.:** This field refers to the weight of recovered fragments in grams (see discussion of weight measurements in the Quantifying Methods section of this appendix). These measurements are recorded as ratio scale variables.

Quantifying Methods

Four distinct measurements were taken of recovered pipe fragments. These were: bore diameter, length, width, and weight.

Bore diameter: The bore diameter was measured with a set of drill bits calibrated in sixty-fourths of an inch. This measurement was only applicable for fragments with diagnostic attributes of either a stem or a bowl with an attached stem fragment. The bit was inserted into both of the orifices and it needed to either fit completely through or a majority of the way. Taking a measurement with the majority of a bit as opposed to the entire bit is justified given the observations that tobacco pipe stems were curved and their manufacturing process creates a diameter whose range is more or less normally distributed.

Length: The lengths of fragments were measured in millimeters, using a pair of digital calipers. A measurement of the maximum distance regardless of orientational axis was taken for fragments of bowls as well as those with both bowl and stem attributes. The calipers were calibrated to a resolution of one significant digit below the decimal point.

Width: like length, digital calipers in the same units and resolution measured width. Unlike length measurements, however, width was measured perpendicular to the long axis of each stem fragment. This measurement was taken at the end of the greatest visible distance. However, it was also taken in the middle and at both ends when the stem did not appear symmetrical. The result is a measurement of the stem fragment's maximum external diameter. Bowl fragments and bowl fragments with stems were measured for their minimum length which was recorded along with their width.

Weight: Weight was measured using a digital scale. Units were recovered in grams with a resolution of one significant digit below the decimal point. After a few initial tests where weights were taken by placing fragments in multiple locations on the scale's plane, it proved unnecessary to standardize the placement of fragments to obtain a uniform reading. Occasionally, the scale would re-calibrate with some residual value added between weighing. When this occurred, the scale was reset before the next fragment was weighed.

APPENDIX B

Recovered Kaolin Tobacco Pipe Fragments

Unit	Quadrant	Level	Bowl Frag	Stem Frag	Length mm.	Width mm.	Weight g.	Bore /64"	Date Range
0	tren. a	30-40cm	X	*	13.6	9.7	0.2	*	*
0	nw-ne	0-10cm	*	X	11.3	7.1	0.6	4/64"	1750-1800+
0	nw-ne	0-10cm	X	*	24.4	16.9	1	*	*
0	nw-ne	0-10cm	X	X	49.6	14.7	5.6	5/64"	1710-1750
0	nw-nw	0-10cm	*	X	46.9	7.9	3.4	5/64"	1710-1750
0	nw-ne	0-10cm	*	X	27.9	7.2	1.6	4/64"	1750-1800+
0	nw-ne	0-10cm	*	X	33.6	8	2.4	5/64"	1710-1750
0	nw-ne	0-10cm	*	X	29.6	7	2.1	4/64"	1750-1800+
0	nw-ne	0-10cm	*	X	29.7	9.1	2.6	4/64"	1750-1800+
0	nw-ne	0-10cm	*	x	31	8.9	2.5	5/64"	1710-1750
0	nw-ne	0-10cm	*	X	19.3	7.4	1.3	5/64"	1710-1750
0	nw-ne	0-10cm	*	X	24.3	7.5	1.7	5/64"	1710-1750
0	nw-ne	0-10cm	*	X	9.6	8.1	0.7	5/64"	1710-1750
0	nw-ne	0-10cm	*	X	29.5	7.5	2.1	5/64"	1710-1750
0	nw-ne	0-10cm	*	X	26.1	6.4	1	5/64"	1710-1750
0	nw-ne	0-10cm	*	X	22.3	7.3	1.4	4/64"	1750-1800+
0	nw-ne	0-10cm	*	X	18.6	6.8	0.9	4/64"	1750-1800+
0	nw-ne	0-10cm	*	X	26	5.9	0.8	5/64"	1710-1750
0	nw-ne	0-10cm	*	X	16.4	5.7	0.6	5/64"	1710-1750
0	nw-ne	0-10cm	*	X	13.3	5.3	0.4	5/64"	1710-1750
0	nw-ne	0-10cm	*	X	21.2	4.9	0.5	4/64"	1750-1800+
0	nw-ne	0-10cm	*	X	16.5	6.8	0.5	*	*
0	tren. a	10-20cm	X	X	39.3	27.2	6.4	4/64"	1750-1800+
0	tren. a	10-20cm	*	X	49.4	8.4	4.3	5/64"	1710-1750
0	tren. a	10-20cm	*	X	57.4	10.4	5.9	5/64"	1710-1750
0	tren. a	10-20cm	*	X	27.2	6.9	1.4	5/64"	1710-1750
0	tren. a	10-20cm	*	X	19.4	7.2	1.2	5/64"	1710-1750
0	tren. a	10-20cm	*	X	19.8	5.6	0.7	5/64"	1710-1750
0	tren. a	10-20cm	*	X	30.4	7	1.8	5/64"	1710-1750
0	tren. a	10-20cm	*	X	27	8.4	2.1	5/64"	1710-1750
0	tren. a	10-20cm	*	X	17.6	6.5	0.7	5/64"	1710-1750
0	tren. a	10-20cm	*	X	13.2	7.5	0.8	5/64"	1710-1750
0	tren. a	10-20cm	*	X	13	5.2	0.4	5/64"	1710-1750
0	tren. a	10-20cm	*	X	19.7	6.3	0.5	5/64"	1710-1750
0	tren. a	10-20cm	X	*	26.2	15.6	1.8	*	*
0	tren. a	10-20cm	X	*	23.5	8.6	0.5	*	*
1	ne&nw	0-10cm	X	*	23.5	19	1.3	*	*
1	ne&nw	0-10cm	X	*	17.1	12.3	0.8	*	*
1	ne&nw	0-10cm	*	X	10.7	6.3	0.2	*	*
1	ne&nw	0-10cm	*	X	26.8	7.2	1.5	4/64"	1750-1800+
1	ne-nw	10-20cm	X	*	18.1	16.7	0.7	*	*
1	ne-nw	10-20cm	*	X	16.1	7.4	1	5/64"	1710-1750
1	ne-nw	10-20cm	*	X	49.9	7	2.2	5/64"	1710-1750
1	ne-nw	10-20cm	*	X	15.4	6.1	0.7	4/64"	1750-1800+
1	ne-nw	10-20cm	*	X	35.8	5	0.5	5/64"	1710-1750
1	ne-nw	20-30cm	*	X	47	7.9	3.3	5/64"	1710-1750

2	nw	30-40cm	*	X	48.8	7.8	3.7	4/64"	1750-1800+
2	nw	30-40cm	*	X	26.6	5.8	1	4/64"	1750-1800+
2	nw	30-40cm	X	X	42.4	12.4	4.8	5/64"	1710-1750
2	nw	30-40cm	*	X	18.4	7.3	1.2	5/64"	1710-1750
2	nw	30-40cm	*	X	18.2	7.4	0.9	5/64"	1710-1750
2	nw	0-10cm	*	X	13.9	6.4	0.6	4/64"	1750-1800+
2	nw	0-10cm	*	X	25.2	6.4	1.2	4/64"	1750-1800+
2	nw	0-10cm	*	X	27.3	5.1	0.8	4/64"	1750-1800+
2	nw	10-20cm	*	X	56.1	7.1	3.4	5/64"	1710-1750
2	nw	10-20cm	*	X	20	6	0.8	5/64"	1710-1750
2	nw	10-20cm	*	X	23.7	7.8	1.6	5/64"	1710-1750
2	nw	20-30cm	*	X	17.9	5.6	0.5	4/64"	1750-1800+
2	nw	20-30cm	*	X	29.8	8.3	2.4	4/64"	1750-1800+
2	nw	20-30cm	*	X	39.1	7.3	2.7	5/64"	1710-1750
2	nw	20-30cm	*	X	10.9	6.2	0.4	5/64"	1710-1750
2	nw	0-10cm	*	X	50.2	8	3.6	5/64"	1710-1750
2	nw	0-10cm	*	X	29.9	7.5	2	5/64"	1710-1750
2	in corner	40-50cm	X	*	23.8	13.8	0.9	*	*
2	in corner	40-50cm	*	X	10.3	5.7	0.3	5/64"	1710-1750
2	nw	30-40cm	X	*	17.4	11.3	0.5	*	*
3	ne&nw	0-10cm	*	X	34.8	10.7	3.2	4/64"	1750-1800+
3	ne&nw	0-10cm	*	X	22.7	8.3	1.7	4/64"	1750-1800+
3	ne&nw	0-10cm	*	X	13.1	6.9	0.8	4/64"	1750-1800+
3	*	10-30cm	*	X	16.9	5.7	0.6	4/64"	1750-1800+
3	*	10-30cm	*	X	17.6	5.9	0.7	4/64"	1750-1800+
3	ne-nw	10-30cm	*	X	48.9	7.8	3.5	5/64"	1710-1750
3	ne-nw	10-30cm	*	X	14.5	7.5	0.9	5/64"	1710-1750
3	ne-nw	10-30cm	*	X	23.2	7.1	1.4	5/64"	1710-1750
3	ne-nw	10-30cm	*	X	21.1	8.2	1.8	5/64"	1710-1750
3	ne-nw	0-10cm	*	X	33.6	10.4	2.8	5/64"	1710-1750
4	*	30-40cm	*	X	34	8.9	3.5	5/64"	1710-1750
4	ne-nw	0-10cm	*	X	26.4	8.9	2.1	4/64"	1750-1800+
4	ne-nw	0-10cm	*	X	22.6	8.4	1.7	4/64"	1750-1800+
4	ne-nw	0-10cm	*	X	25.4	9.8	1.8	4/64"	1750-1800+
4	*	10-20cm	*	X	41.2	8.2	3.7	4/64"	1750-1800+
4	*	10-20cm	*	X	52.2	7.4	3.7	4/64"	1750-1800+
4	*	10-20cm	*	X	16	7.9	1.1	4/64"	1750-1800+
4	*	10-20cm	X	X	25.4	17.1	2.4	4/64"	1750-1800+
4	ne-nw	0-10cm	*	X	18.5	6.2	0.8	5/64"	1710-1750
5	*	0-10cm	*	X	16.9	8.3	1.3	5/64"	1710-1750
5	*	10-20cm	*	X	31.2	7.2	1.9	4/64"	1750-1800+
5	*	10-20cm	*	X	14.6	7	0.7	4/64"	1750-1800+
5	*	10-20cm	*	X	17	5.9	0.3	*	*
5	*	10-20cm	X	X	24.1	19.2	3.2	4/64"	1750-1800+
5	ne-nw	20-30cm	*	X	26.7	5.3	0.8	5/64"	1710-1750
5	ne-nw	20-30cm	*	X	31.9	8.5	2.5	5/64"	1710-1750
5	ne-nw	20-30cm	*	X	5.3	7.4	0.3	5/64"	1710-1750
5	ne-nw	20-30cm	*	X	9.9	6.2	0.4	5/64"	1710-1750
5	ne-nw	20-30cm	X	X	43.5	13.1	3.8	4/64"	1750-1800+
5	ne-nw	20-30cm	*	X	25.3	7.1	1.2	4/64"	1750-1800+
5	ne-nw	20-30cm	*	X	11	6.7	0.6	4/64"	1750-1800+
5	ne-nw	10-20cm	*	X	29.5	7.7	2.1	5/64"	1710-1750
5	ne-nw	10-20cm	*	X	17.5	7.4	1.2	5/64"	1710-1750
5	*	10-20cm	X	X	53.4	25.4	10.4	5/64"	1710-1750
5	ne-nw	10-20cm	X	*	26.2	16.2	1.2	*	*

5	ne-nw	10-20cm	X	*	24.6	19.5	2.6	*	*
5	ne-nw	10-20cm	X	*	25.2	18	1.5	*	*
6		10-20cm	*	X	39.4	8.8	3.3	4/64"	1750-1800+
6	*	10-20cm	*	X	16.6	5.2	0.4	4/64"	1750-1800+
6	*	0-10cm	X	*	24.6	18.7	2.1	*	*
6	*	0-10cm	X	*	29.7	12.1	1	*	*
6	ne-nw	20-30cm	X	X	31.9	20.5	2.4	5/64"	1710-1750
7	ne	0-10cm	*	X	34.9	8	2.6	5/64"	1710-1750
7	ne	0-10cm	X	*	18.6	12.9	0.6	*	*
7	ne	20-30cm	*	X	27.4	5.5	0.8	5/64"	1710-1750
8	nw	10-20cm	X	*	14.2	13.3	0.6	*	*
8	nw	10-20cm	X	*	12.4	12	0.6	*	*
8	ne	10-20cm	*	X	37.3	7.9	2.6	5/64"	1710-1750
8	ne-nw	0-10cm	*	X	34.1	7.8	2.4	5/64"	1710-1750
9	ne	20-30cm	*	X	29	7.7	1.8	5/64"	1710-1750
11	nw	0-10cm	*	X	49.8	8.5	4.4	4/64"	1750-1800+
11	nw	0-10cm	*	X	26.1	8.3	2.1	4/64"	1750-1800+
11	nw	0-10cm	*	X	23.9	6.9	1.3	5/64"	1710-1750
11	nw-sw	10-30cm	*	X	36.9	7.9	2.8	5/64"	1710-1750
11	nw-sw	10-30cm	*	X	33.2	8.1	2.4	5/64"	1710-1750
11	nw-sw	10-30cm	*	X	20.5	7.3	1.4	5/64"	1710-1750
11	nw-sw	10-30cm	*	X	21.3	7.4	1.3	5/64"	1710-1750
11	nw-sw	10-30cm	*	X	46.6	7.2	2.8	4/64"	1750-1800+
11	nw-sw	10-30cm	*	X	29.9	8	2.2	4/64"	1750-1800+
11	nw-sw	10-30cm	*	X	26.3	9.2	2.1	4/64"	1750-1800+
11	nw-sw	10-30cm	*	X	32.3	7.8	2.5	4/64"	1750-1800+
11	ne-sw	10-20cm	*	X	20.5	4.5	0.4	4/64"	1750-1800+
11	ne-se	10-20cm	*	X	23.7	5.8	0.9	4/64"	1750-1800+
11	sw	0-10cm	*	X	24.6	9.2	2	4/64"	1750-1800+
11	sw	0-10cm	*	X	18.9	8	1.3	5/64"	1710-1750
14	all	0-10cm	*	X	27.5	6.4	1.4	4/64"	1750-1800+
14	all	0-10cm	X	X	27.6	13.5	2.7	5/64"	1710-1750
14	all	0-10cm	*	X	20.9	7.9	1.5	5/64"	1710-1750
14	all	0-10cm	*	X	16.6	6.5	0.8	5/64"	1710-1750
14	all	0-10cm	*	X	46.8	7.4	3	4/64"	1750-1800+
14	all	0-10cm	*	X	32.6	7	1.9	4/64"	1750-1800+
14	all	0-10cm	*	X	22.1	7.8	1.6	4/64"	1750-1800+
14	all	0-10cm	*	X	20.8	6.9	1.1	5/64"	1710-1750
14	all	0-10cm	*	X	15	6.2	0.7	4/64"	1750-1800+
14	all	0-10cm	X	*	23.6	15.4	1.4	*	*
16	all	10-20cm	*	X	66.9	6	2.6	4/64"	1750-1800+
16	all	10-20cm	*	X	33.2	9	3	4/64"	1750-1800+
16	all	0-10cm	*	X	46.4	9.5	5	5/64"	1710-1750
16	all	0-10cm	*	X	27.1	6.5	1.2	5/64"	1710-1750
17	nw-sw	20-40cm	*	X	57.8	4.7	1.2	5/64"	1710-1750
17	nw-sw	20-40cm	*	X	26.4	9	2.2	5/64"	1710-1750
17	se-sw	15-20cm	*	X	21	8.2	1.8	5/64"	1710-1750
17	nw-sw	10-20cm	*	X	42.5	8	3.3	5/64"	1710-1750
17	nw-sw	10-20cm	*	X	29.7	7.1	2	4/64"	1750-1800+
17	ne-se	20-25cm	X	*	29.5	17.4	2.4	*	*
17	se-sw	10-15cm	*	X	63.1	8.3	5.7	4/64"	1750-1800+
17	se-sw	10-15cm	*	X	32.8	8	2.5	5/64"	1710-1750
17	nw-sw	0-10cm	*	X	23	6.7	1.2	5/64"	1710-1750
17	nw-sw	0-10cm	*	X	29.1	9	2.5	5/64"	1710-1750
17	nw-sw	0-10cm	*	X	39.8	6.8	2.2	4/64"	1750-1800+

17	all	0-10cm	*	X	20.4	6	0.8	5/64"	1710-1750
17	ne-se	30-35cm	*	X	14.2	4.5	0.3	5/64"	1710-1750
20	nw-sw	10-20cm	*	X	42.4	8	2.9	5/64"	1710-1750
20	nw-sw	10-20cm	*	X	38.9	7.8	2.3	4/64"	1750-1800+
20	nw-sw	10-20cm	*	X	16.1	8.1	1.2	4/64"	1750-1800+
20	nw-sw	10-20cm	*	X	18.8	7.8	0.6	5/64"	1710-1750
20	nw-sw	20-30cm	*	X	18.5	5.1	0.6	4/64"	1750-1800+
20	*	10-25cm	*	X	33.3	7.7	2.1	5/64"	1710-1750
20	*	10-25cm	*	X	29.2	7.9	1.2	5/64"	1710-1750
20	ne-se	0-10cm	*	X	28.4	9.2	2.5	6/64"	1680-1710
20	ne-se	0-10cm	*	X	17.1	5.8	0.6	5/64"	1710-1750
20	ne-se	0-10cm	*	X	24.4	4.7	0.6	5/64"	1710-1750
20	ne-se	0-10cm	*	X	22.4	6.2	0.9	5/64"	1710-1750
20	ne-se	0-10cm	*	X	17.3	6.6	0.8	5/64"	1710-1750
20	ne	10-20cm	*	X	40.6	6.1	1.6	5/64"	1710-1750
20	ne	10-20cm	*	X	37.1	8.9	3.6	5/64"	1710-1750
20	ne	10-20cm	*	X	30.2	7.4	1.9	4/64"	1750-1800+
20	ne	10-20cm	*	X	27.5	8.6	2.3	5/64"	1710-1750
20	ne	10-20cm	*	X	24	6.9	1.4	5/64"	1710-1750
20	ne	10-20cm	*	X	27.7	6.6	1.5	5/64"	1710-1750
20	ne	10-20cm	*	X	12.1	6.9	0.6	5/64"	1710-1750
22	all	10-20cm	*	X	31.7	10	4.2	5/64"	1710-1750
22	all	10-20cm	*	X	18.6	6.3	1.2	5/64"	1710-1750
22	all	10-20cm	*	X	17.3	6	1.2	6/64"	1680-1710
22	all	10-20cm	*	X	14.6	6.7	1.2	6/64"	1680-1710
22	all	0-10cm	*	X	15.8	6	0.5	4/64"	1750-1800+
22	all	0-10cm	*	X	16.6	6.1	0.3	4/64"	1750-1800+
22	all	0-10cm	*	X	31.8	6.7	1.5	4/64"	1750-1800+
22	se	0-10cm	*	X	76.6	7.5	5	4/64"	1750-1800+
22	se	0-10cm	*	X	48.7	6.4	2.2	5/64"	1710-1750
22	se	0-10cm	*	X	39.2	7.4	2.6	4/64"	1750-1800+
22	se	0-10cm	*	X	15.9	5.2	0.5	4/64"	1750-1800+
22	se	0-10cm	*	X	18.3	6.8	1	5/64"	1710-1750
24	*	0-10cm	*	X	26.1	7.5	1.8	4/64"	1750-1800+
26	nw-sw	0-20cm	*	X	15.9	5.7	0.5	5/64"	1710-1750
26	nw-sw	0-20cm	*	X	35	7.8	2.4	5/64"	1710-1750
26	nw-sw	20-30cm	*	X	29.3	6.9	1.5	5/64"	1710-1750
26	nw-sw	20-30cm	*	X	56.8	5.8	2.1	5/64"	1710-1750
26	nw-sw	20-30cm	X	X	26.2	13	2.6	5/64"	1710-1750
29	nw-sw	10-20cm	X	X	21.3	17.6	2.9	4/64"	1750-1800+
29	wall	0-10cm	*	X	46.2	8.2	4.3	4/64"	1750-1800+
29	wall	0-10cm	*	X	49.4	7.4	3.8	4/64"	1750-1800+
29	nw-sw	10-20cm	*	X	13.3	5.4	0.4	5/64"	1710-1750
29	nw-sw	10-20cm	*	X	41.3	7.6	2.9	5/64"	1710-1750
29	nw-sw	10-20cm	*	X	23.8	6.8	1.2	5/64"	1710-1750
29	nw-sw	10-20cm	*	X	20.1	7.5	1.4	5/64"	1710-1750
29	nw-sw	10-20cm	*	X	24.5	7.5	1.7	5/64"	1710-1750
29	nw-sw	10-20cm	*	X	19.8	7	1.1	5/64"	1710-1750
29	nw-sw	10-20cm	*	X	25.9	6.6	1.3	5/64"	1710-1750
29	nw-sw	10-20cm	*	X	22.6	7.6	0.9	5/64"	1710-1750
29	all	0-10cm	*	X	28.6	7.6	2	5/64"	1710-1750
29	all	0-10cm	*	X	31.3	7.5	1.8	5/64"	1710-1750
29	all	0-10cm	X	*	24.8	13.3	1	*	*
29	all	0-10cm	*	X	45.7	6.1	1.8	4/64"	1750-1800+
29	nw-sw	10-20cm	*	X	23.2	7.1	1.5	4/64"	1750-1800+

29	nw-sw	10-20cm	*	X	42.1	6.6	1.9	4/64"	1750-1800+
29	nw-sw	10-20cm	X	X	34	17.2	4.4	5/64"	1710-1750
29	ne-se	10-20cm	*	X	9.3	8.4	0.4	5/64"	1710-1750
29	ne-se	10-20cm	*	X	59.4	8.1	4.4	5/64"	1710-1750
31	all	0-10cm	*	X	32.6	6.5	2.3	5/64"	1710-1750
31	all	0-10cm	*	X	31.8	6.3	1.9	5/64"	1710-1750
31	all	0-10cm	*	X	46.9	6.5	2.3	6/64"	1680-1710
31	all	0-10cm	X	*	27	14.5	1.2	*	*
31	all	0-10cm	X	*	14.2	17.8	0.8	*	*
31	all	0-10cm	X	X	33	20.9	3.5	4/64"	1750-1800+
31	all	10-20cm	*	X	26.5	7.7	1.8	5/64"	1710-1750
31	all	10-20cm	*	X	31.1	6.8	1.5	5/64"	1710-1750
31	all	10-20cm	*	X	35.2	7.9	2.7	5/64"	1710-1750
31	ne	20-30cm	*	X	40.6	8.6	3.7	4/64"	1750-1800+
31	ne	20-30cm	*	X	26.3	8.7	2.3	4/64"	1750-1800+
31	ne	20-30cm	*	X	27.6	5.9	1.1	4/64"	1750-1800+
31	nw	20-50cm	*	X	29.4	5.1	0.8	5/64"	1710-1750
31	nw	20-50cm	*	X	27.9	5.1	0.6	5/64"	1710-1750
31	nw-sw	30-40cm	X	X	39.8	28.8	5.9	5/64"	1710-1750
31	ne	20-30cm	X	*	14.1	22.6	0.8	*	*
31	ne	20-30cm	X	*	21.1	17	0.7	*	*
31	ne	20-30cm	X	*	11.9	9.2	0.3	*	*
31	se-sw	30-50cm	*	X	16.9	9.5	1.6	5/64"	1710-1750
31	se-sw	30-50cm	*	X	12.6	6	0.4	5/64"	1710-1750
31	se-sw	30-50cm	*	X	39.6	5.4	1.1	4/64"	1750-1800+
31	se-sw	30-50cm	X	*	18.3	17	1	*	*
31	nw-sw	20-30cm	*	X	25.8	6.5	1.1	5/64"	1710-1750
31	nw-sw	20-30cm	*	X	18	6.8	0.9	5/64"	1710-1750
32	all	0-10cm	*	X	25.8	5.3	0.6	5/64"	1710-1750
33	nw-sw	0-10cm	*	X	16.5	6.3	0.7	4/64"	1750-1800+
33	nw-sw	30-40cm	*	X	57.7	7.9	4	5/64"	1710-1750
33	nw-sw	0-10cm	*	X	20.7	11.6	1.9	5/64"	1710-1750
33	nw-sw	0-10cm	X	X	31.2	17.7	3.5	5/64"	1710-1750
33	nw-sw	30-40cm	X	X	65.2	15.1	8.2	4/64"	1750-1800+
33	nw-sw	20-30cm	*	X	38.7	7.1	2.2	5/64"	1710-1750
33	nw-sw	20-30cm	*	X	37.1	7.4	2.4	5/64"	1710-1750
33	nw-sw	10-20cm	*	X	34.8	18.2	2.3	*	*
33	ne	10-20cm	*	X	30.8	10.4	3	5/64"	1710-1750
33	ne	10-20cm	*	X	23.4	6.8	1.1	5/64"	1710-1750
33	nw-sw	10-20cm	X	*	19.1	10.6	0.6	*	*
33	nw-sw	30-40cm	*	X	22.9	5.6	0.7	5/64"	1710-1750
33	nw-sw	30-40cm	*	X	24.4	6.9	1.4	5/64"	1710-1750
33	nw-sw	10-20cm	*	X	21.5	7.5	1.5	4/64"	1750-1800+
33	nw-sw	10-20cm	*	X	15.6	7.7	1	4/64"	1750-1800+
33	nw-sw	10-20cm	X	X	14.6	13.6	1.1	4/64"	1750-1800+
36	all	0-10cm	*	X	30.6	6.1	1.3	5/64"	1710-1750
36	sw-nw	10-30cm	*	X	21.3	7.3	1.3	6/64"	1680-1710
36	sw-nw	10-30cm	*	X	22.6	6	0.9	4/64"	1750-1800+
36	all	0-10cm	X	*	15.1	9	0.6	*	*
36	ne-se	10-25cm	*	X	22.5	7.2	1	5/64"	1710-1750
36	ne-se	10-25cm	*	X	15.6	8.7	0.7	*	*
37	all	0-10cm	*	X	35.2	5.6	0.9	6/64"	1680-1710
37	all	0-10cm	*	X	39.3	7.5	2.5	4/64"	1750-1800+
37	all	0-10cm	*	X	24	7.1	1.2	5/64"	1710-1750
37	all	0-10cm	*	X	21.3	6.8	1	5/64"	1710-1750

37	all	0-10cm	*	X	10.7	7.6	0.4	4/64"	1750-1800+
37	all	0-10cm	X	*	14.9	11.1	0.5	*	*
38	all	5-10cm	*	X	37	7.6	2.7	4/64"	1750-1800+
40	nw-sw	10-20cm	*	X	28.2	7.8	1.8	5/64"	1710-1750
40	nw-sw	10-20cm	*	X	32.1	6.8	1.5	5/64"	1710-1750
40	nw-sw	10-20cm	*	X	31.8	6.2	1.3	5/64"	1710-1750
40	nw-sw	20-30cm	*	X	22.5	6.9	1.3	5/64"	1710-1750
40	nw-sw	20-30cm	*	X	47.1	8.8	4.2	5/64"	1710-1750
40	nw-sw	20-30cm	*	X	37	7.5	2.5	5/64"	1710-1750
40	nw-sw	20-30cm	*	X	28.1	8.4	2.4	5/64"	1710-1750
40	nw-sw	10-20cm	X	*	22	11.7	0.8	*	*
43	all	20-30cm	*	X	20.2	7.4	1.2	5/64"	1710-1750
43	all	5-10cm	X	*	10.9	9	0.1	*	*
43	all	5-10cm	X	*	12.8	10.2	0.2	*	*
43	all	20-30cm	X	*	12.2	8	0.1	*	*
43	all	10-20cm	*	X	19.1	8.4	1.8	5/64"	1710-1750
43	all	10-20cm	*	X	20.2	5.5	0.7	5/64"	1710-1750
43	all	10-20cm	*	X	10.6	8.6	0.8	5/64"	1710-1750
43	all	10-20cm	*	X	40.9	7.9	3	5/64"	1710-1750
43	all	5-10cm	*	X	44.4	8.4	3.7	5/64"	1710-1750
43	all	5-10cm	*	X	44.2	9.3	4.3	4/64"	1750-1800+
43	all	5-10cm	*	X	28	6.4	1.2	5/64"	1710-1750
43	all	5-10cm	*	X	30.2	7.5	2	5/64"	1710-1750
43	all	5-10cm	*	X	20.8	6.1	0.8	5/64"	1710-1750
43	all	5-10cm	*	X	35.8	7	1.8	5/64"	1710-1750
43	all	5-10cm	*	X	18.8	7.2	1.1	5/64"	1710-1750
43	all	5-10cm	*	X	18.4	6.2	0.7	5/64"	1710-1750
53	all	0-10cm	X	*	16.6	16.2	0.8	*	*
53	all	0-10cm	*	X	17.8	5.3	0.5	5/64"	1710-1750
53	all	0-10cm	*	X	27.2	6.1	1.1	4/64"	1750-1800+
53	all	0-10cm	*	X	34.1	7.1	1.6	4/64"	1750-1800+
53	all	0-10cm	*	X	32	6.8	1.7	4/64"	1750-1800+
53	all	10-20cm	X	*	19.8	17.7	1.4	*	*
53	all	10-20cm	X	*	21.9	11.9	1	*	*
53	all	10-20cm	X	*	20.4	11.3	0.7	*	*
46&55	w. tr.	0-10cm	X	X	37.2	29.2	4.2	5/64"	1710-1750
46&55	n. tr.	0-10cm	X	X	42.7	10.9	4.9	4/64"	1750-1800+
46&55	n. tr.	0-10cm	*	X	29.6	7.6	2.1	4/64"	1750-1800+
46&55	n. tr.	0-10cm	*	X	27.1	6.7	1.5	4/64"	1750-1800+
46&55	n. tr.	0-10cm	*	X	20.3	5.7	0.6	5/64"	1710-1750
46&55	n. tr.	0-10cm	*	X	37.5	7.3	2.6	4/64"	1750-1800+
46&55	n. tr.	0-10cm	*	X	16.5	7.3	1.1	5/64"	1710-1750
46&55	n. tr.	0-10cm	*	X	18.2	5.9	0.6	5/64"	1710-1750
46&55	n. tr.	0-10cm	*	X	13.9	7.4	0.9	5/64"	1710-1750
46&55	n. tr.	0-10cm	*	X	13.8	6.8	0.6	4/64"	1750-1800+
47-49		0-5cm	*	X	64.1	7.1	4	5/64"	1710-1750
50&59	w. tr.	10-30cm	*	X	36	8.3	3	5/64"	1710-1750
50&59	w. tr.	10-30cm	*	X	33.3	9.2	3.2	5/64"	1710-1750
50&59	w. tr.	10-30cm	*	X	38.7	9	3.3	5/64"	1710-1750
50&59	w. tr.	10-30cm	*	X	34.4	5.9	1.2	4/64"	1750-1800+
50&59	w. tr.	10-30cm	*	X	27.3	6.4	1.3	5/64"	1710-1750
50&59	w. tr.	10-30cm	*	X	22.1	7.7	1.2	4/64"	1750-1800+
50&59	w. tr.	30-40cm	X	*	40.4	21	3.4	*	*
50&59	w. tr.	30-40cm	X	*	19	9.7	0.6	*	*
50&59	w. tr.	30-40cm	*	X	23.9	6.8	1.2	5/64"	1710-1750

50&59	w. tr.	30-40cm	*	X	26	8.9	2.2	5/64"	1710-1750
50&59	w. tr.	30-40cm	*	X	26.9	9.1	2.3	4/64"	1750-1800+
50&59	w. tr.	30-40cm	*	X	16.9	8.7	1.1	4/64"	1750-1800+
50&59	w. tr.	30-40cm	*	X	12	6.5	0.3	*	*
56&57	s. quads	s-s	X	*	17.6	12	0.6	*	*
67&68	nw/sw	0-10cm	*	X	53.8	7.9	3.8	5/64"	1710-1750
67&68	nw/sw	0-10cm	*	X	32.5	8	2.3	5/64"	1710-1750
67&68	nw/sw	0-10cm	*	X	42	7.3	2.4	5/64"	1710-1750
67&68	nw/sw	0-10cm	*	X	27.9	4.9	0.7	5/64"	1710-1750
67&68	nw/sw	0-10cm	*	X	33.2	5.2	0.8	5/64"	1710-1750
feature 100	all (inside)	10-20cm	*	X	42.3	7.3	2.7	5/64"	1710-1750
feature 100	all (inside)	10-20cm	*	X	35.6	8.2	2.8	5/64"	1710-1750
feature 100	all (inside)	0-10cm	X	X	26.8	11.6	2.3	4/64"	1750-1800+
feature 100	s.(outside)	0-10cm	*	X	48.4	8.2	3.8	5/64"	1710-1750
feature 100	s.(outside)	0-10cm	*	X	39.3	7.1	2.5	5/64"	1710-1750
feature 100	nw(outside)	0-10cm	*	X	66.7	6.8	3.2	5/64"	1710-1750
feature 100	nw(outside)	0-10cm	*	X	68.6	8.1	4.7	5/64"	1710-1750
feature 13	ne	s-s	X	X	24.5	17.6	2.9	5/64"	1710-1750
feature 13	ne	s-s	*	X	39.6	9.9	3.9	7/64"	1650-1680
feature 13	ne	s-s	*	X	44.7	8.6	4.2	5/64"	1710-1750
feature 13	ne	s-s	*	X	34.8	7.4	2.3	5/64"	1710-1750
feature 13	ne	s-s	*	X	30.8	7.1	1.7	5/64"	1710-1750
feature 13	ne	s-s	*	X	24.4	8.4	2.1	5/64"	1710-1750
feature 13	ne	s-s	*	X	25.4	9.2	2	5/64"	1710-1750
feature 13	ne	s-s	*	X	21.5	7.4	1.3	5/64"	1710-1750
feature 13	ne	s-s	*	X	15	7.5	0.6	*	*
footp. hou	*	sur.	*	X	38.7	10.2	4.2	4/64"	1750-1800+
footp. hou	*	sur.	X	X	43.6	22.1	5.8	4/64"	1750-1800+
footp. hou	*	sur.	*	X	35	9.3	3.4	5/64"	1710-1750
footp. hou	*	sur.	X	X	36.8	12.4	4.2	5/64"	1710-1750
footp. hou	*	sur.	*	X	37.1	8.1	3.1	4/64"	1750-1800+
footp. hou	*	sur.	*	X	26.4	7.9	2.1	5/64"	1710-1750
feature 10	se	s-s	X	*	37	19.3	4.1	5/64"	1710-1750
feature 10	se	s-s	*	X	30	11.3	3.7	7/64"	1650-1680
feature 10	se	s-s	X	*	22.7	17.5	1.5	*	*
feature 10	se	s-s	X	*	21.7	14	1	*	*
feature 10	se	s-s	*	X	24.2	5.5	0.7	5/64"	1710-1750
feature 10	se	s-s	X	*	25.4	12.7	1.1	*	*
feature 10	se	s-s	*	X	24	7.7	1.2	7/64"	1650-1680
feature 10	se	s-s	X	X	37.9	14.8	4.7	6/64"	1680-1710
feature 10	se	s-s	*	X	33.6	10.4	4.1	6/64"	1680-1710
feature 10	se	s-s	*	X	36	8.7	3.3	5/64"	1710-1750
feature 10	se	s-s	X	X	16.5	14.4	2.4	6/64"	1680-1710
feature 10	se	s-s	*	X	45	8.6	2.9	6/64"	1680-1710
feature 10	se	s-s	*	X	28.5	9.6	2.6	5/64"	1710-1750
feature 10	se	s-s	*	X	36.5	6.4	1.5	5/64"	1710-1750
feature 10	se	s-s	*	X	23.2	6.8	1.2	5/64"	1710-1750
feature 10	se	s-s	*	X	38.1	8.6	3.2	5/64"	1710-1750
feature 10	se	s-s	*	X	9.7	5.7	0.2	5/64"	1710-1750
feature 10	se	s-s	*	X	30.3	7.8	2.2	5/64"	1710-1750
feature 10	se	s-s	*	X	29.8	7.8	2	5/64"	1710-1750
feature 10	se	s-s	*	X	17.7	7.8	0.9	4/64"	1710-1750
feature 10	se	s-s	*	X	28.8	6.5	1.4	4/64"	1710-1750
feature 10	se	s-s	*	X	20	8.6	1.4	4/64"	1710-1750
feature 10	se	s-s	*	X	13	7.9	0.6	5/64"	1710-1750

feature 10	se	s-s	*	X	17.7	7	1.1	5/64"	1710-1750
feature 10	se	s-s	*	X	19.9	6.9	0.7	5/64"	1710-1750
feature 10	se	s-s	*	X	38.7	8.2	2.9	4/64"	1750-1800+
feature 10	se	s-s	*	X	26	8.8	2.4	4/64"	1750-1800+
feature 10	se	s-s	*	X	14.6	7.8	1	4/64"	1750-1800+
feature 10	se	s-s	*	X	24.5	7.9	1.7	5/64"	1710-1750
feature 10	se	s-s	*	X	24.6	7.9	1.7	5/64"	1710-1750
feature 10	se	s-s	*	X	29.2	8.1	2.4	5/64"	1710-1750
feature 10	se	s-s	*	X	23	7.5	1.4	4/64"	1750-1800+
feature 10	se	s-s	*	X	19.9	7.2	1	5/64"	1710-1750
feature 10	se	s-s	*	X	17.4	6.1	0.6	5/64"	1710-1750
feature 10	se	s-s	*	X	24.6	7.8	1.7	4/64"	1750-1800+
feature 10	se	s-s	*	X	24.7	8.5	2	5/64"	1710-1750
feature 10	se	s-s	*	X	18.2	8.1	1.1	5/64"	1710-1750
feature 10	se	s-s	*	X	15	7.1	0.8	5/64"	1710-1750
feature 10	se	s-s	*	X	21.4	7.5	1.4	4/64"	1750-1800+
feature 10	se	s-s	*	X	19	7.2	1.1	5/64"	1710-1750
feature 10	se	s-s	*	X	16.1	8.2	1.1	5/64"	1710-1750
feature 10	se	s-s	*	X	20.8	6.6	0.9	5/64"	1710-1750
feature 10	se	s-s	*	X	18.3	6.8	0.6	7/64"	1650-1680
feature 10	se	s-s	*	X	18.1	8.5	1.1	5/64"	1710-1750
feature 10	se	s-s	*	X	19	8.5	1.2	4/64"	1750-1800+
feature 10	se	s-s	*	X	20.9	8.1	1.5	5/64"	1710-1750
feature 10	se	s-s	*	X	32.1	6.3	0.8	4/64"	1750-1800+
feature 10	se	s-s	*	X	15.5	6.4	0.6	4/64"	1750-1800+
feature 10	se	s-s	*	X	11.5	5	0.3	5/64"	1710-1750
feature 10	se	s-s	*	X	18.8	7.1	0.9	5/64"	1710-1750
feature 10	se	s-s	*	X	17.6	7.8	1.1	5/64"	1710-1750
feature 10	se	s-s	*	X	17.4	6.5	0.7	6/64"	1680-1710
feature 10	se	s-s	*	X	15.3	7.6	0.7	5/64"	1710-1750
feature 10	se	s-s	*	X	19.4	8.6	1	5/64"	1710-1750
feature 10	se	s-s	*	X	14.2	6	0.3	5/64"	1710-1750
feature 10	se	s-s	*	X	11.4	5.7	0.4	5/64"	1710-1750
feature 10	se	s-s	*	X	13.8	7.3	0.4	4/64"	1750-1800+
feature 10	se	s-s	*	X	24.8	9.4	1.4	4/64"	1750-1800+
feature 10	se	s-s	*	X	14.7	5.6	0.3	4/64"	1750-1800+
feature 10	se	s-s	*	X	13.7	7.4	0.4	*	*
feature 100	e. outside	0-10cm	*	X	50.8	8	4	5/64"	1750-1800+
feature 100	e. outside	0-10cm	X	*	28.3	17.1	2.2	*	*
feature 15	nw	s-s	*	X	18.1	7	1	5/64"	1710-1750
feature 15	nw	s-s	*	X	22.2	6.6	1.3	4/64"	1750-1800+
feature 15	nw	s-s	*	X	15.1	7.1	1	4/64"	1750-1800+
feature 15	nw	s-s	*	X	13.6	7.9	1	5/64"	1710-1750
feature 15	nw	s-s	*	X	15.7	7.7	1.1	4/64"	1750-1800+
feature 15	nw	s-s	*	X	15.2	7.9	1	5/64"	1710-1750
feature 15	nw	s-s	*	X	19.4	8.2	1.3	4/64"	1750-1800+
feature 15	nw	s-s	*	X	16.1	6.5	0.6	4/64"	1750-1800+
feature 15	nw	s-s	*	X	16.6	6.6	0.8	4/64"	1750-1800+
feature 15	nw	s-s	*	X	10.7	5.8	0.4	4/64"	1750-1800+
feature 15	nw	s-s	*	X	17.4	7	0.6	6/64"	1680-1710
feature 16	se	s-s	*	X	21.1	9.3	1.8	4/64"	1750-1800+
feature 16	se	s-s	X	X	24.4	15.4	3.3	5/64"	1710-1750
feature 16	se	s-s	X	X	18.6	16.8	2	6/64"	1680-1710
feature 16	se	s-s	*	X	30.8	9.8	3	7/64"	1650-1680
feature 16	se	s-s	*	X	19.8	10.2	2.2	7/64"	1650-1680

feature 16	se	s-s	*	X	37.7	8.1	2.7	5/64"	1710-1750
feature 16	se	s-s	X	X	31.8	14.3	2.8	4/64"	1750-1800+
feature 16	se	s-s	*	X	28.5	6.8	1.6	4/64"	1750-1800+
feature 16	se	s-s	*	X	27.3	9.2	2.6	5/64"	1710-1750
feature 16	se	s-s	*	X	35.8	7.6	2	7/64"	1650-1680
feature 16	se	s-s	*	X	33.3	7.2	2	5/64"	1710-1750
feature 16	se	s-s	*	X	31.2	8.3	2.5	5/64"	1710-1750
feature 16	se	s-s	*	X	20.4	9.9	1.8	4/64"	1750-1800+
feature 16	se	s-s	*	X	29.3	7.4	1.8	4/64"	1750-1800+
feature 16	se	s-s	*	X	27.3	8.4	2.3	4/64"	1750-1800+
feature 16	se	s-s	*	X	15.7	7.5	0.9	4/64"	1750-1800+
feature 16	se	s-s	*	X	21.2	7.1	1.1	4/64"	1750-1800+
feature 16	se	s-s	*	X	21.7	6.7	1.1	4/64"	1750-1800+
feature 16	se	s-s	*	X	20	7.9	1.2	5/64"	1710-1750
feature 16	se	s-s	*	X	22.8	7.4	1.5	4/64"	1750-1800+
feature 16	se	s-s	*	X	23.1	6.4	0.9	5/64"	1710-1750
feature 16	se	s-s	X	X	14.9	7.8	0.7	4/64"	1750-1800+
feature 16	se	s-s	X	X	26.4	11.7	3	5/64"	1710-1750
feature 16A	se	s-s	X	X	47	16.5	6.4	7/64"	1650-1680
feature 16A	se	s-s	*	X	25.2	6.8	1.4	5/64"	1710-1750
feature 16A	se	s-s	*	X	50.1	11.7	6.7	7/64"	1650-1680
feature 16A	se	s-s	*	X	37.7	13.9	5.5	5/64"	1710-1750
feature 16A	se	s-s	*	X	31.8	9.6	2.6	6/64"	1680-1710
feature 16A	se	s-s	*	X	22.9	8.3	1.6	7/64"	1650-1680
feature 16A	se	s-s	*	X	26.7	10.8	2.9	7/64"	1650-1680
feature 16A	se	s-s	*	X	34.4	8.8	2.9	5/64"	1710-1750
feature 16A	se	s-s	*	X	29.1	10.5	3.2	7/64"	1650-1680
feature 16A	se	s-s	*	X	25.5	10.1	2.5	6/64"	1680-1710
feature 16A	se	s-s	*	X	37.8	9.1	3.7	5/64"	1710-1750
feature 16A	se	s-s	*	X	22	9.5	1.6	4/64"	1750-1800+
feature 16A	se	s-s	*	X	34.5	8.3	2.5	7/64"	1650-1680
feature 16A	se	s-s	X	X	21.9	9.8	1.4	4/64"	1750-1800+
feature 16A	se	s-s	*	X	30.3	9	2.7	5/64"	1710-1750
feature 16A	se	s-s	X	X	15.7	11.1	1	4/64"	1750-1800+
feature 16A	se	s-s	*	X	32.4	6.5	1.2	6/64"	1680-1710
feature 16A	se	s-s	*	X	29.3	8.2	2.1	7/64"	1650-1680
feature 16A	se	s-s	*	X	36.3	7.7	2.7	5/64"	1710-1750
feature 16A	se	s-s	*	X	19.7	9.3	1.7	5/64"	1710-1750
feature 16A	se	s-s	*	X	33.9	9.1	3.2	5/64"	1710-1750
feature 16A	se	s-s	*	X	19.9	9.5	1.9	5/64"	1710-1750
feature 16A	se	s-s	*	X	34	7.1	1.9	5/64"	1710-1750
feature 16A	se	s-s	*	X	31.4	7.4	1.9	4/64"	1750-1800+
feature 16A	se	s-s	*	X	13.8	8.9	1.1	5/64"	1710-1750
feature 16A	se	s-s	*	X	26.7	9.1	2.6	5/64"	1710-1750
feature 16A	se	s-s	*	X	26.1	7.9	1.8	5/64"	1710-1750
feature 16A	se	s-s	*	X	23.1	7.3	1.4	5/64"	1710-1750
feature 16A	se	s-s	*	X	24.1	8.8	1.9	5/64"	1710-1750
feature 16A	se	s-s	*	X	18.2	10	1.7	5/64"	1710-1750
feature 16A	se	s-s	*	X	16.5	7.5	1.2	4/64"	1750-1800+
feature 16A	se	s-s	*	X	23.9	7.7	1.4	5/64"	1710-1750
feature 16A	se	s-s	*	X	20.7	7.9	1.3	5/64"	1710-1750
feature 16A	se	s-s	*	X	16.5	8.4	1.1	5/64"	1710-1750
feature 16A	se	s-s	*	X	20.8	8.2	1.7	4/64"	1750-1800+
feature 16A	se	s-s	*	X	19.6	8.6	1.2	5/64"	1710-1750
feature 16A	se	s-s	*	X	24.1	6.7	1.1	4/64"	1750-1800+

feature 16A se	s-s	*	X	19.7	7.4	1.1	4/64"	1750-1800+
feature 16A se	s-s	*	X	31.6	8.4	2.4	5/64"	1710-1750
feature 16A se	s-s	*	X	23.5	9.1	1.9	6/64"	1680-1710
feature 16A se	s-s	*	X	21.8	9.4	2.1	6/64"	1680-1710
feature 16A se	s-s	*	X	24.8	6.8	1.3	5/64"	1710-1750
feature 16A se	s-s	*	X	5.4	9.5	0.5	6/64"	1680-1710
feature 16A se	s-s	*	X	17.7	7.7	1.1	5/64"	1710-1750
feature 16A se	s-s	*	X	29.6	7	1.5	4/64"	1750-1800+
feature 16A se	s-s	*	X	24.5	8	1.5	5/64"	1710-1750
feature 16A se	s-s	*	X	16.9	7.4	0.9	4/64"	1750-1800+
feature 16A se	s-s	*	X	16.5	7.1	0.8	5/64"	1710-1750
feature 16A se	s-s	*	X	14.3	6.8	0.8	4/64"	1750-1800+
feature 16A se	s-s	*	X	15.5	7.2	0.9	5/64"	1710-1750
feature 16A se	s-s	*	X	18.2	7.2	1.1	5/64"	1710-1750
feature 16A se	s-s	*	X	16.4	7.3	1	5/64"	1710-1750
feature 16A se	s-s	*	X	18.2	7.5	1.1	5/64"	1710-1750
feature 16A se	s-s	*	X	19.2	6.2	0.7	5/64"	1710-1750
feature 16A se	s-s	*	X	16.7	7	0.8	4/64"	1750-1800+
feature 16A se	s-s	*	X	15.7	7.1	0.9	5/64"	1710-1750
feature 16A se	s-s	*	X	18.3	7	0.9	5/64"	1710-1750
feature 16A se	s-s	*	X	22.2	5.6	0.7	5/64"	1710-1750
feature 16A se	s-s	*	X	16.2	6.6	0.8	4/64"	1750-1800+
feature 16A se	s-s	*	X	15.5	5.9	0.5	5/64"	1710-1750
feature 16A se	s-s	*	X	18.6	6.6	0.9	5/64"	1710-1750
feature 16A se	s-s	*	X	14.4	7.4	0.4	5/64"	1710-1750
feature 16A se	s-s	*	X	13.8	7.4	0.4	5/64"	1710-1750
feature 16A se	s-s	X	X	22.8	14.4	2.1	5/64"	1710-1750
feature 16A se	s-s	X	*	19.9	12.9	0.8	*	*
feature 16A se	s-s	X	*	16.2	12.7	0.4	*	*
feature 17 se	s-s	X	X	38.4	15.3	4.7	5/64"	1710-1750
feature 17 se	s-s	*	X	35.6	9.6	3.6	5/64"	1710-1750
feature 17 se	s-s	*	X	28.7	8.5	2.1	4/64"	1750-1800+
feature 17 se	s-s	*	X	32.9	9.7	3.4	4/64"	1750-1800+
feature 17 se	s-s	*	X	30.6	9.4	3.2	5/64"	1710-1750
feature 17 se	s-s	*	X	37.4	9.9	4.1	6/64"	1680-1710
feature 17 se	s-s	*	X	23.6	7.6	1.1	8/64"	1620-1650
feature 17 se	s-s	*	X	25.7	6.5	1	6/64"	1680-1710
feature 17 se	s-s	*	X	24.6	10.2	2	5/64"	1710-1750
feature 17 se	s-s	*	X	34.9	10	4.2	5/64"	1710-1750
feature 17 se	s-s	*	X	18.8	8.4	1.4	4/64"	1750-1800+
feature 17 se	s-s	*	X	27.9	6.7	1	5/64"	1710-1750
feature 17 se	s-s	*	X	19.7	7.2	1.1	5/64"	1710-1750
feature 17 se	s-s	*	X	27.2	6	1	4/64"	1750-1800+
feature 17 se	s-s	*	X	21.5	8.3	1.4	8/64"	1620-1650
feature 17 se	s-s	*	X	18.5	7.4	0.9	4/64"	1750-1800+
feature 17 se	s-s	*	X	15.1	8.4	0.9	8/64"	1620-1650
feature 17 se	s-s	*	X	15.2	7.7	1	5/64"	1710-1750
feature 17 se	s-s	*	X	22.7	6.4	1.1	4/64"	1750-1800+
feature 17 se	s-s	*	X	11.4	6.6	0.3	4/64"	1750-1800+
feature 17 se	s-s	*	X	24.2	6.5	1	4/64"	1750-1800+
feature 17 se	s-s	*	X	16.4	6.1	0.6	5/64"	1710-1750
feature 17 se	s-s	*	X	19	6.5	0.6	7/64"	1650-1680
feature 17 se	s-s	*	X	22.4	6.7	1.1	6/64"	1680-1710
feature 17 se	s-s	*	X	17.4	5.7	0.5	5/64"	1710-1750
feature 17 se	s-s	*	X	17.6	6.2	0.6	5/64"	1710-1750

feature 17	se	s-s	*	X	10.4	7.2	0.5	*	*
feature 17	se	s-s	*	X	17.2	5.9	0.5	5/64"	1710-1750
feature 18	nw	s-s	X	*	35.7	13.4	2.2	*	*
feature 18	nw	s-s	X	*	13.5	9.2	0.8	*	*
feature 18	nw	s-s	X	*	23.3	12.9	0.8	*	*
feature 18	nw	s-s	*	X	33.3	7.9	2.7	4/64"	1750-1800+
feature 18	nw	s-s	*	X	23.8	8.1	1.5	5/64"	1710-1750
feature 18	nw	s-s	*	X	46.2	9	3.9	5/64"	1710-1750
feature 18	nw	s-s	*	X	32.3	9.6	3.2	4/64"	1750-1800+
feature 18	nw	s-s	*	X	29.2	7.3	1.8	5/64"	1710-1750
feature 18	nw	s-s	*	X	30.4	5.9	1.1	4/64"	1750-1800+
feature 18	nw	s-s	*	X	21.1	8.4	1.8	5/64"	1710-1750
feature 18	nw	s-s	*	X	26.7	6.4	1.3	4/64"	1750-1800+
feature 18	nw	s-s	*	X	22.1	8.8	1.7	6/64"	1680-1710
feature 18	nw	s-s	*	X	19.6	7.6	1.2	5/64"	1710-1750
feature 18	nw	s-s	*	X	16.4	7.5	1.2	5/64"	1710-1750
feature 18	nw	s-s	*	X	19.5	6.7	0.6	5/64"	1710-1750
feature 18	nw	s-s	*	X	18.8	7.2	1.1	5/64"	1710-1750
feature 18	nw	s-s	*	X	13.6	7	0.8	4/64"	1750-1800+
feature 18	nw	s-s	*	X	20.5	6.7	0.9	5/64"	1710-1750
feature 18	nw	s-s	*	X	14.9	7.3	0.8	4/64"	1750-1800+
feature 18	nw	s-s	*	X	23	6.3	0.8	5/64"	1710-1750
feature 18	nw	s-s	*	X	21.6	6	0.8	4/64"	1750-1800+
feature 18	nw	s-s	*	X	13.2	6.8	0.6	5/64"	1710-1750
feature 18	nw	s-s	*	X	13.1	6.4	0.6	4/64"	1750-1800+
feature 18	nw	s-s	*	X	22.2	7.5	1.3	5/64"	1710-1750
feature 18	nw	s-s	*	X	12	6.9	0.7	5/64"	1710-1750
feature 18	nw	s-s	*	X	13.6	7.5	0.8	5/64"	1710-1750
feature 18	nw	s-s	*	X	16	8	0.9	5/64"	1710-1750
feature 18	nw	s-s	*	X	14.1	8	0.5	*	*
feature 18	nw	s-s	*	X	13.4	7.6	0.5	*	*
feature 18	nw	s-s	*	X	41	6.1	1.8	5/64"	1710-1750
feature 19	nw	s-s	*	X	53.7	6.6	2.2	5/64"	1710-1750
feature 19	nw	s-s	*	X	33.6	9.7	2.9	5/64"	1710-1750
feature 19	nw	s-s	*	X	10.8	9.3	0.9	5/64"	1710-1750
feature 19	nw	s-s	*	X	31.2	7.1	1.6	4/64"	1750-1800+
feature 19	nw	s-s	*	X	13.6	6.9	0.6	5/64"	1710-1750
feature 19	nw	s-s	X	*	34.4	19.7	4.5	*	*
feature 19	nw	s-s	*	X	37.5	6.7	1.9	4/64"	1750-1800+
feature 19	nw	s-s	*	X	30	5.7	1.1	4/64"	1750-1800+
feature 19	nw	s-s	*	X	27.7	7.3	1.8	5/64"	1710-1750
feature 19	nw	s-s	*	X	19.3	10.1	1.8	5/64"	1710-1750
feature 19	nw	s-s	*	X	23.4	6.3	1	4/64"	1750-1800+
feature 19	nw	s-s	*	X	24.4	7.6	1.7	4/64"	1750-1800+
feature 19	nw	s-s	*	X	31.8	6.5	1.4	5/64"	1710-1750
feature 19	nw	s-s	*	X	23.7	6.1	0.9	4/64"	1750-1800+
feature 19	nw	s-s	*	X	25.3	8.8	2.1	5/64"	1710-1750
feature 19	nw	s-s	*	X	16.5	7.8	1.3	5/64"	1710-1750
feature 19	nw	s-s	*	X	12.7	5.3	0.5	5/64"	1710-1750
feature 19	nw	s-s	*	X	18.3	5.1	0.5	5/64"	1710-1750
feature 19	nw	s-s	*	X	23.1	8.1	2	4/64"	1750-1800+
feature 19	nw	s-s	*	X	27.6	7.1	1.5	5/64"	1710-1750
feature 19	nw	s-s	*	X	18.9	6.6	0.9	5/64"	1710-1750
feature 19	nw	s-s	*	X	17.2	5.8	0.6	5/64"	1710-1750
feature 19	nw	s-s	*	X	14.6	6.4	0.6	4/64"	1750-1800+

feature 19	nw	s-s	*	X	18.9	7.1	0.8	5/64"	1710-1750
feature 19	nw	s-s	*	X	21.7	7.7	1.4	5/64"	1710-1750
feature 19	nw	s-s	*	X	17	6.9	0.8	5/64"	1710-1750
feature 19	nw	s-s	*	X	18.6	6.2	1.1	4/64"	1750-1800+
feature 19	nw	s-s	*	X	17.9	7.1	0.7	5/64"	1710-1750
feature 19	nw	s-s	*	X	15.7	6.6	0.7	4/64"	1750-1800+
feature 19	nw	s-s	*	X	19.6	6.6	0.9	4/64"	1750-1800+
feature 19	nw	s-s	*	X	18	6.5	0.8	5/64"	1710-1750
feature 3	se	s-s	X	*	14.4	11.1	0.6	*	*
feature 3	se	s-s	X	*	18.3	11.6	0.6	*	*
feature 3	se	s-s	X	X	41.8	27.8	4.7	4/64"	1750-1800+
feature 3	se	s-s	*	X	31.1	7.1	1.8	4/64"	1750-1800+
feature 3	se	s-s	X	X	29.9	12.5	3.2	4/64"	1750-1800+
feature 3	se	s-s	*	X	18.9	7.1	1	4/64"	1750-1800+
feature 3	se	s-s	*	X	30.5	8.3	2.5	4/64"	1750-1800+
feature 3	se	s-s	X	X	25.1	10.1	1.8	4/64"	1750-1800+
feature 3	se	s-s	*	X	22.8	7.8	1.9	4/64"	1750-1800+
feature 3	se	s-s	*	X	32.3	8.2	2.4	4/64"	1750-1800+
feature 3	se	s-s	*	X	21.7	5.8	0.8	4/64"	1750-1800+
feature 3	se	s-s	*	X	23.3	9	1.9	4/64"	1750-1800+
feature 3	se	s-s	*	X	21.5	7.4	1.3	4/64"	1750-1800+
feature 3	se	s-s	*	X	25.3	7.4	1.7	4/64"	1750-1800+
feature 3	se	s-s	*	X	14.4	8.5	1.2	4/64"	1750-1800+
feature 3	se	s-s	*	X	20.8	9.6	2	4/64"	1750-1800+
feature 3	se	s-s	*	X	17.9	5.5	0.6	4/64"	1750-1800+
feature 3	se	s-s	*	X	17.7	6.8	1	4/64"	1750-1800+
feature 3	se	s-s	*	X	20.1	7.1	1.3	4/64"	1750-1800+
feature 3	se	s-s	*	X	13.8	7.7	0.8	4/64"	1750-1800+
feature 3	se	s-s	*	X	20.6	7.8	1.6	4/64"	1750-1800+
feature 3	se	s-s	*	X	46.3	11.3	5.7	7/64"	1650-1680
feature 3	se	s-s	*	X	33.6	11.6	4.8	7/64"	1650-1680
feature 3	se	s-s	*	X	24.9	10.1	2.9	7/64"	1650-1680
feature 3	se	s-s	*	X	28.5	10.7	2.5	7/64"	1650-1680
feature 3	se	s-s	*	X	38	9.3	2.7	7/64"	1650-1680
feature 3	se	s-s	*	X	38.7	11.6	4	7/64"	1650-1680
feature 3	se	s-s	*	X	36.3	9.2	3.7	7/64"	1650-1680
feature 3	se	s-s	*	X	16	6.2	0.4	7/64"	1650-1680
feature 3	se	s-s	*	X	30.5	7.2	1.1	7/64"	1650-1680
feature 3	se	s-s	*	X	78.6	8	5.6	5/64"	1710-1750
feature 3	se	s-s	X	X	31.6	15.1	4	5/64"	1710-1750
feature 3	se	s-s	*	X	39.1	8.4	3.8	5/64"	1710-1750
feature 3	se	s-s	*	X	33.6	8.6	2.8	5/64"	1710-1750
feature 3	se	s-s	*	X	26.5	9.5	2.7	5/64"	1710-1750
feature 3	se	s-s	X	X	34.1	13.1	3.5	5/64"	1710-1750
feature 3	se	s-s	*	X	26.2	7.4	1.6	5/64"	1710-1750
feature 3	se	s-s	X	X	21.4	14.8	2.2	5/64"	1710-1750
feature 3	se	s-s	*	X	26.1	6.9	1.2	5/64"	1710-1750
feature 3	se	s-s	*	X	23	11.3	2.5	5/64"	1710-1750
feature 3	se	s-s	X	X	24.2	18.9	2.2	5/64"	1710-1750
feature 3	se	s-s	*	X	31.8	8.3	2.6	5/64"	1710-1750
feature 3	se	s-s	*	X	33.6	7.4	1.8	5/64"	1710-1750
feature 3	se	s-s	*	X	46	9	3.8	5/64"	1710-1750
feature 3	se	s-s	*	X	39.8	9	3.8	5/64"	1710-1750
feature 3	se	s-s	*	X	23.6	7.9	1.6	5/64"	1710-1750
feature 3	se	s-s	*	X	18.5	7	1	5/64"	1710-1750

feature 3	se	s-s	*	X	21.6	8	1.3	5/64"	1710-1750
feature 3	se	s-s	*	X	44.7	7.8	2.8	5/64"	1710-1750
feature 3	se	s-s	*	X	31.2	8.1	2.4	5/64"	1710-1750
feature 3	se	s-s	*	X	21.3	7.1	1.3	5/64"	1710-1750
feature 3	se	s-s	*	X	35.9	9.5	3.6	5/64"	1710-1750
feature 3	se	s-s	*	X	28.4	7.6	1.8	5/64"	1710-1750
feature 3	se	s-s	*	X	37.5	6.1	1.3	5/64"	1710-1750
feature 3	se	s-s	*	X	25.4	6.2	1	5/64"	1710-1750
feature 3	se	s-s	*	X	18.8	8	1.3	5/64"	1710-1750
feature 3	se	s-s	*	X	37.8	7.1	2.2	5/64"	1710-1750
feature 3	se	s-s	*	X	40.4	12.3	4.1	5/64"	1710-1750
feature 3	se	s-s	*	X	23.9	6.9	1.2	5/64"	1710-1750
feature 3	se	s-s	*	X	32.5	6.2	1.3	5/64"	1710-1750
feature 3	se	s-s	*	X	33.5	8.4	2.7	5/64"	1710-1750
feature 3	se	s-s	*	X	35.1	6.2	1.8	5/64"	1710-1750
feature 3	se	s-s	*	X	33.9	8.7	3	5/64"	1710-1750
feature 3	se	s-s	*	X	30.4	7.5	1.7	5/64"	1710-1750
feature 3	se	s-s	*	X	28.6	6.8	1.6	5/64"	1710-1750
feature 3	se	s-s	*	X	25.8	5.8	0.8	5/64"	1710-1750
feature 3	se	s-s	*	X	29.5	6.6	1.3	5/64"	1710-1750
feature 3	se	s-s	*	X	31.7	8.3	2.5	5/64"	1710-1750
feature 3	se	s-s	*	X	29.1	7.2	1.6	5/64"	1710-1750
feature 3	se	s-s	*	X	18.3	6.6	0.9	5/64"	1710-1750
feature 3	se	s-s	*	X	29.6	8.5	2.6	5/64"	1710-1750
feature 3	se	s-s	*	X	34.7	8	3	5/64"	1710-1750
feature 3	se	s-s	*	X	24.7	7	1.2	5/64"	1710-1750
feature 3	se	s-s	*	X	21.1	10	2.2	5/64"	1710-1750
feature 3	se	s-s	*	X	35.4	8.8	3.1	5/64"	1710-1750
feature 3	se	s-s	*	X	25	8	1.8	5/64"	1710-1750
feature 3	se	s-s	*	X	21.7	9.7	2.1	5/64"	1710-1750
feature 3	se	s-s	*	X	31.6	7.2	2	5/64"	1710-1750
feature 3	se	s-s	*	X	29.7	8.4	2	5/64"	1710-1750
feature 3	se	s-s	*	X	27.4	7.4	1.7	5/64"	1710-1750
feature 3	se	s-s	*	X	25.2	7.8	1.8	5/64"	1710-1750
feature 3	se	s-s	*	X	24.1	7.8	1.4	5/64"	1710-1750
feature 3	se	s-s	*	X	27.5	8.6	1.9	5/64"	1710-1750
feature 3	se	s-s	*	X	24.8	8.1	1.8	5/64"	1710-1750
feature 3	se	s-s	*	X	12	7.4	0.7	5/64"	1710-1750
feature 3	se	s-s	*	X	22.7	7.6	1.5	5/64"	1710-1750
feature 3	se	s-s	*	X	23	8.2	1.8	5/64"	1710-1750
feature 3	se	s-s	*	X	22.5	7.5	1.2	5/64"	1710-1750
feature 3	se	s-s	*	X	24.3	8.3	1.8	5/64"	1710-1750
feature 3	se	s-s	*	X	20.4	7	1.1	5/64"	1710-1750
feature 3	se	s-s	*	X	23.1	7.8	1.7	5/64"	1710-1750
feature 3	se	s-s	*	X	22.4	6.6	0.9	5/64"	1710-1750
feature 3	se	s-s	*	X	19.2	7.6	1.3	5/64"	1710-1750
feature 3	se	s-s	*	X	23.1	7.4	1.3	5/64"	1710-1750
feature 3	se	s-s	*	X	19.8	7	1	5/64"	1710-1750
feature 3	se	s-s	*	X	20.6	6.7	1.1	5/64"	1710-1750
feature 3	se	s-s	*	X	19	7.2	1.2	5/64"	1710-1750
feature 3	se	s-s	*	X	16.6	7	1	5/64"	1710-1750
feature 3	se	s-s	*	X	16.7	6.1	0.7	5/64"	1710-1750
feature 3	se	s-s	*	X	18.1	8.4	1.3	5/64"	1710-1750
feature 3	se	s-s	*	X	21.2	7.1	1.3	5/64"	1710-1750
feature 3	se	s-s	*	X	18.9	7.1	0.9	5/64"	1710-1750

feature 3	se	s-s	*	X	19.2	7.9	1.2	5/64"	1710-1750
feature 3	se	s-s	*	X	15.7	6.2	0.7	5/64"	1710-1750
feature 3	se	s-s	*	X	19.1	7	0.9	5/64"	1710-1750
feature 3	se	s-s	*	X	19.6	8.3	1	5/64"	1710-1750
feature 3	se	s-s	*	X	13.7	8.2	1.1	5/64"	1710-1750
feature 3	se	s-s	*	X	17.6	6.9	0.8	5/64"	1710-1750
feature 3	se	s-s	*	X	13.9	7.6	0.9	5/64"	1710-1750
feature 3	se	s-s	*	X	14.6	6.2	0.6	5/64"	1710-1750
feature 3	se	s-s	*	X	12.8	6.6	0.5	5/64"	1710-1750
feature 3	se	s-s	*	X	17.3	7.3	0.8	5/64"	1710-1750
feature 3	se	s-s	*	X	11.6	5	0.3	5/64"	1710-1750
feature 3	se	s-s	*	X	12.9	5.4	0.3	5/64"	1710-1750
feature 3	se	s-s	*	X	11.5	4.6	0.3	5/64"	1710-1750
feature 3	se	s-s	*	X	16.8	7.2	0.5	5/64"	1710-1750
feature 4	nw	s-s	X	X	22.7	22	2.5	6/64"	1680-1710
feature 4	nw	s-s	X	X	31.9	13.4	3.6	6/64"	1680-1710
feature 4	nw	s-s	X	X	50.8	13	4.6	6/64"	1680-1710
feature 4	nw	s-s	X	X	29.7	8.8	1.7	6/64"	1680-1710
feature 4	nw	s-s	*	X	41.4	8	3.1	6/64"	1680-1710
feature 4	nw	s-s	X	X	38.4	11.6	4.1	6/64"	1680-1710
feature 4	nw	s-s	*	X	43	8.9	3.5	6/64"	1680-1710
feature 4	nw	s-s	*	X	26.6	8.3	1.9	6/64"	1680-1710
feature 4	nw	s-s	*	X	24.3	8.6	2	6/64"	1680-1710
feature 4	nw	s-s	*	X	23.2	8.3	1.6	6/64"	1680-1710
feature 4	nw	s-s	*	X	16.8	7.2	1	6/64"	1680-1710
feature 4	nw	s-s	X	*	36.9	18.1	2.4	*	*
feature 4	nw	s-s	X	*	18.7	16.9	1	*	*
feature 4	nw	s-s	X	*	23.5	10.5	0.7	*	*
feature 4	nw	s-s	X	*	23.3	14.7	1	*	*
feature 4	nw	s-s	X	*	17.7	11.8	0.8	*	*
feature 4	nw	s-s	X	*	13.8	7	0.2	*	*
feature 4	nw	s-s	*	X	23.6	8.1	1.9	4/64"	1750-1800+
feature 4	nw	s-s	*	X	35.7	6.8	1.8	4/64"	1750-1800+
feature 4	nw	s-s	*	X	27.5	7.8	2	4/64"	1750-1800+
feature 4	nw	s-s	X	X	29.6	12	2.7	4/64"	1750-1800+
feature 4	nw	s-s	*	X	30.6	7.4	1.7	4/64"	1750-1800+
feature 4	nw	s-s	*	X	31.5	7.3	2.1	4/64"	1750-1800+
feature 4	nw	s-s	*	X	25.8	6.7	1.4	4/64"	1750-1800+
feature 4	nw	s-s	*	X	27.3	7.6	1.7	4/64"	1750-1800+
feature 4	nw	s-s	*	X	23.9	7.2	1.4	4/64"	1750-1800+
feature 4	nw	s-s	*	X	16.9	5.5	0.5	4/64"	1750-1800+
feature 4	nw	s-s	*	X	22.8	7.5	1.3	4/64"	1750-1800+
feature 4	nw	s-s	*	X	18.4	6.8	0.9	4/64"	1750-1800+
feature 4	nw	s-s	*	X	12.3	5.3	0.4	4/64"	1750-1800+
feature 4	nw	s-s	*	X	13.7	7.2	0.9	4/64"	1750-1800+
feature 4	nw	s-s	*	X	15.6	5.8	0.6	4/64"	1750-1800+
feature 4	nw	s-s	*	X	17.8	6.3	0.9	4/64"	1750-1800+
feature 4	nw	s-s	X	X	42.1	14.8	4.8	5/64"	1710-1750
feature 4	nw	s-s	*	X	59.1	8.1	4.9	5/64"	1710-1750
feature 4	nw	s-s	*	X	34.8	9.3	3.6	5/64"	1710-1750
feature 4	nw	s-s	*	X	32.1	7.8	2.4	5/64"	1710-1750
feature 4	nw	s-s	*	X	40.5	7.6	3	5/64"	1710-1750
feature 4	nw	s-s	*	X	36	6.7	1.8	5/64"	1710-1750
feature 4	nw	s-s	*	X	22.9	8.4	1.8	5/64"	1710-1750
feature 4	nw	s-s	*	X	24.2	7.2	1.5	5/64"	1710-1750

feature 4	nw	s-s	*	X	32.2	7	1.7	5/64"	1710-1750
feature 4	nw	s-s	*	X	34.2	7.6	2.3	5/64"	1710-1750
feature 4	nw	s-s	*	X	24.4	8.1	2	5/64"	1710-1750
feature 4	nw	s-s	*	X	17.6	7.9	1.3	5/64"	1710-1750
feature 4	nw	s-s	*	X	28.3	7.3	1.4	5/64"	1710-1750
feature 4	nw	s-s	*	X	22.2	8.3	1.6	5/64"	1710-1750
feature 4	nw	s-s	*	X	31.6	8	2	5/64"	1710-1750
feature 4	nw	s-s	*	X	27.9	7.1	1.6	5/64"	1710-1750
feature 4	nw	s-s	*	X	24	5.9	0.9	5/64"	1710-1750
feature 4	nw	s-s	*	X	13.4	7.8	0.9	5/64"	1710-1750
feature 4	nw	s-s	*	X	23.9	6.5	1	5/64"	1710-1750
feature 4	nw	s-s	*	X	21.2	7.6	1.3	5/64"	1710-1750
feature 4	nw	s-s	*	X	18.1	6.8	0.9	5/64"	1710-1750
feature 4	nw	s-s	*	X	13	7	0.6	5/64"	1710-1750
feature 4	nw	s-s	*	X	16.4	7.2	1.1	5/64"	1710-1750
feature 4	nw	s-s	*	X	12	6.8	0.6	5/64"	1710-1750
feature 4	nw	s-s	*	X	18.7	6	0.7	5/64"	1710-1750
feature 4	nw	s-s	*	X	24	6.9	1.2	5/64"	1710-1750
feature 4	nw	s-s	X	X	42.8	22.7	4.8	5/64"	1710-1750
feature 4	nw	s-s	*	X	61.4	8.6	5.5	5/64"	1710-1750
feature 5	se	s-s	*	X	26.7	8.1	1.7	5/64"	1710-1750
feature 5	se	s-s	*	X	26.7	7.9	2	5/64"	1710-1750
feature 5	se	s-s	*	X	26.5	6.4	1.2	5/64"	1710-1750
feature 5	se	s-s	*	X	34.6	6.4	1.5	6/64"	1680-1710
feature 5	se	s-s	*	X	25.9	7.1	1.5	5/64"	1710-1750
feature 5	se	s-s	*	X	22.4	7	1.4	5/64"	1710-1750
feature 5	se	s-s	*	X	35.4	10.2	3.7	7/64"	1650-1680
feature 5	se	s-s	*	X	34.9	9.1	2.8	6/64"	1680-1710
feature 5	se	s-s	*	X	14.2	6.1	0.5	4/64"	1750-1800+
feature 5	se	s-s	*	X	18.7	7.4	1.3	5/64"	1710-1750
feature 5	se	s-s	*	X	18.2	8.1	1.3	5/64"	1710-1750
feature 5	se	s-s	*	X	26.4	7.3	1.7	5/64"	1710-1750
feature 5	se	s-s	*	X	25	8.3	1.9	6/64"	1680-1710
feature 5	se	s-s	*	X	13	6.3	0.5	6/64"	1680-1710
feature 5	se	s-s	*	X	28	7	1.5	5/64"	1710-1750
feature 5	se	s-s	*	X	27.8	7.6	1.7	6/64"	1680-1710
feature 5	se	s-s	*	X	44.4	7.3	2.2	4/64"	1750-1800+
feature 5	se	s-s	*	X	22.6	7.4	1.4	5/64"	1710-1750
feature 5	se	s-s	*	X	23.1	6.4	1.1	4/64"	1750-1800+
feature 5	se	s-s	*	X	28.9	5.4	0.9	5/64"	1710-1750
feature 5	se	s-s	*	X	24.4	8.1	1.6	5/64"	1710-1750
feature 5	se	s-s	*	X	30.8	6.1	1.3	5/64"	1710-1750
feature 5	se	s-s	*	X	36.5	9.2	3	5/64"	1710-1750
feature 5	se	s-s	*	X	34.5	9.4	3.6	5/64"	1710-1750
feature 5	se	s-s	*	X	43.2	7.4	2.7	5/64"	1710-1750
feature 5	se	s-s	*	X	17.4	7.2	1	5/64"	1710-1750
feature 5	se	s-s	X	X	21.2	12.5	4	5/64"	1710-1750
feature 5	se	s-s	X	X	33.1	7.2	4.3	5/64"	1710-1750
feature 5	se	s-s	X	X	45.8	4.6	5.1	5/64"	1710-1750
feature 5	se	s-s	*	X	15.8	2.6	2.5	5/64"	1710-1750
feature 5	se	s-s	*	X	28.1	7.5	1.9	4/64"	1750-1800+
feature 5	se	s-s	*	X	31.4	8.2	2.3	4/64"	1750-1800+
feature 5	se	s-s	*	X	27.7	7.7	1.8	5/64"	1710-1750
feature 5	se	s-s	*	X	35.6	7.5	2.2	5/64"	1710-1750
feature 5	se	s-s	*	X	27.9	8.3	2.1	4/64"	1750-1800+

feature 5	se	s-s	*	X	24.4	8.7	1.9	5/64"	1710-1750
feature 5	se	s-s	*	X	16.4	7.6	1.1	6/64"	1680-1710
feature 5	se	s-s	*	X	14.4	5.8	0.4	5/64"	1710-1750
feature 5	se	s-s	*	X	27.5	8.4	2.3	5/64"	1710-1750
feature 5	se	s-s	*	X	9.5	5.9	0.4	4/64"	1750-1800+
feature 5	se	s-s	*	X	32.8	7.2	1.9	5/64"	1710-1750
feature 5	se	s-s	*	X	38.4	9.7	3.8	6/64"	1680-1710
feature 5	se	s-s	*	X	19.1	7.6	1.2	5/64"	1710-1750
feature 5	se	s-s	*	X	20.3	8.8	1.7	5/64"	1710-1750
feature 5	se	s-s	*	X	12.7	6.5	0.6	5/64"	1710-1750
feature 5	se	s-s	*	X	36.7	7.1	2.2	4/64"	1750-1800+
feature 5	se	s-s	*	X	30.2	6.4	1.3	5/64"	1710-1750
feature 5	se	s-s	*	X	14.8	6.5	0.6	5/64"	1710-1750
feature 5	se	s-s	*	X	18.4	6.6	0.8	5/64"	1710-1750
feature 5	se	s-s	*	X	26.1	8.4	2	4/64"	1750-1800+
feature 5	se	s-s	*	X	32.6	7.6	1.9	4/64"	1750-1800+
feature 5	se	s-s	*	X	22.4	7.4	1.5	4/64"	1750-1800+
feature 5	se	s-s	*	X	29.5	7.1	1.5	5/64"	1710-1750
feature 5	se	s-s	*	X	21.9	8	1.4	6/64"	1680-1710
feature 5	se	s-s	*	X	24.5	8	1.6	5/64"	1710-1750
feature 5	se	s-s	*	X	24.3	8.3	1.7	5/64"	1710-1750
feature 5	se	s-s	X	X	31.2	10.9	2.3	5/64"	1710-1750
feature 5	se	s-s	*	X	27.2	9.3	2.9	6/64"	1680-1710
feature 5	se	s-s	*	X	20.2	7.7	1.4	5/64"	1710-1750
feature 5	se	s-s	*	X	16.4	7.1	0.8	5/64"	1710-1750
feature 5	se	s-s	X	X	21.1	18	2.9	5/64"	1710-1750
feature 5	se	s-s	*	X	30.1	7.6	2.1	5/64"	1710-1750
feature 5	se	s-s	*	X	16.4	8.9	1.2	4/64"	1750-1800+
feature 5	se	s-s	*	X	15.5	7.6	1	4/64"	1750-1800+
feature 5	se	s-s	*	X	19.9	7	1.1	4/64"	1750-1800+
feature 5	se	s-s	X	X	46.1	12.5	5.4	6/64"	1680-1710
feature 5	se	s-s	X	X	34.4	12.6	3.2	5/64"	1710-1750
feature 5	se	s-s	X	X	13.6	14.4	1.5	4/64"	1750-1800+
feature 5	se	s-s	*	X	26.5	8.5	2	5/64"	1710-1750
feature 5	se	s-s	X	X	34.4	12.2	3.7	4/64"	1750-1800+
feature 5	se	s-s	X	X	23.2	14.8	2.8	4/64"	1750-1800+
feature 5	se	s-s	*	X	41.7	8.2	2.9	7/64"	1650-1680
feature 5	se	s-s	*	X	23.6	7.5	1.6	4/64"	1750-1800+
feature 5	se	s-s	*	X	23.8	7.4	1.5	4/64"	1750-1800+
feature 5	se	s-s	*	X	17.5	7.7	1	5/64"	1710-1750
feature 5	se	s-s	*	X	17.7	8.5	1.5	6/64"	1680-1710
feature 5	se	s-s	*	X	11.8	6.2	0.5	5/64"	1710-1750
feature 5	se	s-s	*	X	12.2	7.8	0.8	5/64"	1710-1750
feature 5	se	s-s	*	X	24	8.8	1.9	5/64"	1710-1750
feature 5	se	s-s	*	X	30.5	8.1	1.9	4/64"	1750-1800+
feature 5	se	s-s	*	X	10.5	7.6	0.5	4/64"	1750-1800+
feature 5	se	s-s	*	X	14.4	7.2	0.3	4/64"	1750-1800+
feature 5	se	s-s	*	X	8.3	4.8	0.1	*	*
feature 5	se	s-s	*	X	13.4	6.3	0.3	4/64"	1750-1800+
feature 5	se	s-s	*	X	10.9	5.2	0.3	4/64"	1750-1800+
feature 5	se	s-s	X	*	33	18.4	3.3	5/64"	1710-1750
feature 5	se	s-s	*	X	41	10	3.9	5/64"	1710-1750
feature 6	nw	s-s	X	X	48.2	14.9	4.4	4/64"	1750-1800+
feature 6	nw	s-s	X	*	20.5	19.8	2	*	*
feature 6	nw	s-s	*	X	59.5	6.2	2.4	4/64"	1750-1800+

feature 6	nw	s-s	*	X	41.9	8.5	3.4	7/64"	1650-1680
feature 6	nw	s-s	*	X	30.3	7.2	1.7	5/64"	1710-1750
feature 6	nw	s-s	X	*	21.3	17.4	1.2	*	*
feature 6	nw	s-s	X	*	20.2	10.1	0.5	*	*
feature 6	nw	s-s	X	X	46.8	14	6.4	5/64"	1710-1750
feature 6	nw	s-s	*	X	30.4	8.4	2.6	5/64"	1710-1750
feature 6	nw	s-s	*	X	25.7	9.1	2.2	5/64"	1710-1750
feature 6	nw	s-s	X	X	38.8	12	4.9	5/64"	1710-1750
feature 6	nw	s-s	*	X	13.1	9.9	1	5/64"	1710-1750
feature 6	nw	s-s	X	*	15.5	15.6	0.7	*	*
feature 6	nw	s-s	X	X	24.9	11.7	2.6	5/64"	1710-1750
feature 6	nw	s-s	*	X	37.4	8.5	3	5/64"	1710-1750
feature 6	nw	s-s	X	X	31.8	12.6	3.5	5/64"	1710-1750
feature 6	nw	s-s	*	X	46.6	9.8	5.4	5/64"	1710-1750
feature 6	nw	s-s	*	X	50.7	8.6	4.2	5/64"	1710-1750
feature 6	nw	s-s	*	X	39.2	9.5	3.9	5/64"	1710-1750
feature 6	nw	s-s	*	X	29.3	9.2	3	4/64"	1750-1800+
feature 6	nw	s-s	*	X	41.6	8.9	3.8	4/64"	1750-1800+
feature 6	nw	s-s	*	X	23.6	11.1	2.5	5/64"	1710-1750
feature 6	nw	s-s	*	X	30.5	7.1	1.7	5/64"	1710-1750
feature 6	nw	s-s	*	X	26.3	5.5	0.7	6/64"	1680-1710
feature 6	nw	s-s	*	X	40.3	8.2	3.1	4/64"	1750-1800+
feature 6	nw	s-s	*	X	31.8	8	1.9	5/64"	1710-1750
feature 6	nw	s-s	*	X	21.3	7.3	1.2	5/64"	1710-1750
feature 6	nw	s-s	*	X	35.3	9.3	4	5/64"	1710-1750
feature 6	nw	s-s	*	X	26.9	5.2	0.6	5/64"	1710-1750
feature 6	nw	s-s	*	X	28	8.2	2	5/64"	1710-1750
feature 6	nw	s-s	*	X	15.3	8.7	1.2	5/64"	1710-1750
feature 6	nw	s-s	*	X	26.2	6.8	1.4	5/64"	1710-1750
feature 6	nw	s-s	*	X	24.6	7.4	1.5	4/64"	1750-1800+
feature 6	nw	s-s	*	X	29.5	8	1.8	6/64"	1680-1710
feature 6	nw	s-s	*	X	19.2	8.1	1.2	5/64"	1710-1750
feature 6	nw	s-s	*	X	30.7	7.2	1.9	5/64"	1710-1750
feature 6	nw	s-s	*	X	28.8	7.2	1.9	4/64"	1750-1800+
feature 6	nw	s-s	*	X	26.7	9.4	2.5	5/64"	1710-1750
feature 6	nw	s-s	*	X	31.7	7.9	2.4	5/64"	1710-1750
feature 6	nw	s-s	*	X	22.6	6.8	1.2	5/64"	1710-1750
feature 6	nw	s-s	*	X	24.7	7.6	1.8	5/64"	1710-1750
feature 6	nw	s-s	*	X	23.3	7.6	1.5	5/64"	1710-1750
feature 6	nw	s-s	*	X	16.5	6.9	0.9	5/64"	1710-1750
feature 6	nw	s-s	*	X	22	9	2.1	5/64"	1710-1750
feature 6	nw	s-s	*	X	22.2	6.6	0.9	5/64"	1710-1750
feature 6	nw	s-s	*	X	16.8	8.6	1.2	5/64"	1710-1750
feature 6	nw	s-s	*	X	20.7	8.1	1.7	4/64"	1750-1800+
feature 6	nw	s-s	*	X	23.4	7.8	1.5	4/64"	1750-1800+
feature 6	nw	s-s	*	X	25.3	8.5	2.2	5/64"	1710-1750
feature 6	nw	s-s	*	X	24.1	6.4	1.1	4/64"	1750-1800+
feature 6	nw	s-s	*	X	14.3	6	0.5	5/64"	1710-1750
feature 6	nw	s-s	*	X	22.9	7.8	1.5	5/64"	1710-1750
feature 6	nw	s-s	*	X	23.5	7	1.3	4/64"	1750-1800+
feature 6	nw	s-s	*	X	26.1	6.5	1.1	5/64"	1710-1750
feature 6	nw	s-s	*	X	16.1	6.4	0.6	4/64"	1750-1800+
feature 6	nw	s-s	*	X	20.1	6.3	0.9	5/64"	1710-1750
feature 6	nw	s-s	*	X	23.7	6.3	0.9	5/64"	1710-1750
feature 6	nw	s-s	*	X	20	7.2	1.2	4/64"	1750-1800+

feature 6	nw	s-s	*	X	19.3	8	1.3	4/64"	1750-1800+
feature 6	nw	s-s	*	X	15.1	7.8	1	4/64"	1750-1800+
feature 6	nw	s-s	*	X	16.3	7	0.9	4/64"	1750-1800+
feature 6	nw	s-s	*	X	15.5	6.3	0.6	5/64"	1710-1750
feature 6	nw	s-s	*	X	15.9	6.1	0.6	4/64"	1750-1800+
feature 6	nw	s-s	*	X	14	6.7	0.7	4/64"	1750-1800+
feature 6	nw	s-s	*	X	14.5	7.2	0.8	5/64"	1710-1750
feature 6	nw	s-s	*	X	9.6	7.3	0.6	4/64"	1750-1800+
feature 6	nw	s-s	*	X	19.8	7.2	0.8	5/64"	1710-1750
feature 6	nw	s-s	*	X	14.5	7.4	0.9	5/64"	1710-1750
feature 6	nw	s-s	*	X	12.9	6.5	0.4	*	*
feature 6	nw	s-s	*	X	17.1	6.2	0.7	5/64"	1710-1750
feature 6	nw	s-s	*	X	18.8	4.8	0.4	5/64"	1710-1750
feature 6	nw	s-s	*	X	9.7	7	0.3	*	*
feature 6	nw	s-s	*	X	9.7	6.7	0.2	*	*
feature 6	nw	s-s	X	*	17.6	8.7	0.3	*	*
feature 6	nw	s-s	X	*	22.7	11.5	0.9	*	*
feature 6	nw	s-s	X	X	28.7	25	4	5/64"	1710-1750
feature 6	nw	s-s	X	*	26.3	11.5	1.1	*	*
feature 6	nw	s-s	X	*	17.1	11.2	0.7	*	*
feature 6	nw	s-s	X	*	15	8.1	0.2	*	*
feature 6	nw	s-s	*	X	52.5	8.8	4.8	5/64"	1710-1750
feature 6	nw	s-s	*	X	26.1	8.3	1.9	5/64"	1710-1750
feature 6	nw	s-s	X	X	27.4	18.9	2.2	4/64"	1750-1800+
feature 6	nw	s-s	*	X	28.9	7	1.6	4/64"	1750-1800+
feature 6	nw	s-s	*	X	40.9	7.3	2.6	4/64"	1750-1800+
feature 6	nw	s-s	*	X	34	9.2	3.6	5/64"	1710-1750
feature 6	nw	s-s	*	X	21.5	6.5	1	4/64"	1750-1800+
feature 6	nw	s-s	*	X	21.4	7.9	1.6	5/64"	1710-1750
feature 6	nw	s-s	*	X	25.6	8	1.8	6/64"	1680-1710
feature 6	nw	s-s	*	X	23.8	6.7	1.2	5/64"	1710-1750
feature 6	nw	s-s	*	X	8.3	7.8	0.6	4/64"	1750-1800+
feature 6	nw	s-s	X	X	24.9	12.8	1.9	4/64"	1750-1800+
feature 6	nw	s-s	*	X	34.8	7.4	2.3	4/64"	1750-1800+
feature 6	nw	s-s	*	X	32	7.6	2.2	4/64"	1750-1800+
feature 6	nw	s-s	*	X	21.2	7.2	1.3	4/64"	1750-1800+
feature 6	nw	s-s	X	X	21.9	11.1	2.3	4/64"	1750-1800+
feature 6	nw	s-s	*	X	18.5	7.4	1.3	4/64"	1750-1800+
feature 6	nw	s-s	*	X	18.9	8.6	1.6	4/64"	1750-1800+
feature 7	nw	s-s	X	X	28.3	25.8	2.6	6/64"	1680-1710
feature 7	nw	s-s	*	X	34.6	9	3.1	4/64"	1750-1800+
feature 7	nw	s-s	X	X	26.5	21.4	3.1	5/64"	1710-1750
feature 7	nw	s-s	*	X	30.2	7.9	2.2	4/64"	1750-1800+
feature 7	nw	s-s	X	X	53.9	19.3	6.5	5/64"	1710-1750
feature 7	nw	s-s	X	*	17.2	17.1	1.2	*	*
feature 7	nw	s-s	X	*	23.1	10.5	0.6	*	*
feature 7	nw	s-s	*	X	31.9	6.9	1.9	5/64"	1710-1750
feature 7	nw	s-s	*	X	10.1	6.4	0.5	5/64"	1710-1750
feature 7	nw	s-s	*	X	43.1	8.1	3.8	5/64"	1710-1750
feature 7	nw	s-s	*	X	28.5	6.2	1.2	4/64"	1750-1800+
feature 7	nw	s-s	*	X	27.6	7.6	1.7	5/64"	1710-1750
feature 7	nw	s-s	*	X	21.6	7.3	1.4	4/64"	1750-1800+
feature 7	nw	s-s	*	X	24.1	5.8	0.8	5/64"	1710-1750
feature 7	nw	s-s	*	X	41.6	7.7	3.3	5/64"	1710-1750
feature 7	nw	s-s	*	X	23.1	9.4	2	5/64"	1710-1750

feature 7	nw	s-s	*	X	28.4	7.7	2	4/64"	1750-1800+
feature 7	nw	s-s	*	X	27.1	6.5	1.3	5/64"	1710-1750
feature 7	nw	s-s	*	X	23.2	7.6	1.5	4/64"	1750-1800+
feature 7	nw	s-s	*	X	27.6	8.8	2.6	4/64"	1750-1800+
feature 7	nw	s-s	*	X	28.6	8.2	2	5/64"	1710-1750
feature 7	nw	s-s	*	X	25.2	8	1.9	5/64"	1710-1750
feature 7	nw	s-s	*	X	30.2	6.1	0.9	5/64"	1710-1750
feature 7	nw	s-s	*	X	27.3	7.7	1.9	5/64"	1710-1750
feature 7	nw	s-s	*	X	24.9	7.7	1.8	4/64"	1750-1800+
feature 7	nw	s-s	*	X	19.1	10.7	2	5/64"	1710-1750
feature 7	nw	s-s	*	X	25.8	6.8	1.5	4/64"	1750-1800+
feature 7	nw	s-s	*	X	23.8	8.1	1.5	5/64"	1710-1750
feature 7	nw	s-s	*	X	17.7	7.2	1.2	4/64"	1750-1800+
feature 7	nw	s-s	*	X	26.3	7.1	1.5	4/64"	1750-1800+
feature 7	nw	s-s	*	X	14.4	8.2	1.1	5/64"	1710-1750
feature 7	nw	s-s	*	X	25.7	5.4	0.7	5/64"	1710-1750
feature 7	nw	s-s	*	X	20.4	6.6	1	4/64"	1750-1800+
feature 7	nw	s-s	*	X	18.8	6.3	0.7	5/64"	1710-1750
feature 7	nw	s-s	*	X	19.2	6.8	0.9	4/64"	1750-1800+
feature 7	nw	s-s	*	X	17.7	6.6	0.9	5/64"	1710-1750
feature 7	nw	s-s	*	X	19.6	6.3	0.9	5/64"	1710-1750
feature 7	nw	s-s	*	X	16.5	5.6	0.5	4/64"	1750-1800+
feature 7	nw	s-s	*	X	16.4	6.4	0.8	5/64"	1710-1750
feature 7	nw	s-s	*	X	17	6.2	0.6	4/64"	1750-1800+
feature 7	nw	s-s	*	X	16.6	13.5	0.5	*	*
feature 8	ne	s-s	X	*	22	12.8	0.9	*	*
feature 8	ne	s-s	*	X	41.3	9.1	3.3	7/64"	1650-1680
feature 8	ne	s-s	*	X	40.7	8.7	3.6	5/64"	1710-1750
feature 8	ne	s-s	*	X	23.8	11.1	2.9	7/64"	1650-1680
feature 8	ne	s-s	*	X	21.7	9.1	2.2	5/64"	1710-1750
feature 8	ne	s-s	*	X	24.6	9.5	2	7/64"	1650-1680
feature 8	ne	s-s	*	X	37.3	8	2.5	4/64"	1750-1800+
feature 8	ne	s-s	*	X	31.1	8.6	2.4	7/64"	1650-1680
feature 8	ne	s-s	*	X	32.1	6.6	1.6	5/64"	1710-1750
feature 8	ne	s-s	*	X	23.3	7.1	1.7	4/64"	1750-1800+
feature 8	ne	s-s	*	X	19.6	8	1.3	5/64"	1710-1750
feature 8	ne	s-s	*	X	27.3	7.2	1.6	4/64"	1750-1800+
feature 8	ne	s-s	*	X	15.5	7.2	0.9	5/64"	1710-1750
feature 8	ne	s-s	*	X	24.9	6.1	1	4/64"	1750-1800+
feature 8	ne	s-s	*	X	13	7.4	0.8	5/64"	1710-1750
feature 8	ne	s-s	*	X	17	5.7	0.5	5/64"	1710-1750
feature 8	ne	s-s	*	X	16.2	6.2	0.6	4/64"	1750-1800+
feature 8	ne	s-s	*	X	17.4	6.8	0.8	5/64"	1710-1750
feature 8	ne	s-s	*	X	11.4	10.1	0.7	*	*
feature 8	ne	s-s	*	X	12.5	10.4	1	*	*
feature 9	ne	s-s	X	X	27.5	17.4	2.6	4/64"	1750-1800+
feature 9	ne	s-s	*	X	69.4	12.4	10.1	7/64"	1650-1680
feature 9	ne	s-s	X	*	18.9	17.5	1.9	*	*
feature 9	ne	s-s	X	X	42.1	15.2	5.4	5/64"	1710-1750
feature 9	ne	s-s	*	X	42.4	9.9	4.6	5/64"	1710-1750
feature 9	ne	s-s	*	X	40.2	10.2	4.2	5/64"	1710-1750
feature 9	ne	s-s	*	X	41.8	8.4	3.9	5/64"	1710-1750
feature 9	ne	s-s	*	X	23.5	8.1	1.9	4/64"	1750-1800+
feature 9	ne	s-s	*	X	26.6	8.7	2.3	5/64"	1710-1750
feature 9	ne	s-s	*	X	27.3	9.9	3.2	5/64"	1710-1750

feature 9	ne	s-s	*	X	22.5	9.4	2	5/64"	1710-1750
feature 9	ne	s-s	*	X	24.6	8.4	2	5/64"	1710-1750
feature 9	ne	s-s	*	X	29.5	7.7	1.8	5/64"	1710-1750
feature 9	ne	s-s	*	X	23.6	8	1.6	5/64"	1710-1750
feature 9	ne	s-s	*	X	15.9	7.9	1	4/64"	1750-1800+
feature 9	ne	s-s	*	X	25.7	7	1.5	4/64"	1750-1800+
feature 9	ne	s-s	*	X	23.1	12.3	2.5	7/64"	1650-1680
feature 9	ne	s-s	*	X	23.6	6.4	0.9	5/64"	1710-1750
feature 9	ne	s-s	*	X	21	7.7	1.2	5/64"	1710-1750
feature 9	ne	s-s	*	X	22.3	7.6	1.3	5/64"	1710-1750
feature 9	ne	s-s	*	X	16.1	8	1.3	4/64"	1750-1800+
feature 9	ne	s-s	*	X	22.3	5.2	0.5	5/64"	1710-1750
feature 9	ne	s-s	*	X	13.3	6.1	0.5	4/64"	1750-1800+
feature 9	ne	s-s	X	*	12.7	9.8	0.3	*	*
feature 9	ne	s-s	*	X	14.8	7.9	0.6	*	*
feature 9	ne	s-s	*	X	15.1	8.4	0.6	*	*
tr.b	outside	0-10cm	*	X	22	5.8	0.8	4/64"	1750-1800+
trac. tr. 4	ne	s-s	X	X	23.6	21.3	2.4	5/64"	1710-1750
trac. tr. 4	ne	s-s	*	X	71.4	7.1	3.7	5/64"	1710-1750
trac. tr. 4	ne	s-s	*	X	42	8.2	3.3	5/64"	1710-1750
trac. tr. 4	ne	s-s	*	X	36.3	10.4	3.9	5/64"	1710-1750
trac. tr. 4	ne	s-s	*	X	48.6	9.1	4.5	5/64"	1710-1750
trac. tr. 4	ne	s-s	*	X	32.6	10.1	2.5	5/64"	1710-1750
trac. tr. 4	ne	s-s	*	X	32.2	6.1	1.3	5/64"	1710-1750
trac. tr. 4	ne	s-s	*	X	25.9	7.8	1.7	4/64"	1750-1800+
trac. tr. 4	ne	s-s	*	X	31.6	7.8	2.2	4/64"	1750-1800+
trac. tr. 4	ne	s-s	*	X	34.2	6.4	1.8	4/64"	1750-1800+
trac. tr. 4	ne	s-s	*	X	27.4	5.4	0.7	4/64"	1750-1800+
trac. tr. 4	ne	s-s	*	X	15.3	7.2	0.8	5/64"	1710-1750