

## 9.0 CONCLUSIONS

### 9.1 SOIL AND BRICK CHEMISTRY EFFECTIVENESS

The work carried out at the Jones site provides an opportunity to assess the efficacy of some of certain special studies on the working portions of tenant farms. The results from chemical analyses conducted of soil and brick samples from the Jones site show both possibilities and limitations of these methods for interpreting a site like the Jones site. On the positive side, soil chemical analysis did find some patterns that made sense with features found on site. Phosphorus concentrated along apparent fence lines as has been seen elsewhere, and potassium (a probable fertilizer ingredient) concentrated away from the fence lines where fertilizer might have been spread on farm fields, as well as by the brick clamp, where it may be an indication of wood ash from the kiln fire. A calcium peak near a grouping of post holes could suggest mortar from a structure near the barrel-lined well. Other chemical constituents (especially iron, manganese, and copper) correlate mostly with where a large spoil pile was deposited on top of the Jones site, and probably have nothing to do with how people used the site in the time period of interest. Overall, it was difficult to interpret the soil chemistry with relatively limited feature data. We have two wells, and a clear fence alignment, but no clear structure foundations to flesh out the picture. The absence of the latter makes our interpretations less certain.

Few other states have implemented the number of soil testing programs that have been initiated in the State of Delaware since the mid-1980s, predominately sponsored on DelDOT projects. The Delaware SHPO supports the soil testing strategy, particularly on historical farmstead sites. However, the majority of soil analyses have been undertaken on sites where structural information existed (either in features or historic maps) identifying the site layout. The soil chemistry was used as an additional aid to strengthen site interpretations and support what was generally known about the sites, for example fence line locations, animal pens, fireplace locations, and tentative trash disposal methods. The results in many cases did provide the additional evidence to support site interpretations and further insights into some of these historical behaviors.

Soil testing has not often been undertaken at ephemeral historical sites, such as the Jones Site, where structural evidence and site layouts are not specifically known. Certain indications in the soil chemical analyses could suggest associations with past activities. However, site specific parameters will influence soil chemistry results. For instance, concentrations of phosphorous have been found in association with animal pens, fertilized fields, privies, fence lines, and foundations but without specific feature evidence, the same high concentration could be plausibly interpreted as any of these. Ditto potassium, which can be associated with wood ash as well as fertilizer. On the Jones Site, with only the brick clamp complex in Block A, and fence lines, the two well features, and possible post foundation in Blocks B and C, we don't have a clear enough site layout against which to compare the evidence from the soil chemistry program to further enlighten our understanding of what people did here in the past.

Since there are many activities that can produce similar chemical concentrations, the benefits of soil chemical analyses seem most valuable in conjunction with clear features, site layout, and artifact distributions to corroborate impressions in those data sets. It would seem more

beneficial to use chemical analysis to help interpret sites that are not as clear and ephemeral to identify activity areas or latent features, but such testing exposes the limitations of soil chemical analysis.

The brick chemistry study has some potential, but needs a larger sample. The results we garnered showed some grouping of the brick samples, suggesting they could have been made on site from site clays. They also showed a potential separate tighter grouping of the apparently later, machine-made bricks from the brick-lined well. But because of the apparent chemical variability in the bricks we suspect were made on site (likely to be expected in hand-made bricks), and our relatively small sample size, the results remain a bit inconclusive. Ideally, we would want a larger sample both from the site being studied, as well as samples from other sites. This might be something to consider for future studies. Once a larger data set of regional samples is built up, it might be possible to learn something about how variable early brick making was, and when and where itinerant on-site brick makers were supplanted by larger, centralized machine-based operations.

## **9.2 CONCLUSIONS AND IMPLICATIONS FOR REGIONAL HISTORICAL ARCHAEOLOGY**

Interpreting ephemeral rural tenant sites can be a real challenge. While the ownership of a site can be well established, identifying occupants is frequently impossible. If in addition, the recovered material is scant, the mystery can prove to be intractable. While we have some of these challenges at the Jones site, we do have a number of well-preserved features spanning a hundred years or so that invite the attempt.

Exploring the history of the Jones site in many ways begins with the archives. One particularly important discovery was that we were able to match up the lines on current property boundaries, the original grant lines, and tree lines and other landmarks on the 1926 aerial photograph. This allowed us to pinpoint the site on historic maps a little more precisely than we could before. This told us that the site was entirely on a 110 acre parcel owned by Thomas Brown in 1761, known as the Brown tract, and not partly on neighboring tracts. Further close reading of what we had suggests that the property was occupied by tenants (or not inconceivably slaves) in the late 18<sup>th</sup> to early 19<sup>th</sup> century, then was unoccupied probably for several decades starting around the time of the financial panic of 1819, and lasting probably until the 1850s when the surrounding properties were combined as the farm “Australia”. Although archival research did not find cartographic evidence for a structure on the Jones Site, tax records indicate a log cabin was built on the land sometime before 1816. We also know that the Jones family lived elsewhere in the county on one of their numerous large landholdings during their ownership of the land (1768 to 1806).

Dating and interpreting the features we found during excavation of the site proved to be a challenge owing to the relatively low number of datable objects we found, and the lack of detailed written descriptions of the property. Most likely the brick clamp and barrel well date to the earliest occupation, the brick lined well and tile drains with the later. The fence lines are an

unknown, but they do line up with features visible on the 1926 aerial, so they could belong to that era, but there's just no way to know for sure.

We have interpreted the features in the northern portion of the site as the remains of brick making based on the presence of burned earth consistent with other identified brick-making sites, the large quantity of brick fragments on site, including apparent wasters, and soil chemistry that found concentrations of phosphorus in the vicinity, consistent with burning wood fuel. We did cluster analysis on the chemical constituents in the soil and brick samples and got ambiguous results. However, the results left the possibility open that site soils were used to make the hand-made bricks found on site.

The brick clamp is difficult to date because so few diagnostic artifacts were found near it, but what evidence we do have suggests it was used during the first period of site occupation, sometime between 1768 and 1820 or so. The Jones site appears to have been unoccupied from the late 1810s through about midcentury. By the time the site was re-occupied by the farm named "Australia" there were brick yards in the area that likely supplied local need, perhaps including the machine made bricks we found in the 2<sup>nd</sup> well on site. Lastly, there are late 19<sup>th</sup>-century ceramic drain tiles overlying the brick clamp features, clearly showing they predate the last period of site occupation. This is consistent with the Delaware Historic Contexts: 1730-1770 – Intensified and Durable Occupation, 1770-1830 – Early Industrialization, and 1830-1880 – Industrialization and Early Urbanization. The site is probably initially occupied during a period of expansion, then abandoned for a short time, then redeveloped with the kind of scientific approach to farming popular by the end of the 19<sup>th</sup> century.

Comparison with other small brick making sites suggests that our signature is consistent with a small 18th-century brick kiln that would produce something on the order of 10 to 20,000 bricks as a one-time operation; maybe a little short of what you would need to build a house, but enough to build chimneys and foundation footings. We think whatever they were used for was outside our project area, but probably not very far. Perhaps one of the log houses referenced in the early deeds was on some slightly higher ground within the Brown tract, but out of the SR1 ROW to the west. There is a small rise a short way outside the project right of way to the east of the project area. Small differences in topography have been shown to be a significant factor in the selection of early Delaware house sites. It may well be that an occupation site associated with the brick clamp and wells was located there.

The spatial layout of the brick clamp complex included a mixing pit and a canopy or shed. Possible hoof prints in the base of the mixing pit suggest that beasts of burden were used in a traditional method of breaking up clay and mixing it with water. It appears likely that after the green bricks were molded underneath the canopy structure at the Jones Site, they were moved to a nearby raised platform of hard-packed earth bordered by linear ditches on either end. The bricks were probably placed along this platform, standing on one of their long edges with small gaps between adjoining bricks, and left to dry before being re-stacked into a clamp for burning. It appears that the clamp was immediately adjacent to the probable drying platform, and may have been built up upon the same raised platform of earth.

Two wells were investigated, both in the southern portion of the site near a swampy wooded area, one, believed to date to the earliest period of site occupation, lined with wooden barrels, and a second, probably dating to the “Australia” farm period, lined with machine-made bricks. Perhaps people chose this location of the farm for digging the wells due to its proximity to the swamp, since the water table was likely to be encountered fairly early, saving effort. The presence of well-preserved wooden barrel components in the barrel well provided an opportunity to examine this early example of well construction. Our examination of the barrel parts showed that they had been recycled from another use before being used to line the well. The later occupants of the site probably got bricks for the second well from a local commercial brick and tile yard which was located several miles east of the property by the 1860s but no identifying characteristic labels confirmed this.

Despite the presence of two wells, we don’t think anyone ever lived on our site, at least not within the area we excavated; there just aren’t enough domestic artifacts. Even very poor tenant farms excavated elsewhere in Delaware have orders of magnitude more domestic artifacts than we have from the Jones site. Their minimum vessel counts dwarf our total sherd counts (Table 8-9). The large sample size from the site makes this unlikely to be a sampling problem. Furthermore, the site lacks significant faunal remains and has no clear evidence of mortared brick or a former chimney base. Post holes found away from the fence alignments, with a nearby concentration of calcium in the soil, along with some brick fragments and nails suggest there may have been some kind of a structure near the barrel well, but the evidence doesn’t give much of an idea of its size or function. If it was a dwelling, it was occupied either briefly or very intermittently. Bedell et al. (2002) note that in contrast to farms in parts of Pennsylvania or elsewhere in the northeast, 19<sup>th</sup>-century Delaware farms could be as much as 500 feet from the road. But Jones site is approximately 800 feet from nearest road, and its location in proximity to three wetlands – to its north, east, and south - argues against it being a favorable location for a residence.

The presence of both wells without a nearby identified residential structure is unusual in comparison with typical farm layouts observed elsewhere in Delaware. Our interpretation is that this was a working area of a farm, not a residential one. Elevated concentrations of phosphorus near the fence alignments suggest past occupants may have tied livestock to the rails. The wells could have used for livestock, or maybe for supplying the brick making work, or other activities that farmers or farm hands carried out in this area.

This is consistent with what we know about the layout of the farm during the mid-19<sup>th</sup> century. Based on the 1868 Beers Atlas, the site was part of a 315 acre farm known as “Australia”. The main residence on Australia was a frame farmhouse that stood from the mid-19<sup>th</sup> to the late 20<sup>th</sup> century to the east of the SR1 right-of-way on the west side of the main highway. This main farmhouse was outside of the boundaries of the original 110 acres of the Jones property. A second house was added to Australia sometime between 1849 and 1868, and was probably situated near the area of the brick clamp, but west of the Jones site (outside of the SR1 ROW).

The brick-lined well may have been associated with the nearby fence lines represented by rows of postholes. The fence lines could have formed enclosures for livestock, and the brick-lined well may have provided drinking water for livestock troughs. The double row is intriguing, but a

little enigmatic. The pairs are spaced about 4 to 6 feet apart, a little too far apart to be support posts for a worm fence. The fence lines also could have edged internal farm lanes bordering agricultural fields, but a very narrow one. Fenced lanes tended to be a part of fashionable farms in the Victorian era and may have been part of the transformation from a small farm to a larger one in the 1860s. Alternatively, the double row could represent a replacement, but without datable artifacts in the post holes, it's not possible to say. Perhaps the presence of an owner who lived on and farmed the land after 1880 with several farm hands in residence led to the addition of livestock farming and/or an investment in fencing.

The terra cotta drain tiles represent the latest developments we identified at the site. These drain lines appear to represent early-20<sup>th</sup>-century attempts to drain wetlands on the farm. Improving the quality of fields through draining became popular in the late 19<sup>th</sup> century. Informant evidence suggests that the drain lines were installed during the Great Depression as part of Works Progress Administration projects. Locally-made drain tiles were available in southern New Castle County and northern Kent County since the 1860s and well into the 20<sup>th</sup> century. No identifying marks or company brands were noted that could associate the drain tiles at the Jones Site with a particular place of origin. That the area of the Jones site was seen to warrant draining to make it more productive may say something about its marginal nature in the years prior to that.

What the Jones site has to tell us is something about how people in Delaware used land in their work, if not in how they made their homes. There is reason to believe from the parcel's location well away from the roads and near marshy ground, valuation, and occupation history that it was in some respects a marginal piece of ground. Yet clearly it was used for a variety of purposes: brick making, drawing water, possibly pasturing animals, and possibly as the site for various sheds or out buildings. Late in its history it was the focus of drainage improvements possibly intended to support sod farming. It may be that for tenant farmers no land is wasted, and every place has a purpose.