Results

Excavation of the test units took place over two days on 16 and 17 June 2004; the study benefited from available "free labor," from the USF field school. The excavations on the 16th involved only one team of three people (although several people rotated in and out throughout the day) one to dig, one to screen, and one to keep records; over the course of 4 hours, the team managed to dig twenty holes (units 48-68, excluding unit 61). On the 17th, two teams of 3 people excavated the remaining 45 units (1-47, excluding 15 and 18), over the course of 5.5 hours. Therefore, the first day's team averaged roughly one hole every 12 minutes, digging, screening, recording and backfilling each hole, and moving a sunshade to each new unit location; the two teams on the second day averaged approximately1 hole every 14 minutes and 40 seconds.

The volume of soil removed from each unit did vary somewhat, mostly depending on the individual manning the posthole diggers, the condition of the soil in the vicinity of the unit, and the presence of material in the ground that forced lateral movement of the posthole diggers. The diameters of the holes ranged from 6 to 11 inches, with a mean diameter of about 7.9 inches and a standard deviation of nearly 1 inch; the mean hole depth was about 20.25 inches due to hole refusal in some units. The total volume removed per unit averaged 1,028.5 cubic inches compared to the optimal volume of 1,181 cubic inches; moreover, there was a large variation, with a standard deviation of 454.8 cubic inches (Table 1).

Table 1. Variation in posthole excavation metrics.

	Diameter (in.)	Depth (in.)	Volume (cu. in.)
Count:	65	65	65
Median:	7.5	24	1060.288
Mean:	7.915	20.246	1028.478
SD:	0.997	0.791	454.763
Minimum:	6	2.5	96.211
Maximum:	11	24	2280.796

Ultimately, there was no attempt to compare testing intensities in only two dimensions, since measuring only the surface area that was tested masked considerable volumetric differences in the amount of archaeological matrix evaluated by the different sampling strategies employed by the three overlapping archaeological projects. The more meaningful comparison was derived from examining the total volume of archaeological matrix actually evaluated versus the ideal total volume of each project's stated research universe; thus, the comparisons presented here reflect the percentage of the research universe that was actually sampled. As a convenient comparison of surface area coverage, the Gladstone Alley

Project's postholes were 33 percent larger than the largest auger tests reported by McManamon, and only 25.8 percent the size of one of McManamon's shovel tests. Since Florida guidelines require larger shovel tests, the resulting postholes would only be 16.49 percent the size of a round shovel test with a 40 cm diameter; however, in the author's experience Florida archaeologists almost universally excavate square shovel tests, so the postholes were just 13.92 percent of the size of a typical Florida shovel test, in terms of surface area coverage (Table 2).

Table 2. Comparison of areal coverage.

GAP Sample Area (sq. in.)	1,440,000
GAP Area Sampled	3267.26
Area Sampled (plus USF)	10,179.26
Sampled Percent	0.23%
Sampled Percent (plus USF)	0.71%
PCI Sample Area (sq. in.)	62,705,836.8
PCI Area Sampled (round)	7608.54
PCI Area Sampled (square)	9300
PCI Sampled Percent (rnd)	0.012%
PCI Sampled Percent (sqr)	0.015%

In terms of the overall areal extent of each project's research universe, the Gladstone Alley Project's (GAP) subsurface sampling was restricted to a subsection of the original PCI Phase I archaeological survey that amounted to 2.3 percent of the area covered by the 2001 survey (Table 3). However, there were large volumetric differences between PCI's shovel test pits and the GAP's postholes; thus, the GAP's postholes were only 1.4 percent the size of PCI's survey, by volume. Although the GAP was conducted as a separate project, administratively, it was not a discrete, fully-independent archaeological investigation; with the excavation units from the 2003 USF field school included, only the GAP's sampling strategy approached a 1 percent sample of its research universe. Unfortunately, an analysis of the artifacts from the 2003 USF field school test units that overlapped the GAP's research universe is not available (the author was personally involved with excavating Units #2 & #6 during the field school).

The report for the PCI Phase I archaeological survey neither explicitly mentions whether they excavated square or round shovel test pits, nor provides the volumetric information to determine which type was employed, so volumetric comparisons were made for both round and square shovel tests. Since the GAP research design specified a fixed depth of two feet, and because the emphasis was on the evaluation of using manual, scissor-style posthole diggers as a means of archaeological subsurface sampling, there was no attempt to break down the evaluation of volume by quadrant. That said, there were some insights deriving from the selected testing interval. The percent of each of their respective research universes that were sampled, strictly in terms of surface area coverage, was very similar (0.10 percent to 0.23 percent); the GAP postholes that were excavated at a 20-foot interval were the most similar to the PCI Phase I archaeological survey, and the combined GAP results were similar to the coverage achieved by the 2003 USF field school. Notably, the coverage provided by the 10-foot testing interval, increased the percentage of total potential surface area coverage by around 50 percent (Table 4).

Table 3. Comparison of volumetric coverage.

GAP Universe Volume (cu. in.)	34,560,000
GAP Sampled Volume (cu. in.)	66,851.04
USF Volume (cu. in.)	248,832
Sampled Percent	0.19%
Sampled Percent (plus USF)	0.91%
PCI Universe Volume (cu. in.)	2,461,204,094
PCI Sampled Volume (rnd)	287,549.98
PCI Sampled Volume (sqr)	366,120
PCI Sampled Percent (rnd)	0.012%
PCI Sampled Percent (sqr)	0.015%

Table 4. Comparison of GAP quadrants.

Quadrant Sample Area (cu.in.)	360000
Q1 Area Sampled	1060.287521
Q2 Area Sampled	510.7051557
Q3 Area Sampled	1252.034628
Q4 Area Sampled	371.3215254
Q1 Sampled Percent	0.29%
Q2 Sampled Percent	0.14%
Q3 Sampled Percent	0.35%
Q4 Sampled Percent	0.10%

Artifact Analysis

As stated previously, every hole was "positive," in the sense that cultural material was recovered from every unit. Most of the recovered material was in extremely poor condition; the bulk of the recovered material consists of small shards of glass, metal, and ceramics. In the lab, it became apparent that almost all the recovered artifacts would be assigned to the groups: Domestic, Architecture, and in a distant third place, Personal; there was only one artifact, a sparkplug (Unit #48), assigned to the Transportation group, and only one artifact, a 1981 Lincoln Penny (Unit #59), was assigned to the Commerce & Industry group. In no case, was an artifact assigned to the Group Services or Group Rituals groups.

A total of 5,257 artifacts were recovered, however, given the fragmentary nature of the majority of the material it became preferable to deal with weight instead of counts; the total weight of recovered artifacts was 10,915 grams (24 pounds). The weights were used to calculate and expected percentage for every material category; in theory, if the artifacts categories were evenly distributed throughout the study area, then each unit would contain the same percentage of each material category. The distribution of artifacts was not evenly distributed throughout the study area, and the varying artifact distribution densities may correspond to places where deposition occurred during the sites period as a habitation site rather just being randomly redistributed through disturbances created by the demolition of the houses during urban renewal episodes.

Bottle glass represented the largest quantity of recovered material; as with most of the recovered material, the shards were for the most part to small, and lacking in markings to positively identify. However, a significant amount of amethyst glass was found throughout the site, including a bottle finish (Unit #59) with a smooth steep-sided lip, string rim, and irregular "cork seat" on the interior of the lip that is likely to be from a short-necked liquor bottle; a bottle finish with a flared lip, and distinct patinization, that may be from either a patent medicine or "toilet water" bottle (Unit #29); and another partial finish that is likely from a patent medicine bottle. This amethyst glass appears to be discolored from exposure to ultraviolet light; the coloration of these shards is likely to have resulted from a reaction between sunlight and the manganese that was used as a decolorant. Manganese was used as a decolorant from the mid-1880s to the end of World War I (Sutton and Arkush 2002, 187); and given the morphology of the bottle finishes, it seems likely that these examples date from that period.

Another brown glass bottle base had a manufacturer's mark (a capital "R" in a triangle) that could be traced to the Reed Glass Co. of Rochester, NY, and was in use by that company from 1927-56 (Toulouse 1971: 432). Several other shards of glass had embossing that proclaimed "Federal Law Prohibits Reuse or Resale of This Bottle;" this message came into use after the repeal of Prohibition, and remained in use until the mid-1960s. One small, glass shard appeared to be unmarked until it was held at an angle to a light source in the laboratory; in transparent letters it read "if it's Borden's, then it's got to be good," but it is not clear whether the writing was intended to be transparent or if it was perhaps "pyroglazing" that had worn off over time. Finally, three glass "club sauce style" bottle stoppers were recovered; these "were one of the most common glass bottle stopper styles of the late nineteenth/early twentieth" centuries (Panamerican Consultants 2001, 13).

Construction related metal, and other construction materials combined, made up a little more than 40% of the total recovered weight. Most of the "Construction Metal" category was made up of nails and nail fragments; there were both cut nails and wire nails of various sizes. "Construction Materials" included pieces of roofing tiles, grooved wood or possibly asbestos molding that had been painted green, and chunks of concrete. Other related items, included a brass spigot manufactured by "Republic," and an approximately 8-inch segment of ¾" diameter copper pipe; the spigot appears to be an outdoor type. Domestic metals were represented by many bottle caps for crown cap type bottles, and spoon stamped "Kensington Silver Plate" on the back of the handle.

Most of the flat glass recovered from the study area was determined to be window glass of some sort; it is probable that this glass is related to the windows of historic structures; however, some of it could be related to glass from picture frames, or furniture (all flat glass was assigned to the Architecture group). None of the flat glass appears to be related to automobiles. Several pieces of decorative cut class were recovered, including a shard with cross-hatching on the convex side, a shard of blue glass with etched designs of small flowers and vines, a shard with points on the convex side, and piece of iridescent "carnival glass" decorated with flowers that may be "depression era," but could not be positively identified as such.

A significant amount of bone (128 grams) was recovered from this relatively small area; all of it was identifiable as faunal remains. There was good mix of species represented, with chicken or other poultry being the most common; there were also bones from larger domestic animals such as pigs or cows, and a number of fish vertebrae. Several of the larger bone fragments showed definite striations, indicating that they had been cut with a meat saw (rather than clean cuts such as might be seen if the meat were prepared with a cleaver).

The overwhelming majority of ceramics recovered from the study area were sherds of undecorated, white ironstone; unit 58 yield a large quantity of what appeared to be 1 large dinner or serving plate, several pieces were cross mended, but there were no identifying marks. One sherd (Unit #21), has a "flow blue" transfer print on a scalloped and beaded rim; this piece seems likely to be from the "late Victorian" period from 1885 to 1920 (Lenzner n.d.); another sherd has a similar color transfer, but the paste is much harder and it is very thin (it appears to a more modern vessel, perhaps a vase). A few very thick-walled vessels also appear to be ironstone; one of these vessels (Unit #24) shows definite blue "pooling" in the glaze, but it is most definitely not pearlware as evidenced by the well vitrified paste.

A wide variety of personal items were recovered from the study area. None of the artifacts were particularly diagnostic. Included in this category were safety pins and other metal clothes fasteners; especially interesting were a brass cufflink, two mother-of-pearl buttons, and a small, ceramic button. Two expended .22 caliber shell casings (both rimfire), and one .45-70 caliber shell casing (centerfire) were also listed as personal items. An ornate piece of costume jewelry with a tri-leafed design, and set with yellowed, plastic gems, and several fragments of one or more vinyl LP records were also discovered. The site also yielded a number of items that were definitely children's toys; these included a metal jack, the "flip-up" part of the barrel from cap gun, a clear, glass marble, and a soft metal, and a finger ring that appeared to have a setting for some sort of adornment.

Revised Spatial Analysis (2016)

This section replaces the previous spatial analyses, conducted over the 2003 USF fall semester, and submitted early in 2004 USF Spring semester, so that it could be included as an appendix to the final report to the FDOT. The previous analyses relied on creating course-resolution choropleth maps representing artifact densities, and transparencies that had been created from black and white copies of Sanborn maps. The resolution was suitable to the results being presented, and the ensuing discussion; unfortunately, it was limited to total weight, along with a limited selection of artifact groups. The version that was previously published through the FDOT's website had additional software interoperability issues that stemmed from my decision to assemble my document in Microsoft Publisher.

The previous analyses did successfully identify a fair bit of the full temporal range of the neighborhood, and several of the analytical groupings did appear to suggest meaningful associations with the occupation periods of the neighborhood. I think the previous use of z-score in the category of total weight recovered from test unit was a step in the right direction. Urban environments are a sort of continuous palimpsest; what Rapoport calls the non-fixed feature elements (i.e., living beings) are in constant interaction with the semi-fixed and fixed feature elements of their urban environment, and this generates a variable pattern within the dominant landscape usage trends (Rapoport 1982, 88–101). On the other hand, large swaths of land can be brought to a builder's level, and become sealed away beneath the foundations of commercial and/or industrial buildings that signal the shift to the next continuous palimpsest for that locality. With the passage of time, these deposits may survive to become the weathered and compressed discrete occupation layers of the type more familiar in prehistoric archaeology.

In many ways using a GIS to accomplish both data storage, and representation, is little different than was using an array of physical layers, like colored grid cells overlain by transparencies of different Sanborn maps, and underlain by a custom drawn graph paper for spatial reference. Furthermore, using a GIS largely replaces the need for spreadsheets, graphing calculators, etc., although many computer files can be utilized within a GIS. Using a GIS also increases the capacity for depicting information from multiple sources in ways that are more immediately comprehensible to the viewer. I will leave the remainder of this discussion for the Discussion section of this document; for the purpose of presenting the results, though, the use of a GIS facilitates moving a single dataset through representations of more complex levels of analysis. In this case, the progression is from total weight, to total productivity, and to a breakdown of artifact productivity as to whether the test unit was dominated by architectural artifacts or artifacts that reflected domestic patterns of past human life.

As a means of representing information visually, a GIS allows for a wide range of outputs, from a simple plotting of the location of artifacts assigned to the Personal category, with a special reference to buttons (Figure 1) or excavation depth (Figure 2), to representing more complexly constructed variables (Figures 3-7). The use of ratios within units was abandoned, but the Architectural results are included here for the purpose of later discussion (Figures 7-8). Refer to the posthole test plan shown in the Field Methods section of this document with regard to the labels for Figure 9.

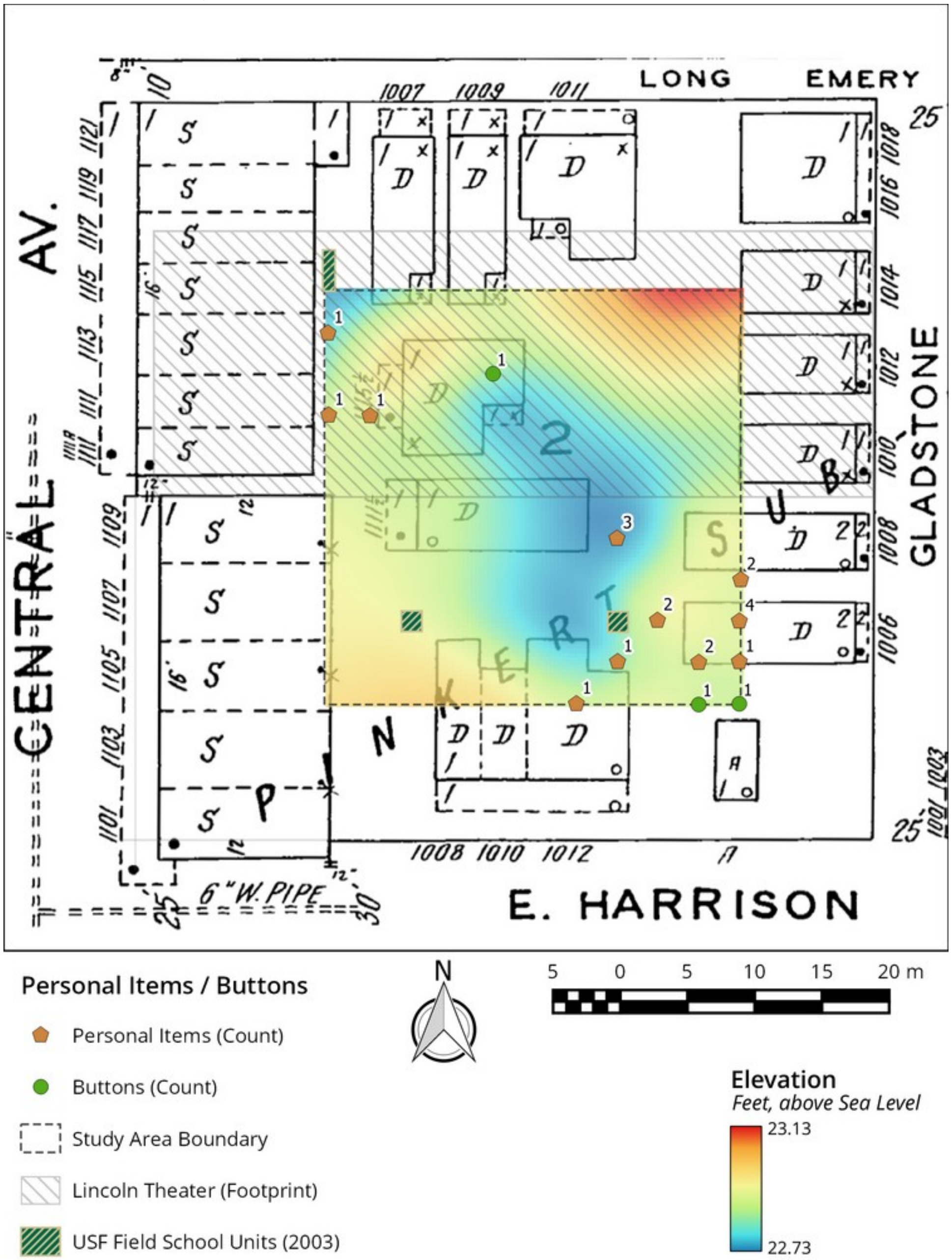

Figure 1. Personal items, with special reference to buttons, from the GAP.

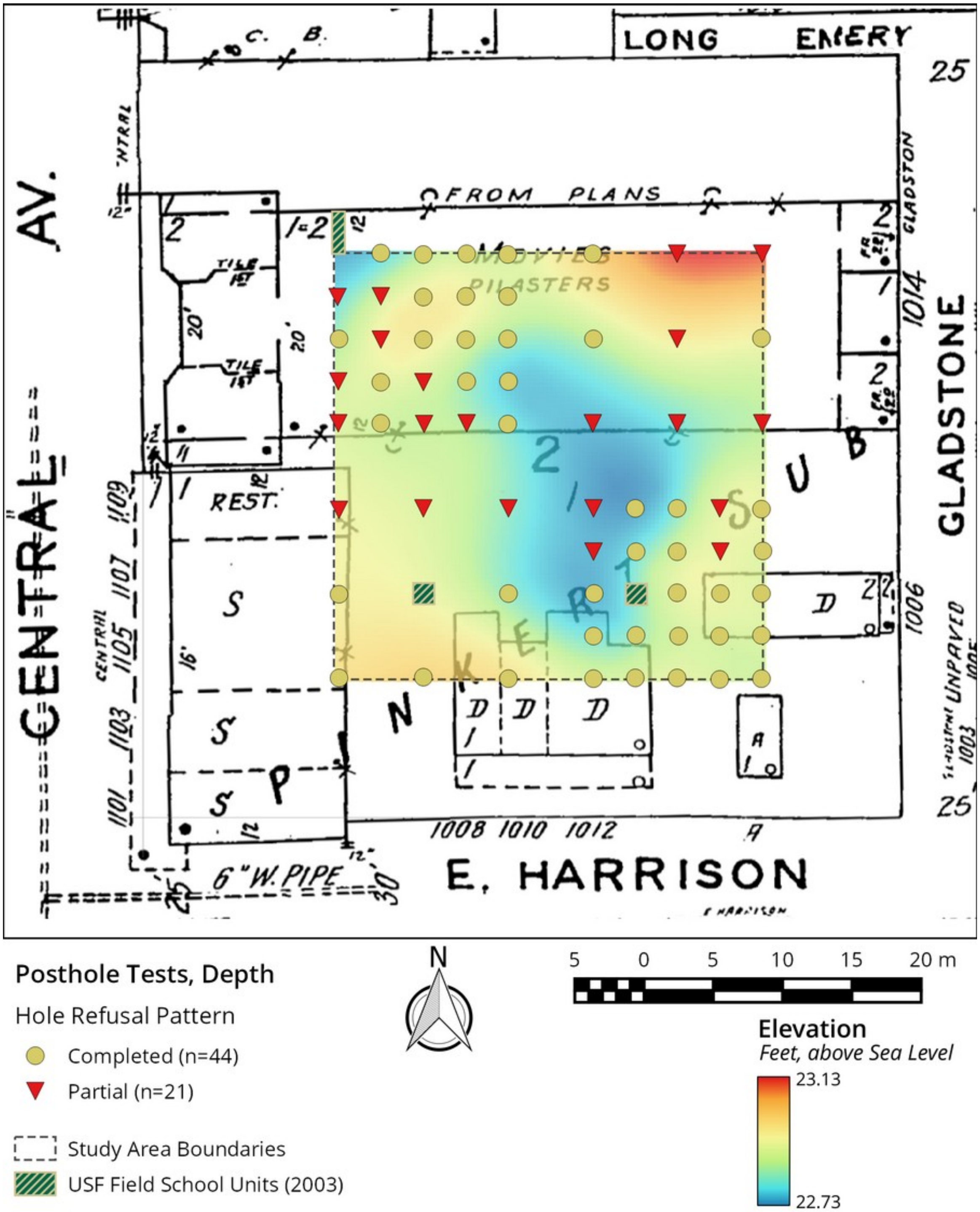

Figure 2. A graphic representation of where hole refusal was an influence.

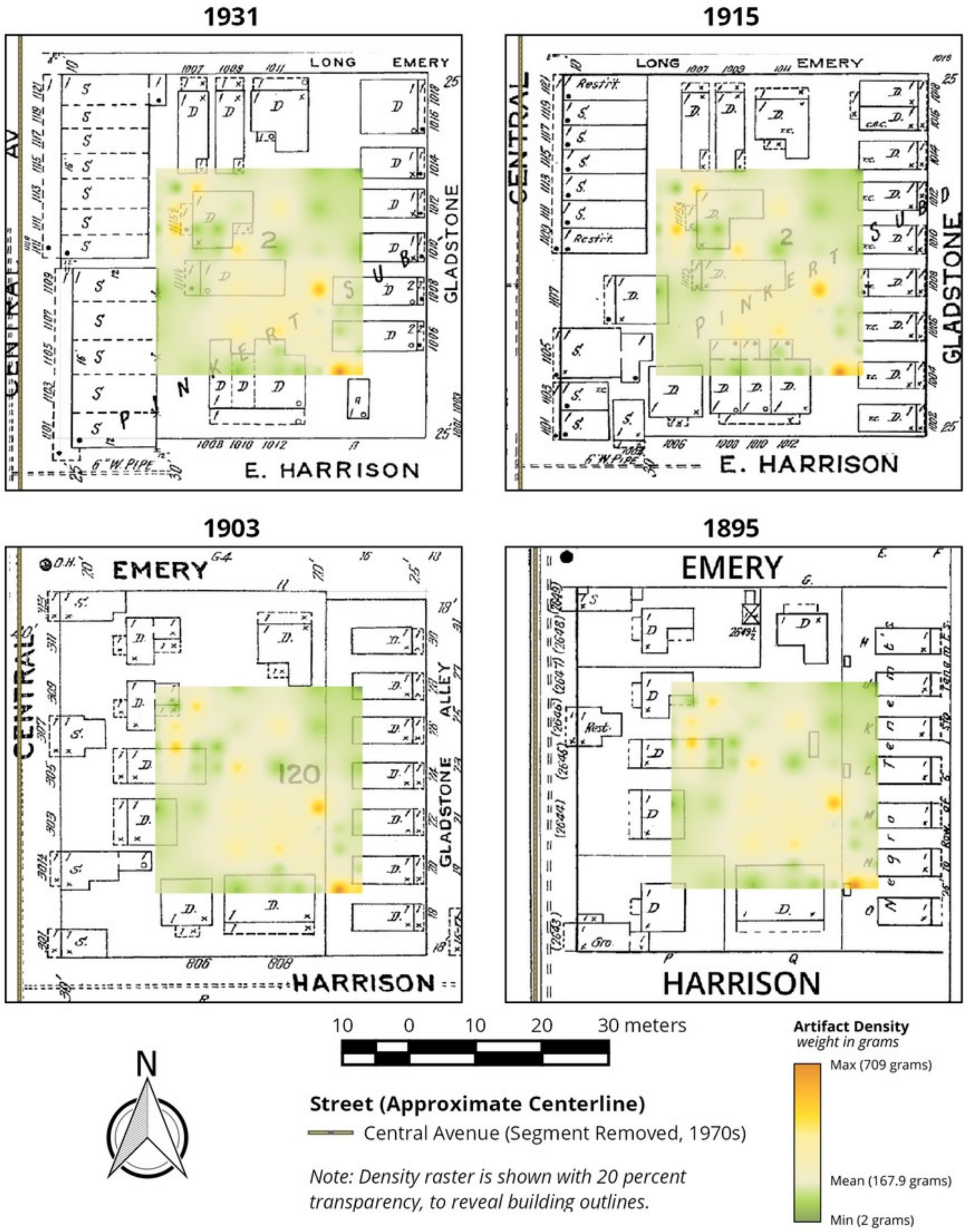

Figure 3. An estimate of artifact weight density for the entire study area, interpolation of test data accomplished by kriging, using each quadrant's test interval to weight the data.

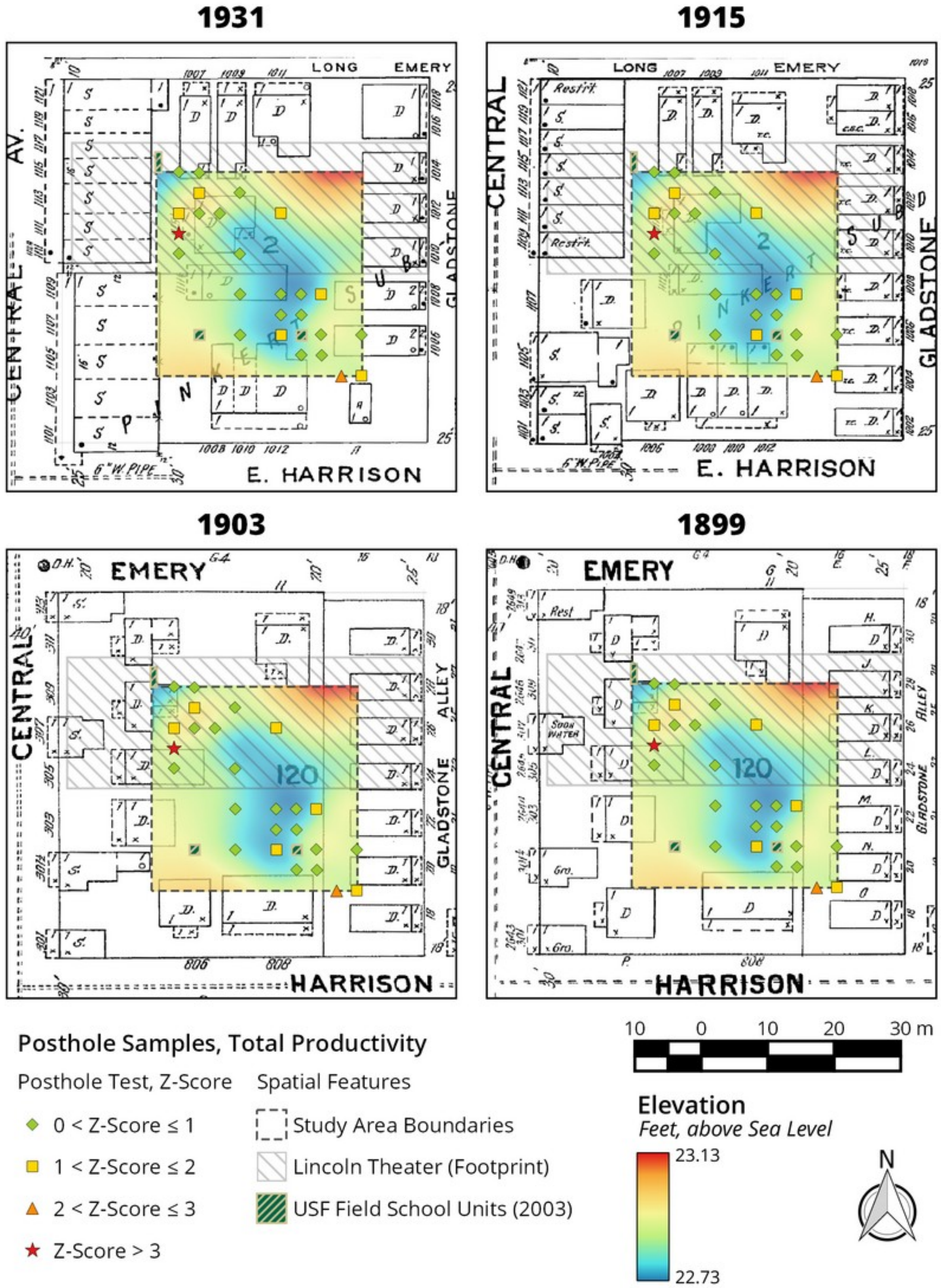

Figure 4. A representation of each test unit's total productivity. This metric reflects a mean z--score derived from independently converting multiple material categories to z-scores.

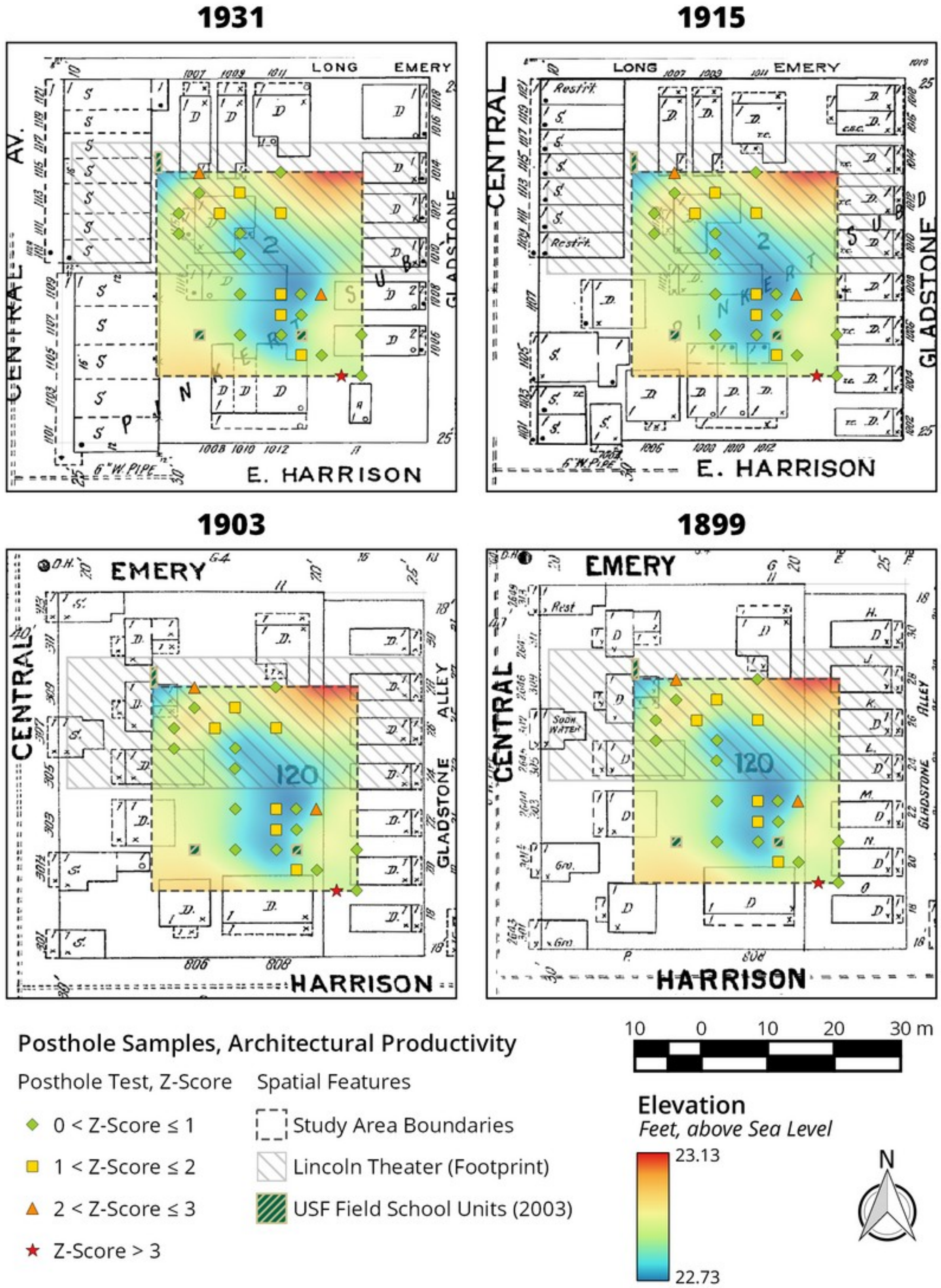

Figure 5. A representation of each test unit's results expressed as a mean z-score derived from the independent z-scores for Construction Material, Construction Metal, and Flat Glass.

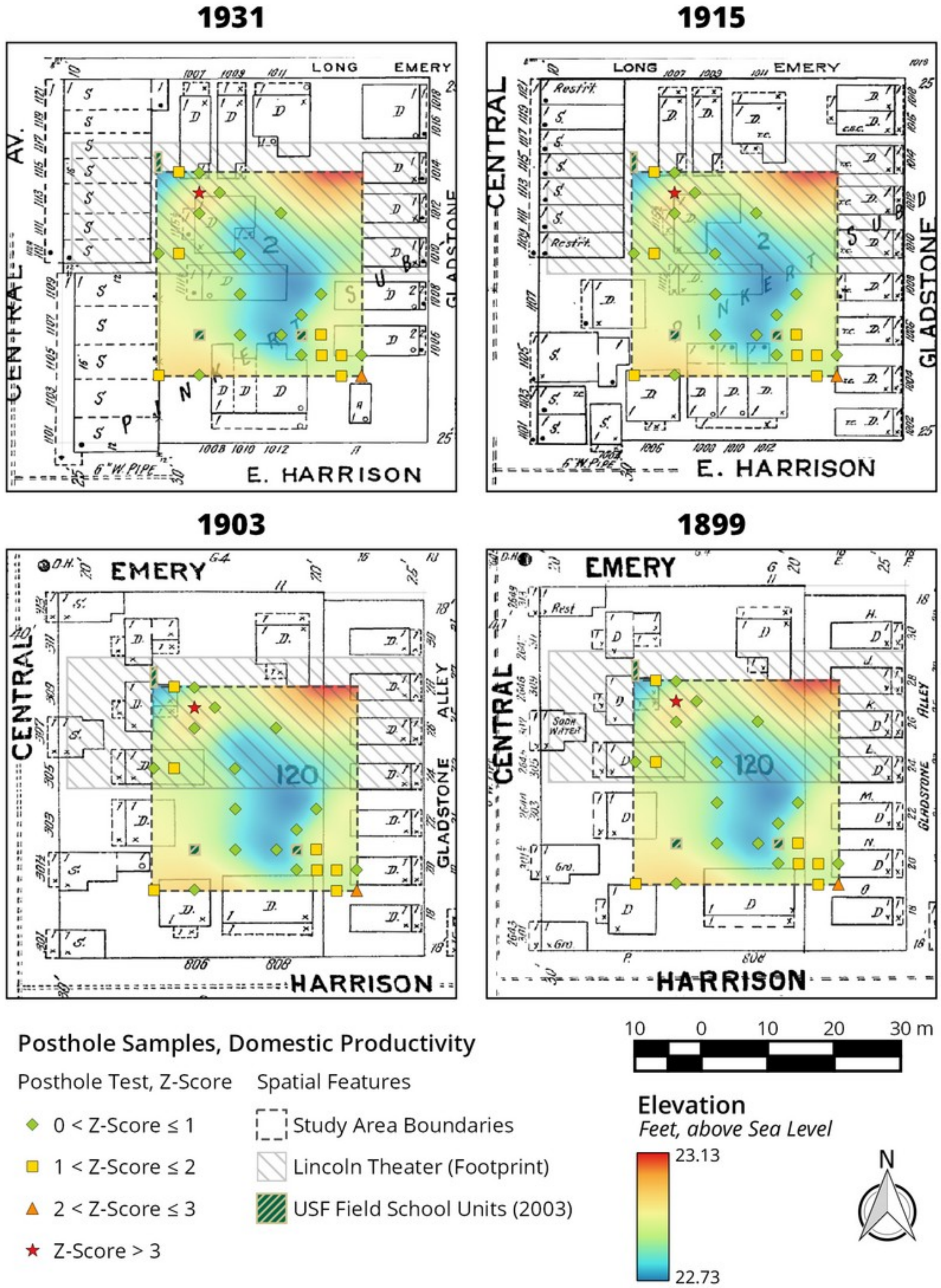

Figure 6. A representation of each test unit's results expressed as a mean z-score derived from the independent z-scores for Bone, Bottle Glass, and Stoneware.

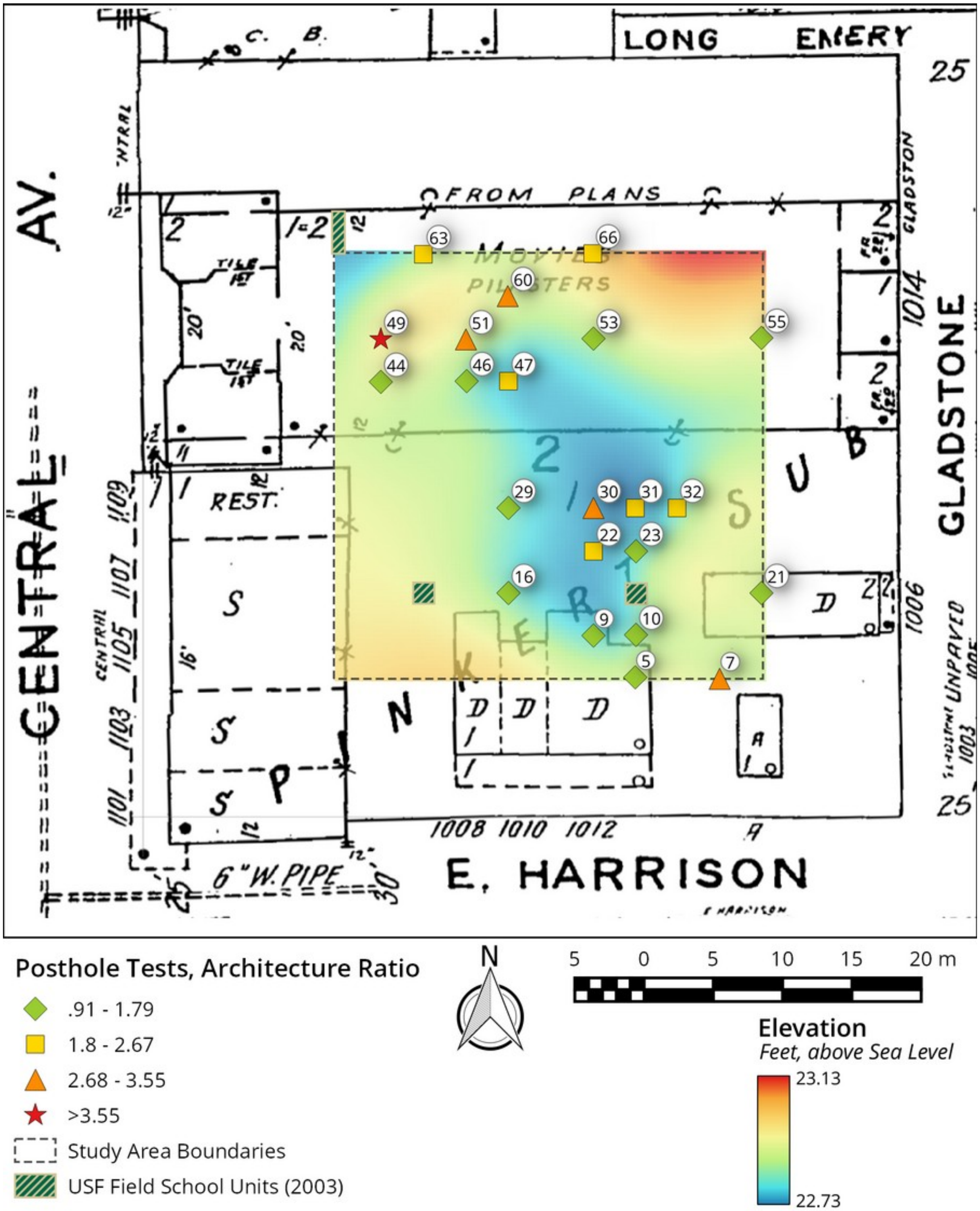

Figure 7. A representation of each test unit's results expressed as mean of the independently derived ratios of Construction Material, Construction Metal, and Flat Glass, in relationship to other types of material recovered from the unit.

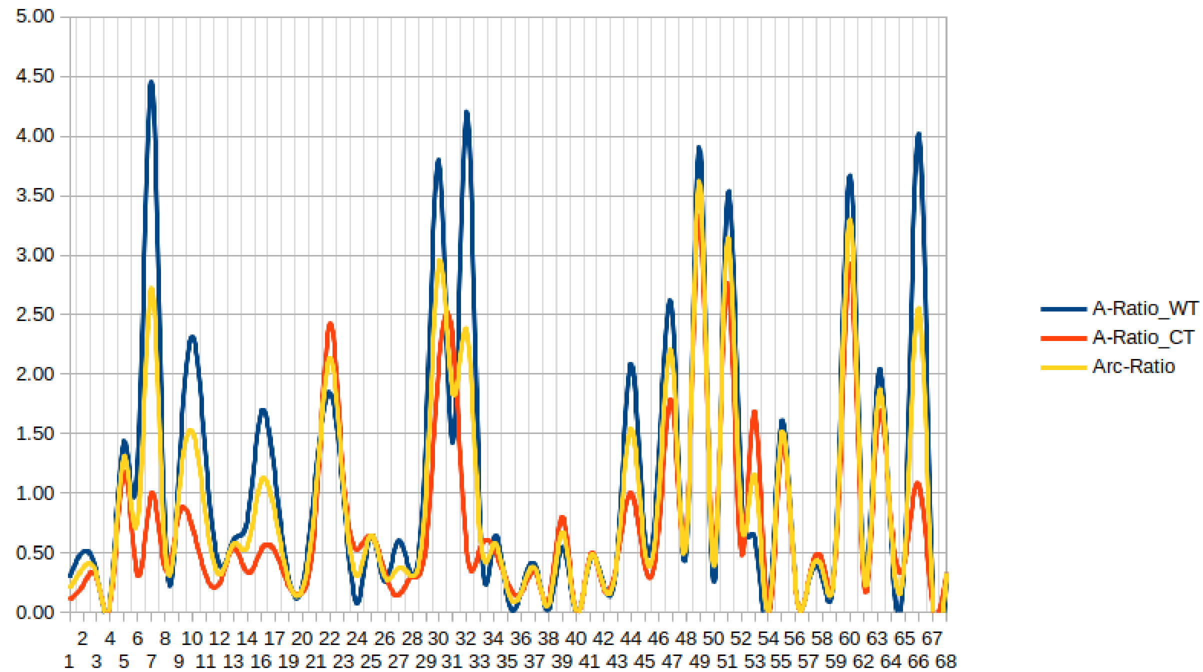

Figure 8. A graph showing the relationship between the mean ratios for architectural artifacts, by weight and count.

Comparing the Results with a Phase I Survey

The decision to revisit old data also provided an opportunity to correct a deficiency of the previous report, by at least providing a comparison to the results of the PCI Phase I archaeological survey (Tables 5-6). As Weisman noted, "[t]he academic products of this project will be slow in coming" (Weisman 2011, 31). I cannot make similar comparison to the USF field school's results for just that reason. Although I was personally involved with the excavation of USF Units #2 and #6, my characterization of those deposits can be nothing more than anecdotal because I never undertook a formal artifact analysis for those excavation units. I was also fairly informed on the progress made by the team members working on USF Unit #1; however, I only ever had only a passing understanding of what occurred at USF Units #3, #4, and #5.

Since the final report for the PCI Phase I archaeological survey included a full artifact inventory, along with photographs of selected artifacts, I simply applied the same rationale for artifact classification that I used for the original GAP artifact analysis to their 212 recovered historical period artifacts. The PCI collection strategy called for retaining primarily artifacts with obvious diagnostic traits, along with some efforts to record weights in the field for larger volumes of relatively non-diagnostic materials; whereas, the GAP study collected and analyzed mostly fragmentary artifacts that would generally be considered non-diagnostic in most prehistoric or early historical period archaeological projects. The artifacts recovered by both projects had some intriguing similarities, such as both recovering water spigots, one U.S. penny, and one .22 caliber shell casing.

Table 5. Final artifact analysis from the Gladstone Alley Project.

Gladstone Category	Count Pct.	Weight Pct.
Bone	4.109%	1.177%
Button	0.057%	0.014%
Ceramic, Stoneware	2.720%	4.457%
Ceramic, Other	0.076%	0.083%
Construction Material	3.690%	6.840%
Glass, Bottle	37.227%	30.321%
Glass, Flat	4.090%	2.718%
Glass, Other	4.033%	4.222%
Metal Construction	22.028%	23.849%
Metal, Domestic Use	1.008%	1.637%
Metal, Hardware	0.342%	4.687%
Metal, Other	19.079%	17.621%
Plastic	0.704%	0.212%
Personal Items	0.361%	0.271%
Porcelain	0.418%	1.205%
Rubber	0.038%	0.681%
Textile	0.019%	0.005%
Total	100.00%	100.00%
Domestic Aggregate	45.06%	37.59%
Architectural Aggregate	30.15%	38.09%
Architecture Ratio	0.67	1.01

Table 6: Final GAP-method artifact analysis for PCI Phase I archaeological survey.

PCI Category	Count Pct.	Weight Pct.
Bone	16.038%	2.035%
Button	0.472%	0.049%
Ceramic, Stoneware	19.340%	10.665%
Ceramic, Other	0.000%	0.000%
Construction Material	4.717%	5.230%
Glass, Bottle	37.264%	53.921%
Glass, Flat	0.472%	0.156%
Glass, Other	3.302%	4.218%
Metal, Construction	8.019%	3.182%
Metal, Domestic Use	0.000%	0.000%
Metal, Hardware	0.943%	15.698%
Metal, Other	3.774%	3.215%
Plastic	0.943%	0.160%
Personal Items	3.774%	1.388%
Porcelain	0.943%	0.082%
Rubber	0.000%	0.000%
Textile	0.000%	0.000%
Total	100.00%	100.00%
Domestic Aggregate	72.64%	66.62%
Architectural Aggregate	14.15%	24.27%
Architecture Ratio	0.19	0.36

Figure 9. A selection of artifacts from the Gladstone Alley Project, some labeled by test unit from which they were recovered.

References

Lenzner, Unny. n.d. "What Is Flow Blue? Flow Blue Basics." http://alsnetbiz.com/acc/flowblue.html.

Panamerican Consultants. 2001. "An Archaeological and Historical Survey of the Perry Harvey Senior Park, Downtown Tampa, Hillsborough County, Florida." Panamerican Consultants, Inc. Report No. TR #01-2485. Report submitted to Award Engineering, Inc., and the City of Tampa, Tampa, Florida.

Rapoport, Amos. 1982. *The Meaning of the Built Environment: A Nonverbal Communication Approach*. Tucson, Arizona: University of Arizona Press.

Sutton, Mark Q., and Brooke S. Arkush. 2002. *Archaeological Laboratory Methods: An Introduction*. Third Edition. Dubuque, Iowa: Kendall/Hunt.

Weisman, Brent R. 2011. "Florida Archaeology Confronts the Recent Past: Four Case Studies from Tampa." *Historical Archaeology* 45 (2): 16–41.