

SECTION 18.0 SITE STRUCTURE AND FORMATION

Site structure is inferred from the identification and spatial association of artifact clusters and features, which potentially indicate the range of human activities. Observations in the ethnoarchaeological record (e.g., Binford 1982) and of the complex set of interactions with natural agents (e.g., Butzer 1982; Waters 1992) have led to a growing understanding of the complexity of the formation of spatial patterns and associations. Given this realization, combined data and observations from features, artifact distributions and geoarchaeological studies must all be considered to interpret formation processes manifested in sites.

To assess the site structure at Hickory Bluff, several complementary data sets were reviewed and evaluated. These included a review of the spatial distribution of the artifact assemblages, including thermally altered stone (TAS), debitage, and ceramics; an assessment of feature patterning; overlays of artifact distributions and evident features; a review of key chronological indicators and their relation to other artifacts and features; an assessment of possible feature functions; and a review of feature and site formation processes.

Hickory Bluff was a complex site characterized by high artifact frequencies and numbers of features. Sites with such density were formerly described as “macro-band base camps” (Griffith 1974; Gardner 1982; Custer 1989, 1994), with the implication that high artifact numbers and features were a reflection of large scale sites. This concept of site typology will be assessed using the syntheses of Hickory Bluff distributional data.

METHODOLOGY

The spatial analyses discussed in Section 16.0 were based on artifact cluster pattern recognition from computer generated distribution maps. The analyses described in that section identified a number of artifact clusters by type, material, and typology that displayed varying levels of integrity or overprinting. In this section, the artifact plots are revisited and viewed in terms of their interrelation with each other and with other forms of data present at the site, including feature data and geoarchaeological information drawn from previous sections.

To view relationships between the different artifact clusters by type, composite maps of the artifact data were assembled. To alleviate the problem of having divergent contour clusters on the same map, ellipses were drawn around the major contours and artifact counts for different variables to illustrate the area where the artifacts were most prevalent. An example of how the ellipses were drawn from the contours is illustrated in Figure 18.1. The composites included totals by artifact class: debitage, TAS, and ceramic. The ellipses generated for each type were then overlaid upon each other to assess the horizontal integrity of these types of artifact clusters. The different artifact classes represented different types of site activities and their separation or overprinting had implications for interpreting site structure.

Composite maps of chronological indicators were generated in a similar way. In this case, the locations of ceramic clusters by type were plotted and ellipses drawn. In addition, to fully assess the variation in chronology in any area of the site, single and low counts of types were also displayed.

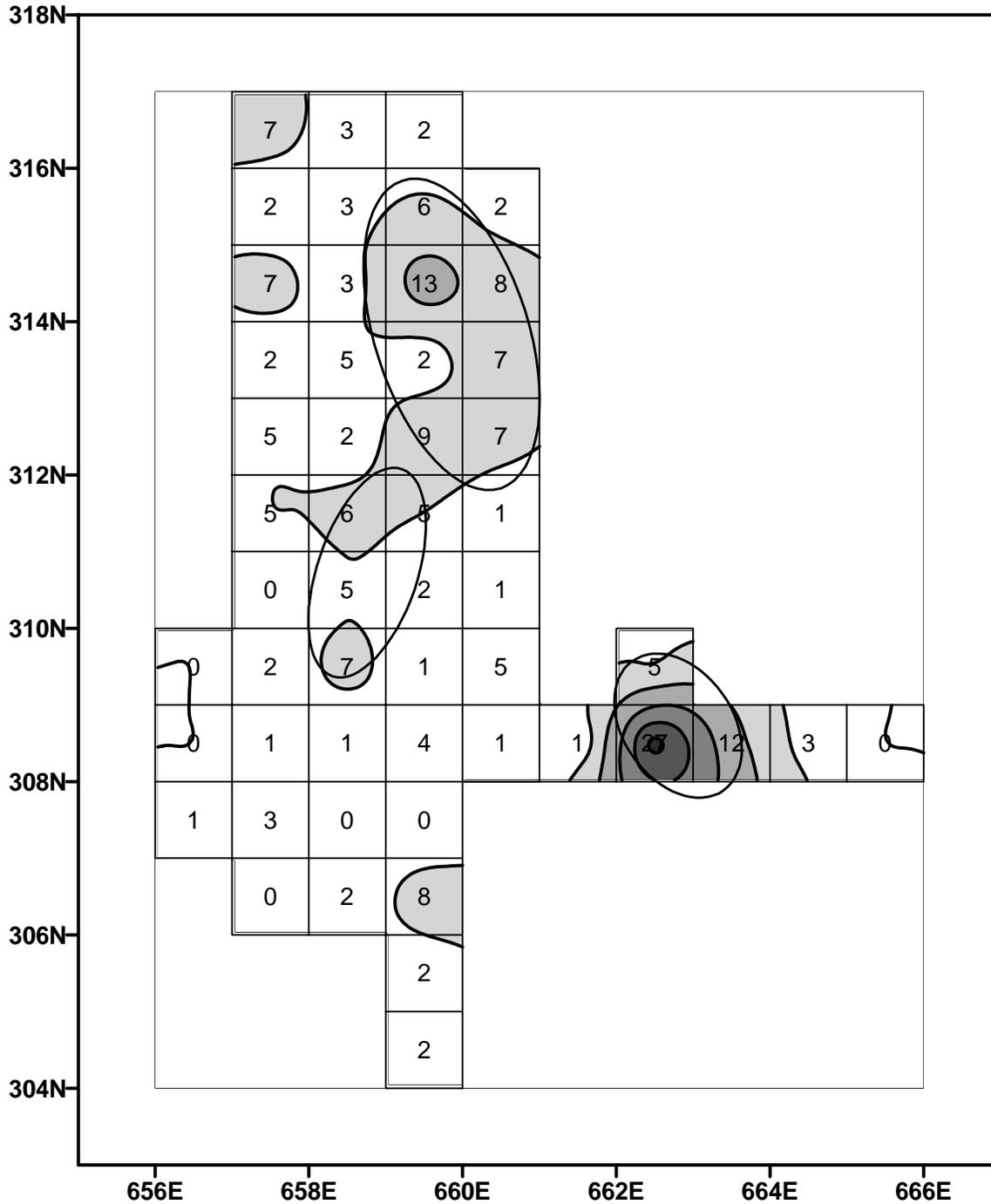


Figure 18.1 Locus A Block 1, Distribution of All Clay Tempered Ceramics and Activity Area Ellipses

This information was therefore more representative of the presence or absence of type, rather than the relative density of the distribution of these types. The locations of diagnostic projectile points and materials submitted for radiocarbon dating were then overlaid on the ceramic type composites to view the relationship and degree of correspondence between all sources of chronological data. Isolation of temporally discrete areas aimed to elucidate the identified

artifact patterns and associate them with a specific period of site occupation. Clearer indication of these associations would also inform on site patterning and differences of land use through time.

All evident features (i.e., basin features, TAS features, and natural features) were displayed on a single composite map to view their spatial relations to assess the relative integrity or overlap between types, indicative of structure or repeated use. Artifact class ellipses were then overlaid the feature composite maps to examine the relationship between artifact distributions and feature types.

The various composite maps of both artifact and feature data more clearly illustrate the various patterns present at the site. Associations of activity areas, feature types, and diagnostic artifacts are indicative of a large-scale structured site. Overprinting of artifact classes and/or feature types and mixed chronological indicators are indicative of smaller scale occupations and repeated site use. Results from the initial spatial analyses conducted in Section 16.0 already suggested the complicated nature of the Hickory Bluff artifact assemblages.

The current section will focus in on the core of the site along the bluff edge overlooking the St. Jones River: Locus A Blocks 1 and 2, Loci F and G, Locus H Blocks 1 and 2, and Locus I. These areas contained the largest uninterrupted block excavations and the largest artifact data sets. The five loci yielded a variety of information that highlighted both spatial integrity in some areas and severe overprinting in others. Four other loci, as well as the other unincorporated excavations, did not contain enough spatial data for inclusion in these discussions. These areas will, however, be referred to in the greater site-wide synthesis as the relative low frequency of both artifacts and features in these areas was likely a function of selection preferences of the peoples who occupied the site.

LOCUS A BLOCK 1

Artifact Plots

Examination of the artifact distributions by type identified five TAS concentrations, three debitage clusters, and two large ceramic clusters in this block (Figure 18.2). The northern portion of the block showed overlap between all three artifact classes, especially in the northeast corner of the block. The southern section of the main portion of the block contained an overlap of TAS and ceramics, but a noticeably lower frequency of debitage that implied differential use of the space. Another smaller debitage cluster was found at the extreme southern end of the block, approximately 6 meters (m) south of the other identified debitage clusters. The western side of the block contained a relatively discrete cluster of TAS artifacts.

Chronological Indicators

The composite map of all chronological data obtained for Locus A Block 1 illustrated some areas of horizontal integrity and some areas of overlap (Figure 18.3). The northern part of the block was dominated by Marcey Creek ceramics and a radiocarbon date within the accepted range for these ceramics was obtained within the Marcey Creek cluster. However, some overlap with a smaller Clay Tempered ceramic cluster and a few random sherds of Mockley occurred.

The other two Clay Tempered ceramic clusters were fairly discrete: one in the center of the block, the other along the eastern wing, although this latter cluster also included a random Mockley sherd as well. The southern portion of the block was characterized by an overlap of Early Woodland Wolfe Neck and Middle Woodland Hell Island ceramics, and a random Mockley ceramic sherd. Within the area of overlap a radiocarbon date of 920 +/-50 years B.P. was obtained, which is within the accepted range for Hell Island ceramics. A single Dames Quarter sherd was also recovered from the southern limits of the excavation.

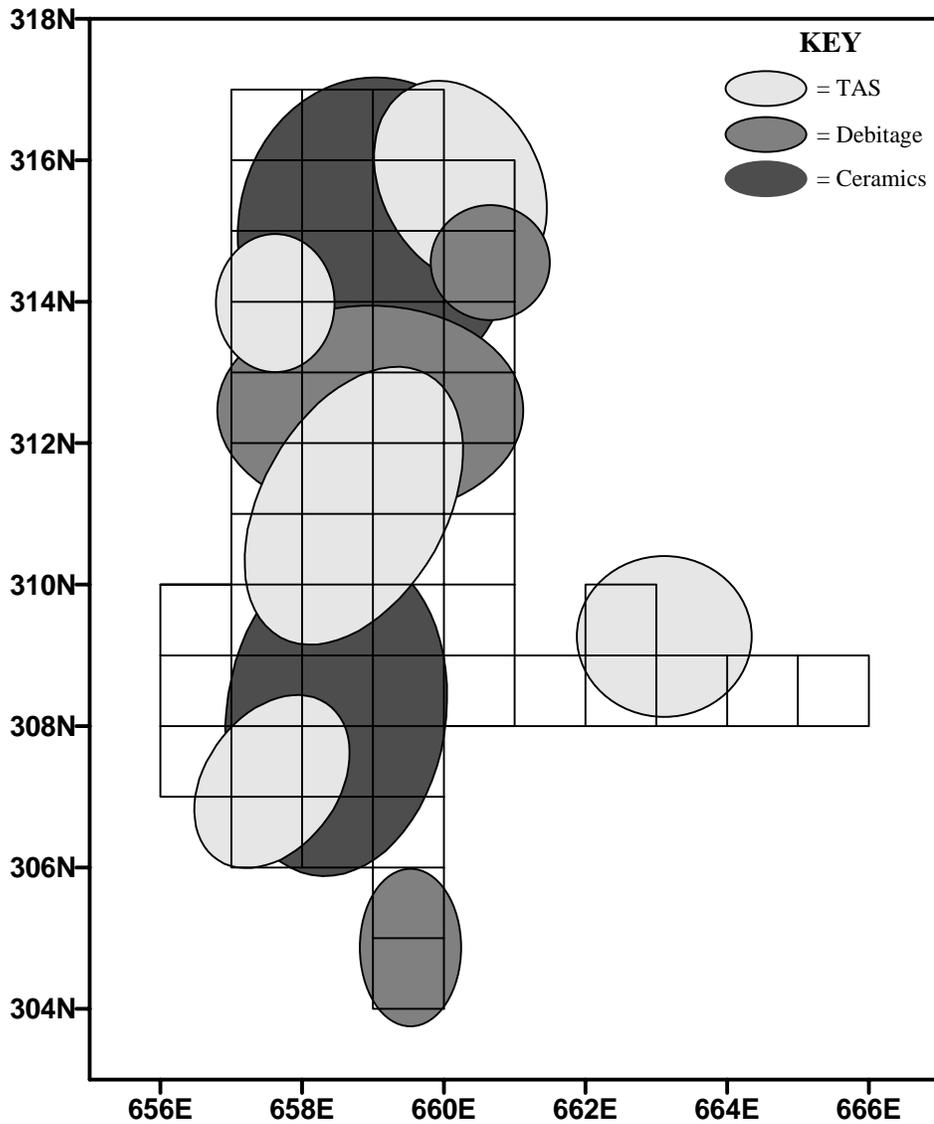


Figure 18.2 Locus A Block 1, Activity Area Composite

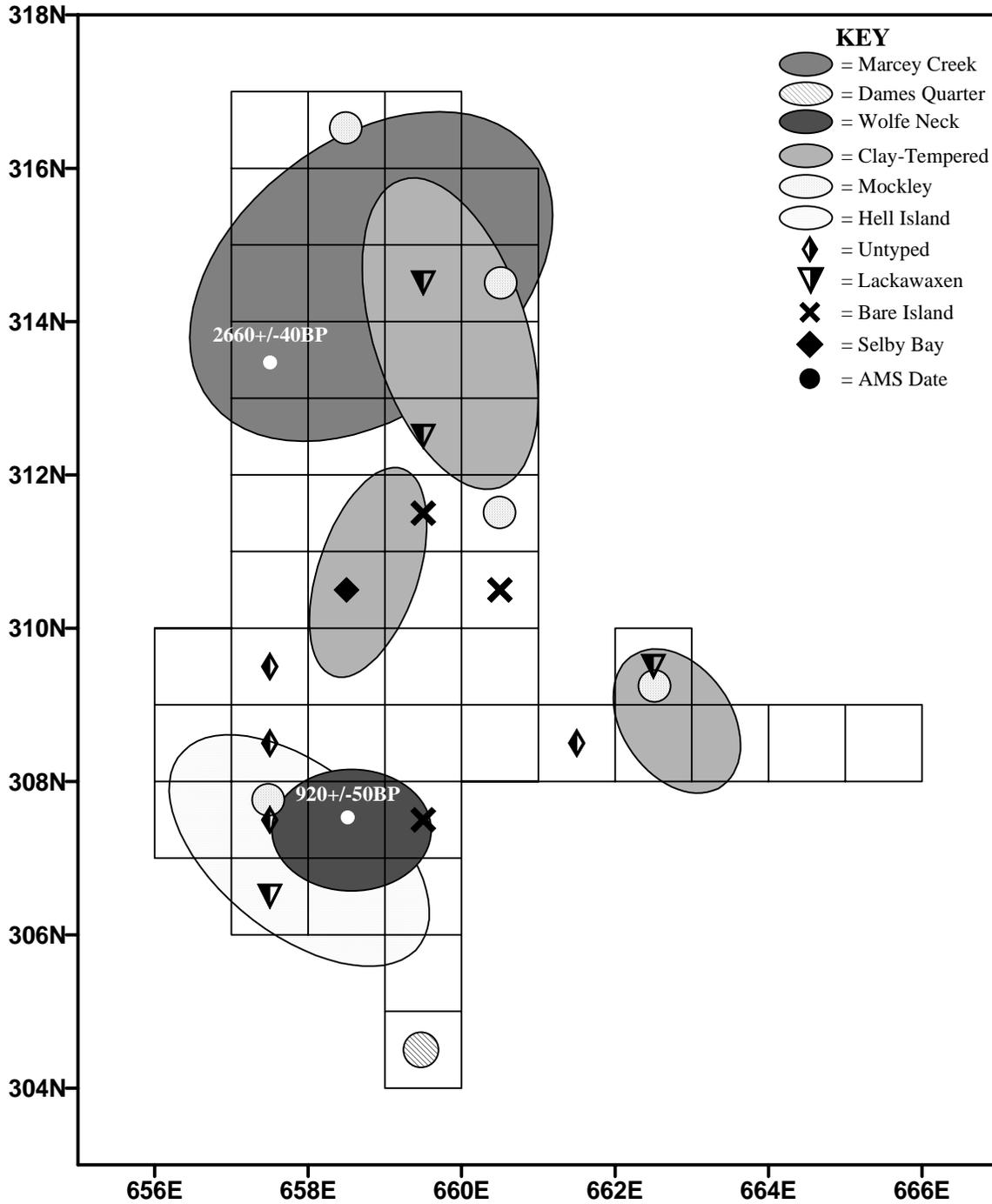


Figure 18.3 Locus A Block 1, Overlay of Chronological Indicators

When the point data was overlaid on the ceramic clusters, the associations were less clear. A number of Late Archaic points, Bare Island and Lackawaxen, were found horizontally overlapping clusters of both Early and Middle Woodland wares. The central Clay Tempered ceramic cluster contained a Selby Bay projectile point, with which it shares some chronological overlap, but the same cluster also contained a Late Archaic Bare Island projectile point. This

indicated the complexity of the component assemblages and the difficulty in isolating site areas by specific chronological periods.

Artifact and Feature Co-occurrences

The artifact type ellipses were overlaid on the plot of all evident features within the block to examine possible correlation (Figure 18.4). The TAS clusters demonstrated a high degree of correlation with the evident TAS features identified during excavation. A cluster was noted around the locations of Features 98 and 145, but stretched further to the north beyond the visible boundaries of these features. Similarly, the cluster that encompassed evident Features 99, 123, 136, and 146 stretched beyond the visible limits of these features. However, there were three other TAS clusters that did not correspond to the location of evident features.

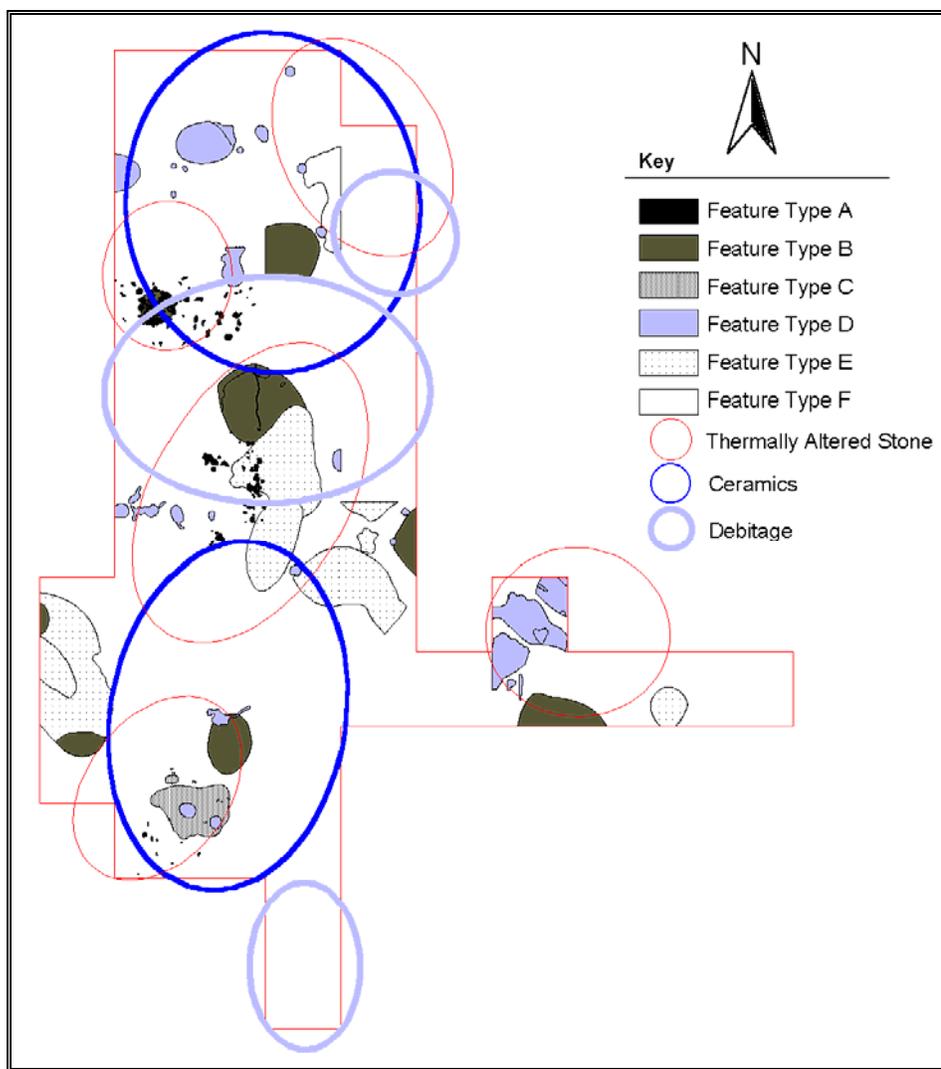


Figure 18.4 Locus A Block 1, Activity Area Composite and Evident Features

The debitage clusters showed less discernable associations with specific features. The first debitage cluster was located at the southern limits of Locus A Block 1 in an area that lacked any evident features. The second cluster covered a larger area in the center of the block and seemed to encompass areas that contained several TAS features and basin Feature 67, as well as open areas between and adjacent to these feature areas. This large cluster may represent the residue of knapping activities clustered outside of the formal TAS features. The final debitage cluster was located north and east of the second, near the northeast corner of the block. It was smaller in size and located adjacent to the east of basin Feature 137 and natural Feature 73. This area was characterized by increased artifact frequency for all types and the debitage cluster overlapped larger TAS and ceramic clusters.

Two large ceramic clusters also were identified in the block. The first was located in the southern part of the block and covered the areas around and between several features: basin Features 120 and 170; TAS Feature 123; ceramic artifact concentration Feature 114; and natural Features 70, 21, and 110. The second cluster was located across the northern 1/3 of the block and covered the area containing TAS Features 98 and 145; basin Feature 137; and a variety of natural disturbances. Interestingly, there was a lower frequency of ceramics in the central portion of the block in the vicinity of TAS Features 99, 136, and 146, and basin Feature 67.

Formation Processes

A total of 44 features was identified within Locus A Block 1 (Table 18.1). Of these, 29 represented various natural disturbances, ranging from biotic tree root and mold to rodent burrows; to geomorphic discontinuities in the soil profile; and a variety of undetermined natural events. This wide range of evident natural disturbances was important for the assessment of artifact arrangements and the formation of other features. It demonstrated that several different processes had important implications for site formation. For example, three latent clusters of TAS were identified away from evident clusters and contained as many or more total stones than the evident features. One of these, situated in the eastern wing of the block, was located in and around several overlapping biotic disturbances: Features 75, 152, and 157. These larger rodent and tree disturbances rendered any visible boundaries of a TAS concentration unrecognizable. The second cluster was located in the southwest corner of the block and intersected more substantial natural disturbances (Features 115, 133 and 134). This feature may most likely represent the remnant of an evident TAS feature that was subsequently disturbed by natural processes. Likewise, the third cluster, located in the upper northeast corner of the block, covered a wide area that contained biotic disturbances (Features 105, 121, 122, and 127) that may have disturbed a previously evident feature. Biotic intrusions were also noted within basins, Features 67 and 120, and around ceramic cluster, Feature 114. The geomorphic features noted demonstrated the degree of soil formation variability even within the block. Feature 70 was especially important, as it represented a large, fluvial episode that had washed out the E-horizon in several units and was likely related to the formation of the bluff itself. Interestingly, this geomorphic discontinuity was impacted by what appeared to be one medium basin (Feature 171) and one large basin (Feature 170) that extended out of the excavation block.

Table 18.1 Summary of Features, Artifacts and Diagnostics for Locus A Block 1

| Feature | Type | Total Artifacts | Diagnostics |
|----------------|-------------|------------------------|-----------------------------|
| 21 | E-2 | 0 | |
| 48 | F-1 | 0 | |
| 49 | D-1 | 0 | |
| 50 | D-1 | 0 | |
| 51 | D-1 | 0 | |
| 52 | F-1 | 0 | |
| 53 | F-1 | 0 | |
| 54 | B-1 | 0 | |
| 67 | B-2 | 38 | Marcey Creek |
| 70 | E-3 | 22 | Wolfe Neck, Hell Island |
| 73 | F-1 | 0 | |
| 74 | E-1 | 1 | Clay Tempered |
| 75 | D-2 | 26 | Clay Tempered |
| 76 | B-2 | 12 | Clay Tempered |
| 95 | D-1 | 2 | |
| 96 | D-1 | 2 | |
| 97 | F-1 | 0 | |
| 98 | A-1a/B-3 | 42 | Marcey Creek |
| 99 | A-1a | 13 | |
| 105 | D-1 | 4 | |
| 106 | D-1 | 1 | |
| 109 | D-2 | 3 | Marcey Creek |
| 110 | E-2 | 0 | |
| 114 | A-2 | 10 | Wolfe Neck, Hell Island |
| 115 | C-2/D-2 | 0 | |
| 120 | B-3a | 29 | Wolfe Neck, Hell Island |
| 121 | D-1 | 2 | |
| 122 | D-1 | 0 | |
| 123 | A-1a | 8 | |
| 127 | D-1 | 0 | |
| 133 | D-1 | 2 | Hell Island |
| 134 | D-1 | 0 | |
| 135 | D-1 | 0 | |
| 136 | A-1a | 26 | |
| 137 | B-3a | 54 | Marcey Creek, Clay Tempered |
| 145 | A-1a | 14 | Marcey Creek |
| 146 | A-1a | 16 | Clay Tempered |
| 152 | D-3 | 2 | |
| 154 | D-1 | 0 | |
| 155 | F-1 | 0 | |
| 157 | D-3 | 73 | Clay Tempered |
| 161 | B-3a | 2 | |
| 170 | B-1 | 7 | Marcey Creek, Clay Tempered |
| 171 | B-2 | 0 | |

Evident TAS clusters accounted for six of the features identified within Locus A Block 1. These features were located in the west-central portion of the block. The more densely concentrated clusters, which included Features 98, 99, and 123, were located adjacent to the west of wider, scattered TAS clusters (Features 136, 145, and 146). This second group of features likely represented the dispersion of, or secondary deposit from, the more concentrated features. Likewise, the wider ellipses that surrounded the evident TAS features indicated some dispersion of the artifacts comprising these features. Stones were moved beyond the visible spatial boundaries of these features through several different means, both natural and cultural.

The TAS clusters identified in the block contained different morphologies, which likely indicate different functions. Feature 98 had the most distinct morphology, as it was the only clear example of TAS set into a small, shallow basin. This feature also contained a higher percentage of complete stones and larger fragments when compared to the wider assemblage. On the other hand, Feature 136 had a more scattered morphology, a high incidence of heat alteration, and wide range of percent completeness, indicating a different formational history. The wider scatters likely represented secondary deposits of stones selected out of the more concentrated clusters, either for re-use for another function (e.g., secondary heating) or because they had become “exhausted” for their primary use. The variation within the TAS features within Locus A Block 1 was significant as it indicated both different cultural behaviors and the effects of some natural post depositional occurrences.

A total of only 8 basin features was identified within Locus A Block 1. Of these, only two were presumed to be large basin varieties, Features 54 and 170; however, neither was fully excavated so their exact size was not determined. Spatially, the basins in the block were found sporadically and did not evidence the high degree of overlap typical of the site. Both Features 67 and 120 exhibited some tree root disturbances, but these did not substantially alter the boundaries of the features. Feature 67 contained Marcey Creek ceramics as its only diagnostic indicator, which suggested a single occupation use for the feature. The feature also maintained clear boundaries and symmetrical shape, indicative of cultural rather than natural formation. Feature 120 contained both Wolfe Neck and Hell Island ceramics, and yielded a radiocarbon date that corresponds to that for the Hell Island ware. The mix of chronological indicators suggests that the feature was later and intruded on an earlier Wolfe Neck assemblage. The morphology of Feature 120 exhibited overlap with natural morphologies, which would indicate that the feature was a culturally utilized natural occurrence. Feature 137, a small basin located in the northern part of the block, was not subjected to detailed analysis, but shared characteristics with Feature 67, including a clear bilateral shape and the inclusion of artifacts. However, Feature 137 contained two Clay Tempered ceramic sherds in addition to 24 Marcey Creek sherds; this could indicate some later disturbance or that the feature remained partially open during the later occupation.

Locus A Block 1 contained important site structural information. The block included one of the few examples of areas clearly defined by chronological indicators. The north part of the block was dominated by Marcey Creek ceramics and a consistent radiocarbon date was recovered from a feature within that part of the block. The southern part of the block showed an overlap of Hell Island and Wolfe Neck ceramics, and a feature returned a date consistent with the Hell Island ceramics. Although several natural disturbances and dispersion factors were noted

the general patterns within the block remained. Judging from the range of artifacts recovered, Locus A Block 1 was the location of a variety of activities.

LOCUS A BLOCK 2

Artifact Plots

Four clusters of TAS, three clusters of debitage, and three clusters of ceramics were identified within the block (Figure 18.5). The two main debitage clusters were located on the western side of the block and were separated from each other by a TAS cluster. The large

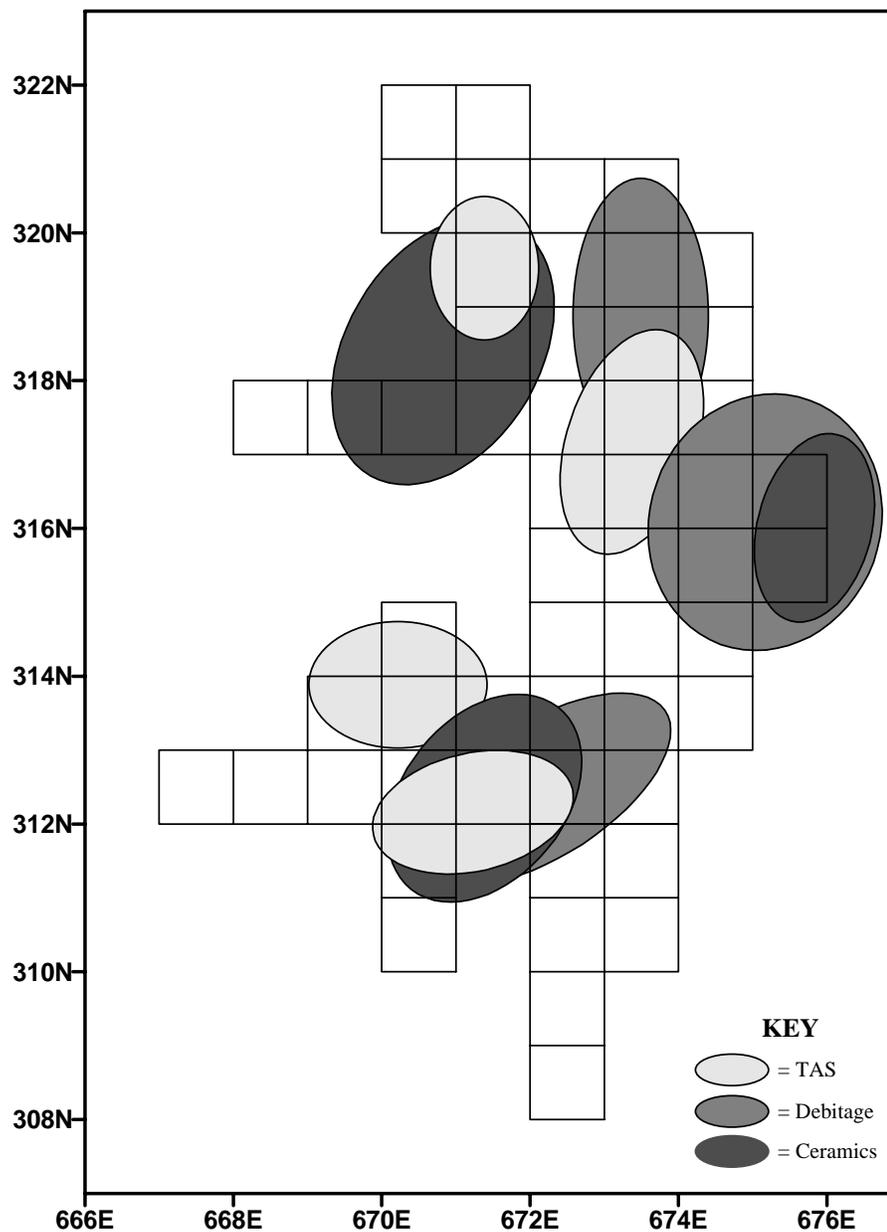


Figure 18.5 Locus A Block 2, Activity Area Composite

debitage cluster furthest to the west overlapped one of the ceramic clusters. The thirddebitage cluster was located along the southern edge of the main part of the block and co-occurred with both a TAS and ceramic cluster, although the three artifact types spread in slightly different directions. Just to the north of this area of overlapping artifact clusters, there was another, more discrete cluster of TAS that remained separate from the ceramic cluster. The northeastern corner of the block also contained adjacent ceramic and TAS clusters. In this case, the ceramic cluster was more widespread and overlapped a smaller TAS cluster to the north. The main clusters of artifacts identified within the block were surrounded by areas of lower artifact frequency, which supported the notion of differential space use. Debitage was mostly concentrated along the east edge of the block, while ceramics and TAS generally had greater frequency to the west side of the block, both south and north.

Chronological Indicators

Locus A Block 2 yielded a variety of chronological indicators, the locations of which indicated the varying degrees of horizontal spatial integrity and overlap present within the block (Figure 18.6). In the northwestern portion of the block, an isolated cluster of Marcey Creek ceramics was identified. Adjacent to this cluster, a random Mockley ceramic sherd also was recovered.

The northeastern portion of the block also contained a cluster of Marcey Creek ceramics. However, this second cluster evidenced a degree of overlap with a Clay Tempered ceramic cluster and two random Mockley ceramic sherds. This Clay Tempered ceramic cluster in turn overlapped a small cluster of Townsend ceramics.

The southern part of the block also was dominated by large clusters of Marcey Creek and Clay Tempered ceramics. The two largest clusters of these types evidenced a degree of overlap, but tended to extend in different directions: Marcey Creek to the west and Clay Tempered to the east. The other cluster of Clay Tempered ceramics maintained horizontal separation from other ceramics in the block.

In addition to these large clusters, Locus A Block 2 also contained several isolated sherds of differing wares. These included two sherds of Early Woodland Dames Quarter ware, two sherds of Early Woodland Wolfe Neck ware as mentioned, several sherds of Middle Woodland Mockley ware, several sherds of Middle Woodland Hell Island ware, and a sherd of Late Woodland Minguannan ware. The sherd counts for these other wares were low, which limited their utility for spatial analysis. Although their presence does not undermine the integrity of the larger ceramic clusters, it illustrated the mixing and overprinting of the assemblages.

The two radiocarbon dates for this block were recovered from areas encompassed by a large cluster of Clay Tempered ceramics. The dates obtained occurred within the range for this ceramic type, adding to the horizontal integrity of the cluster. However, a level of complication was added when projectile point locations were overlaid on the ceramic clusters. Late Archaic points, including Susquehanna, Lackawaxen and Bare Island, were found within or immediately adjacent to ceramic clusters dating to later occupations. This indicated the re-use of the area and the mixing of components. Later point types (Adena, Teardrop and Fox Creek) were also found

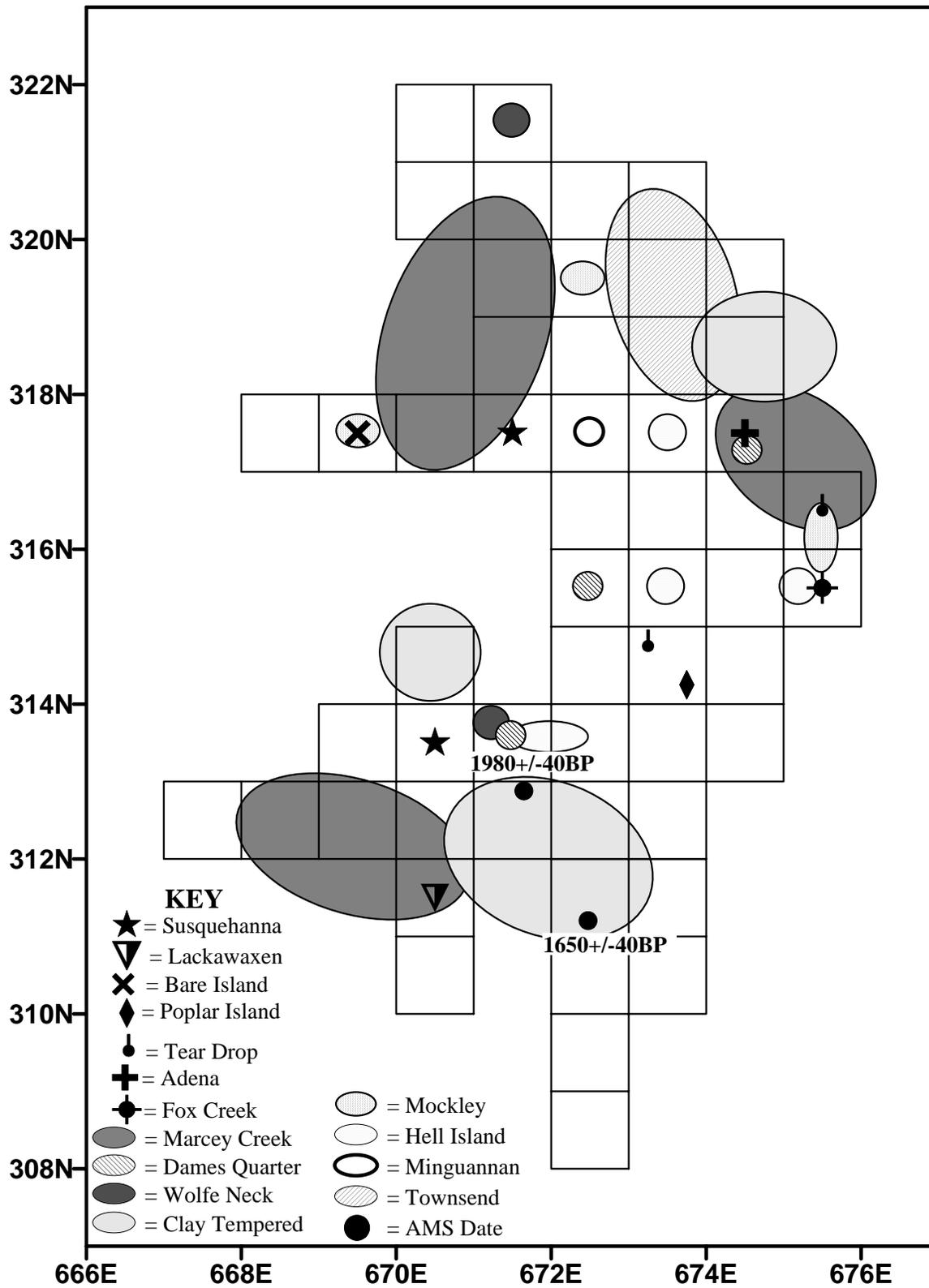


Figure 18.6 Locus A Block 2, Overlay of Chronological Indicators

in and around ceramic clusters with which they shared no temporal association. For example, the Adena point was close to a Clay Tempered ceramic cluster, but was located in an area that was dominated more by Marcey Creek ceramics.

Artifact and Feature Co-occurrences

The single evident TAS feature (Feature 417) did not co-occur with any of the latent clusters of TAS (Figure 18.7). This suggested that the evident feature was composed of relatively fewer artifacts than the latent clusters and was masked. The TAS clusters stretched between several of the large basins in the block, including Features 406 and 407, 408 and 412, and 409.

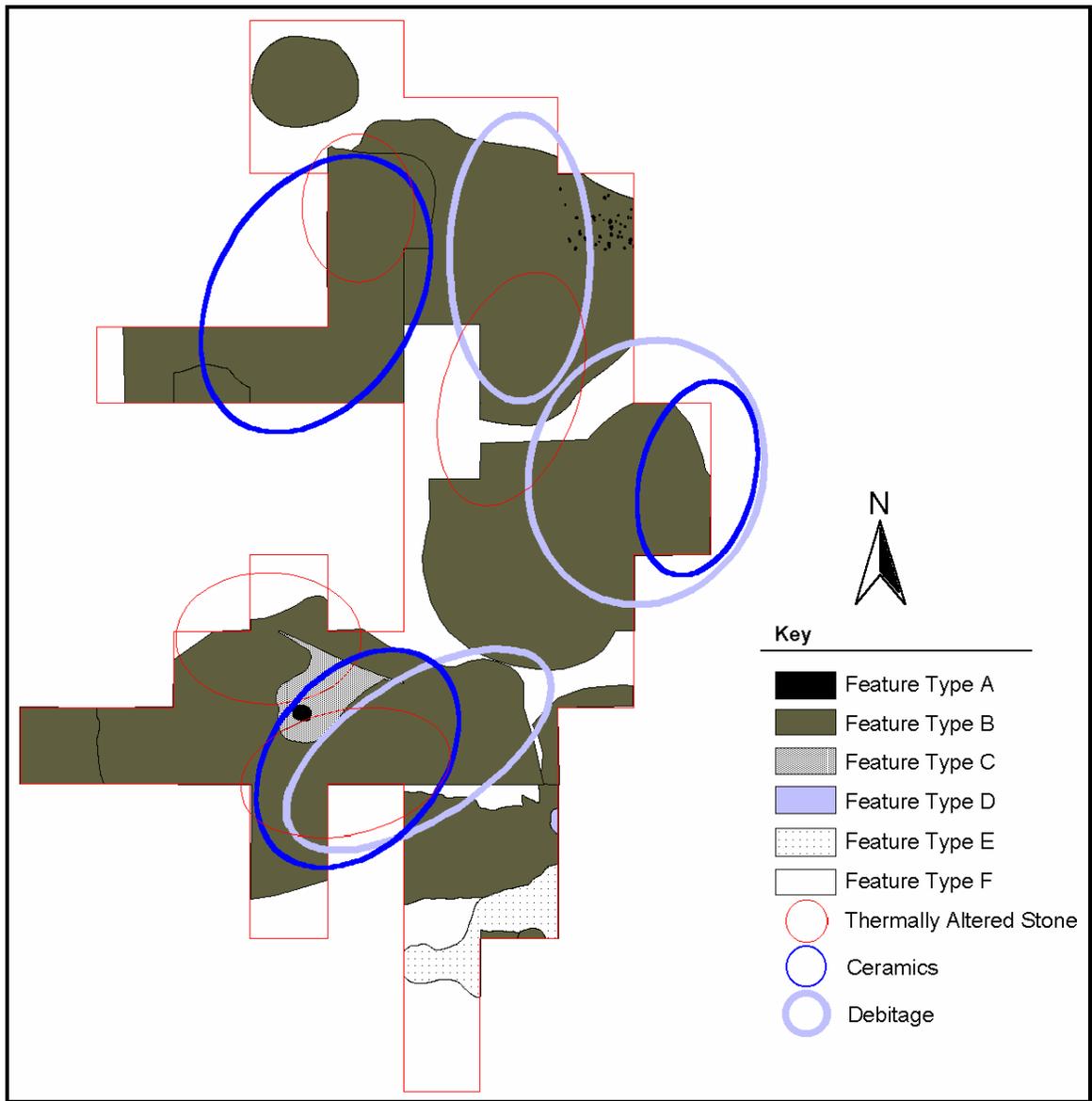


Figure 18.7 Locus A Block 2, Activity Area Composite and Evident Features

The debitage clusters also extended across the boundaries defined for several large basin features. The debitage cluster located furthest to the north extended across Feature 407 and through part of Feature 406. The second debitage cluster, located at the eastern limits of the block, also extended to both of these large basin features. The final debitage cluster in the southern portion of the block covered the area of intersection of large basin Features 406, 408, 411, and 412. This final cluster also overlapped with both a TAS and a ceramic cluster, indicating a fair amount of mixing and less spatial integrity for that part of the block.

Similarly, the ceramic clusters in Locus A Block 2 transcended basin feature boundaries. The northern ceramic cluster occurred over basin Features 407 and 409. The southern ceramic cluster was associated with the evident ceramic cache, Feature 415, but also extended across large basin Features 408 and 412. The final ceramic cluster was located at the eastern edge of the block on the edge of basin Feature 406.

Formation Processes

Locus A Block 2 contained 13 evident features (Table 18.2). A total of 36 natural disturbances were also noted within the block; these were not dealt with individually but were referred to collectively as Feature 435. They included tree root and mold patterns as well as rodent burrows. One prominent rodent burrow was identified as “Context 6” within the larger Feature 406 boundaries (Liebeknecht et al. 1997). It contained 693 total artifacts and was identified within six contiguous 1 m² units that comprised the deepest portions of basin Feature 406. Several more probable roots or rodent tunnel disturbances were identified throughout Features 406 and 407, found generally to the north and east of the former, and south and east of the latter feature. The identification of these numerous disturbances suggested that a number of processes were involved in the formation of these features, making morphologies less clear than was indicated by their planviews.

Table 18.2 Summary of Features, Artifacts and Diagnostics for Locus A Block 2

| Feature | Type | Total Artifacts | Diagnostics |
|---------|---------|-----------------|--|
| 406 | B-1a/D3 | 705 | Marcey Creek, Clay Tempered, Hell Island, Townsend |
| 407 | B-1a | 1145 | Marcey Creek, Clay Tempered, Minguannan, Townsend |
| 408 | B-1a/F | 969 | Marcey Creek, Wolfe Neck, Clay Tempered; Susquehanna Point |
| 409 | B-1a | 359 | Marcey Creek, Clay Tempered, Mockley |
| 410 | B-1a | 42 | Clay Tempered, Marcey Creek |
| 411 | B-1a | 0 | |
| 412 | B-1a | 208 | Marcey Creek, Clay Tempered; Lackawaxen Point |
| 413 | B-1a | 4 | |
| 414 | B-3a | 0 | |
| 415 | A-2 | 56 | Clay Tempered |
| 416 | C-1 | 3 | |
| 417 | A-1b | 44 | |
| 422 | B-2 | 9 | Marcey Creek |

A single evident TAS feature was identified within Locus A Block 2 (Feature 417). The location of this feature did not correspond to any of the TAS clusters, despite being composed of 44 stone fragments. This suggested several different interpretations. The high degree of overlap between several large basins and several natural disturbances may have redeposited or obliterated the boundaries of any TAS feature. Alternatively, the large basins could have served as secondary reservoirs for the TAS, from site maintenance activities such as cleaning. Feature 417 was not subjected to detailed analysis, in part because the stones that comprised it were not separated during fieldwork from Feature 407, within which it was found. Counts for TAS for the unit that contained Feature 417 were not particularly high (n=21), while the number of unaltered pebbles was higher (91). Re-examination of the plan view drawing for the feature suggested that the stones may not have been fire-cracked, but were rather a cluster of unmodified pebbles and cobbles clustered in a small area. This would indicate a non-fire-related function for the feature. The unaltered stones could have represented materials that were procured for later use or they may have been procured but then not selected for use due to material preferences.

Locus A Block 2 was notable for the eight large and overlapping basin features that it contained (Features 406-413). Only two of these, Features 406 and 410, did not overlap with any other large basin. Features 407 and 409 intersected with each other, and the latter intersected an intrusive medium basin, Feature 422. Feature 408 was the most complex as it intersected with Features 411 and 412, and contained surface Feature 416, artifact cluster Feature 415, and small basin Feature 414. This level of overprinting suggested a high intensity of use of this area and multiple construction episodes. All of these large basins (excluding Features 411 and 413 that were not excavated) yielded a variety of incongruous chronological indicators, including ceramics that spanned the Early to Late Woodland periods.

This set of features had previously been interpreted as the remains of “pit houses” that were not a single household cluster but “represent an overlapping range of temporal and cultural occupational episodes” (Liebeknecht et al. 1997: 9-11). Given the degree of overlap between the basin features, the level of natural disturbances noted within the block, and the complexity of basin feature formation, such an interpretation is not warranted. Plotting of artifacts by type within the block revealed some spatially discrete areas that suggested a separation of activity areas. There was a lack of correspondence between these artifact clusters and the identified basin feature boundaries. The disconnect between the data sets tended to undermine the identified feature boundaries. The degree of horizontal integrity displayed by the artifact clusters in the block was contrary to what would be expected given the number of cross-cutting large basins; these would be expected to displace the artifacts, diluting their spatial integrity. The high number and diversity of artifacts present within the basin features indicated that a wide range of activities had taken place in this location, which would seem counter to the interpretation that the basins represented occupational structures. Even if the high numbers of artifacts were from the activities of earlier occupations and re-deposited into the basins, it seems unlikely that they would maintain the degree of horizontal integrity displayed in the computer plotting. It was clear that the basins received a large cultural input, but their formational history was more complex than a direct one-to-one causal relationship.

The features “internal” to basin Feature 408 were also not as clear as previously interpreted. Feature 415 consisted of a stack of ceramic sherds that comprised the upper portions

of two Clay Tempered ceramic vessels: Vessel Lots HCC4 and HCN2. These were located adjacent to the southwest of small basin Feature 414. These two features were previously interpreted as representing a ceramic cache intended for use as temper in the manufacture of new ceramic vessels; the small basin was interpreted as the location of manufacture (Liebeknecht et al. 1997; Liebeknecht 1999). Feature 414 had been described as a “clay and grog-filled, bell shaped pit” (Lieknecht 1999: 8). Re-examination of the artifact inventory indicated that no ceramic sherds, or any artifacts, had been recovered from Feature 414 (Context 120). A soil sample from the feature was submitted for flotation and produced variable results. Macrobotanical remains identified within the feature matrix included three wood charcoal fragments and three non-carbonized (i.e., modern) seed remains, which indicated some disturbance and a relative lack of charred wood remains. The heavy fraction from the flotation produced approximately 12 small ceramic sherds, all less than 2 cm in diameter. However, this represented a very small percentage of the heavy fraction, which consisted mostly of sand concretions. A similar sand concretion sample had been submitted for thin section analysis to determine whether these concretions found commonly across the site were related at all to ceramics, either as by-products of production or from their weathering (Section 14.0). The results of this analysis concluded that the concretions were natural and likely related to cementing of sand particles by iron oxides in the soil. Given the number of ceramic sherds within that part of Locus A Block 2, it was not unusual for Feature 414 to contain several small friable ceramic sherds. At the same time, it was not clear that the feature was intentionally filled with crushed ceramics for use in later manufacture, or that the soil was clay, which was not commonly observed at the site. Given the amount of cross-cutting and overlapping of basin features within this area of the block, an association between Features 414 and 415 was not clear. Even if it is granted that the two were related, it still does not clearly demonstrate that ceramics were being crushed for use as tempering agents. The morphology of Feature 414, when compared to those studied in the basin feature formation analysis, was also not clearly indicative of cultural formation, having several natural morphological indicators. It was very similar to Feature 135 that was interpreted as a tree-mold pattern.

Locus A Block 2 was clearly the location of intense activity and use for a large portion of prehistory as evidenced by the high artifacts counts and types, the range of chronological indicators, and the degree of overlap between features. However, within the seemingly incongruous data sets, there was some patterning evident in the clustering of artifacts by type that suggested the differential use of space. Furthermore, there were areas that contained ceramic clusters by type that were not too heavily intermingled; these suggested some differential use through time. The intermingling of several cultural and natural processes made clear and definitive interpretation of spatial patterns within the block difficult and highlighted the general pattern of site re-use.

NORTHWEST MAIN BLOCK

Artifact Plots

The Northwest Main Block contained a total of 42 artifact clusters: 16 TAS, 13 debitage, and 13 ceramic (Figure 18.8). Within Locus F, at the southern third of the block, two large TAS clusters maintained horizontal discreteness from other clusters. Just south of these clusters, at

the southern limits of the excavation, there was overlap between a debitage and a ceramic cluster; some overlap of ceramic and TAS clusters to the north also occurred. This small area of Locus F suggested some differential space use, perhaps associated activity areas located adjacent to TAS clusters. In the northern section of Locus F, two discrete debitage clusters were located in the wings of the block. West of these clusters was a large area of overlapping artifact clusters of all types. Just west of this area was a smaller area of overlapping TAS and ceramic clusters. These clusters exhibited a level of separation from each other and extended in different directions.

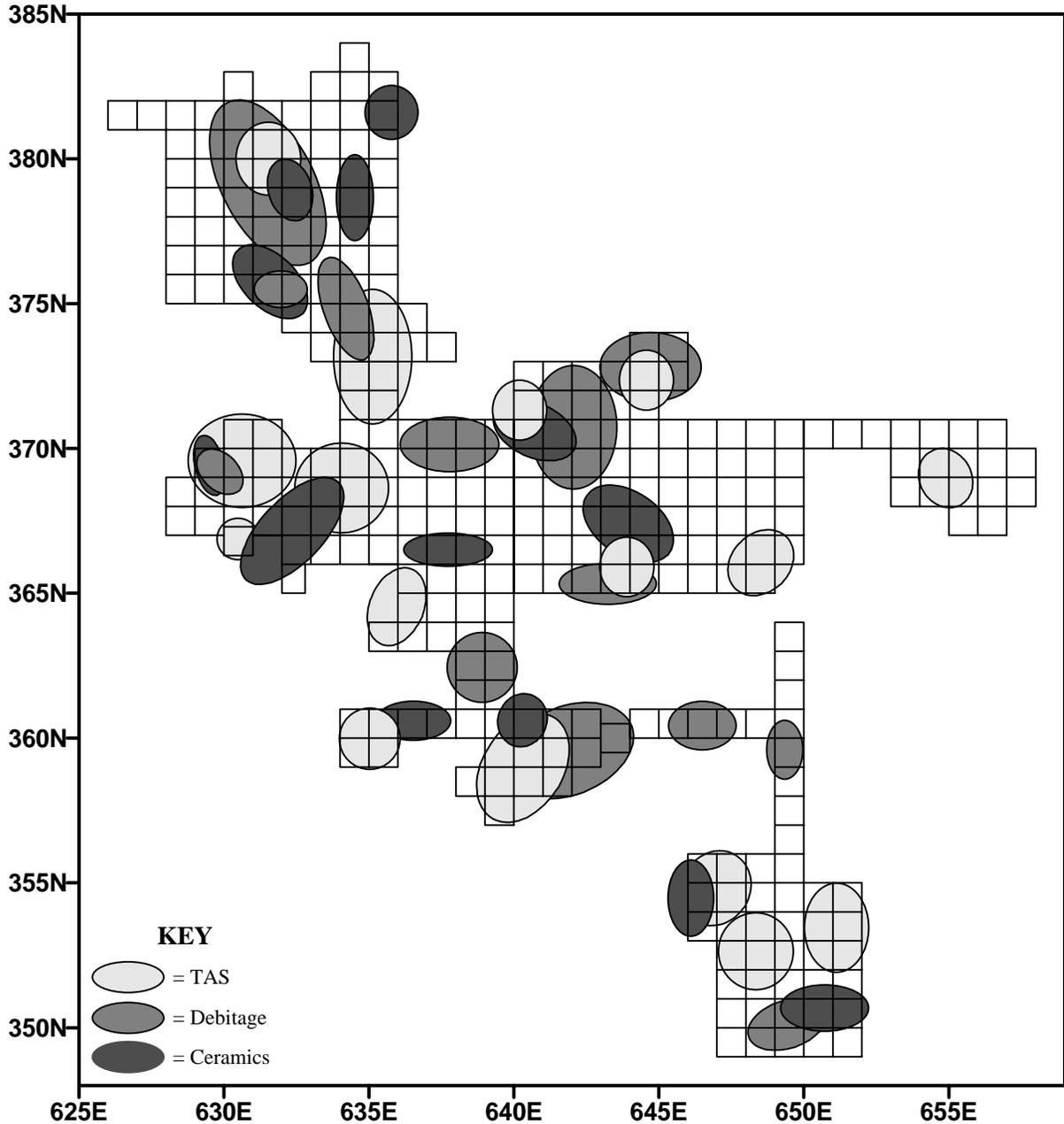


Figure 18.8 Northwest Main Block, Activity Area Composite

The southern end of Locus G contained a ceramic, debitage, and TAS cluster that maintained horizontal separation from each other and had an apparent open area between them. North and west of this area, there was an area containing three TAS clusters, one large and one small ceramic cluster, and a small debitage cluster. The large ceramic cluster joined the area between two of the TAS clusters, while the northwest corner showed overprinting of all artifact types. Continuing east of this area in Locus G, a large debitage cluster with horizontal separation was identified along the north edge of Locus G. Just past this cluster was an area of overlapping TAS, ceramics, and debitage clusters. This debitage cluster maintained better separation than the TAS or ceramic clusters with which it intersected; these latter clusters were nearly co-occurring. The upper northeast corner of Locus G contained another intersecting set of debitage and TAS clusters. The southern portion of the block contained another area of overlapping artifact clusters, with the ceramic cluster maintaining more spatial integrity than the TAS cluster. In this case, the TAS cluster was located in the center and separated the debitage and ceramic clusters from each other and implied a separation of activities. Further to the east, there were two more discrete TAS clusters identified: one in the southeast corner of the block, the other near the eastern limits of the excavation.

Locus H was characterized mostly by overlapping artifact clusters. The main portion of Locus H contained a large debitage cluster that included smaller TAS and ceramic clusters, which further intersected with each other. Adjacent to the south of this large debitage cluster was a ceramic cluster that enveloped a small debitage cluster. East of these co-occurring clusters was another debitage cluster intersecting a larger TAS cluster, which extended to the southern end of Locus H. In addition, two discrete clusters of ceramics were identified along the eastern edges of Locus H and were separated from each other by approximately 1 m.

Chronological Indicators

As a result of the large area and high artifact density within the Northwest Main Block, chronological indicators were first separated by sub-periods to show the relationships between associated artifacts. These results were then overlaid onto one composite map to illustrate the level of overlap and complexity evident within the block. In addition, unlike other blocks, random sherds that represented several types were not included on these maps as they were such a minority and only served to complicate an already complex array of data. These latter sherds included 1 Dames Quarter, 12 Popes Creek, and 8 Hell Island. Their presence is noted and was important for illustrating the wide range of temporally diagnostic artifacts found within the block, but their numbers were too small to be considered spatially within the Northwest Main Block.

The first map included the Early Woodland ceramic wares (Marcey Creek and Wolfe Neck), a Meadowood point, and the radiocarbon dates considered to occur within the range of these ceramic wares (Figure 18.9). The map showed that clusters of Marcey Creek and Wolfe Neck ceramics were well represented in Locus G, but were not found to the north within Locus H. Furthermore, Wolfe Neck ceramic clusters were not located in the southern part of Locus F. The two wares maintained spatial separation from each other in most instances, except for an area of overlap in the northern part of Locus G. This illustrated some separation of the Early Woodland assemblages. The Early Woodland Meadowood projectile point was found well

outside of the ceramic clusters as was the radiocarbon date from the center of the block. The radiocarbon date obtained for the eastern part of the block was adjacent to a cluster of Marcey Creek ceramics, and this date was within the range accepted for the ware.

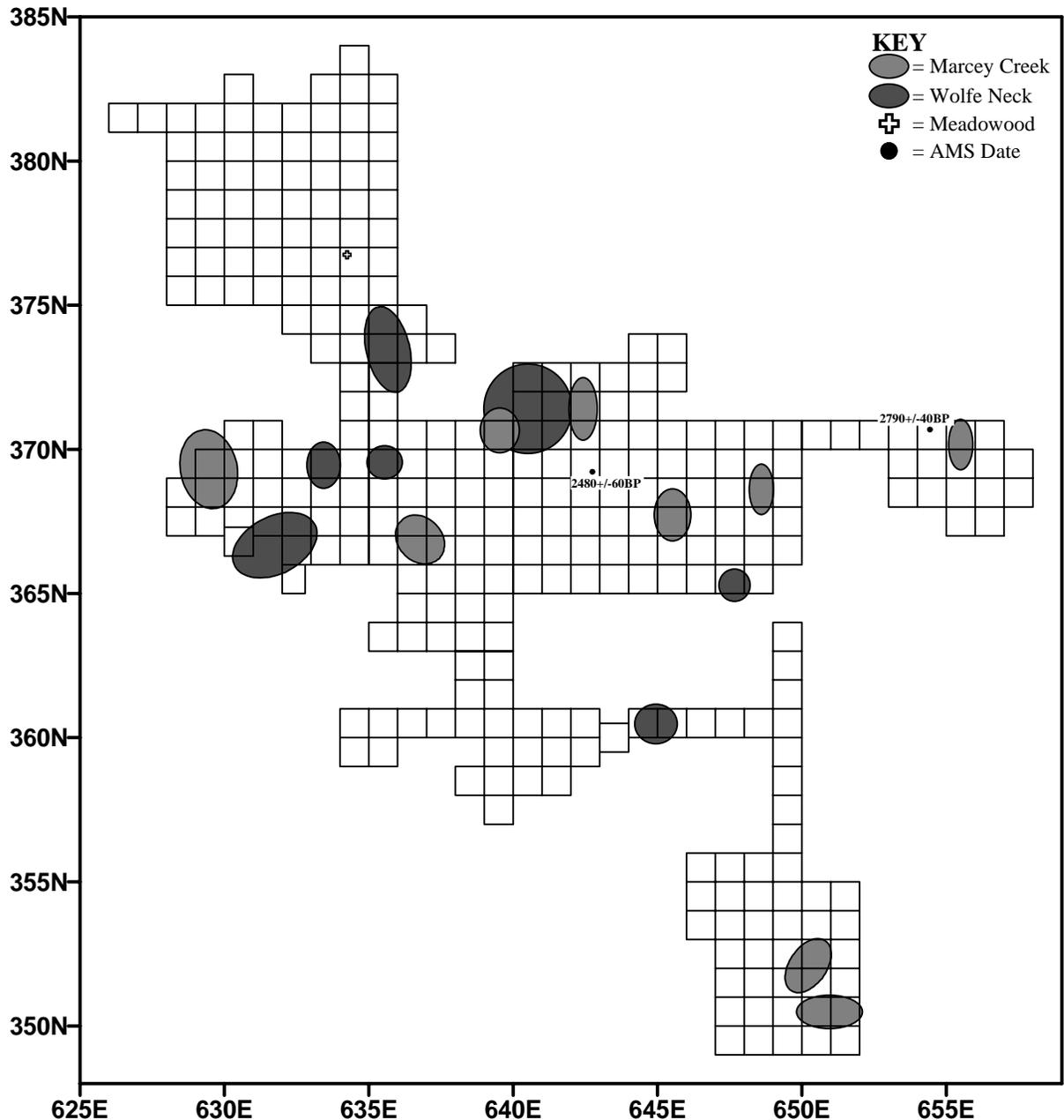


Figure 18.9 Northwest Main Block, Overlay of Early Woodland Chronological Indicators

The next map included artifacts of the late-Early Woodland period: Clay Tempered ceramics and other “Adena-related” diagnostics (Figure 18.10). The map was constructed in this way in order to determine the spatial relations of possible Adena assemblages. The distribution of Clay Tempered ceramic clusters was relatively uniform from north to south across Loci H, G, and F. However, Clay Tempered ceramic clusters were noticeably absent from the eastern

portion of the block and suggested more focused use closer to the bluff edge. The ceramic cluster identified to the north of Locus G also contained two Adena and one Rossville projectile points. The other Adena and Rossville points were not found in spatial proximity to the ceramic clusters within the block. The radiocarbon dates from the block that were consistent with the ceramic type were not recovered in proximity to the identified ceramic clusters.

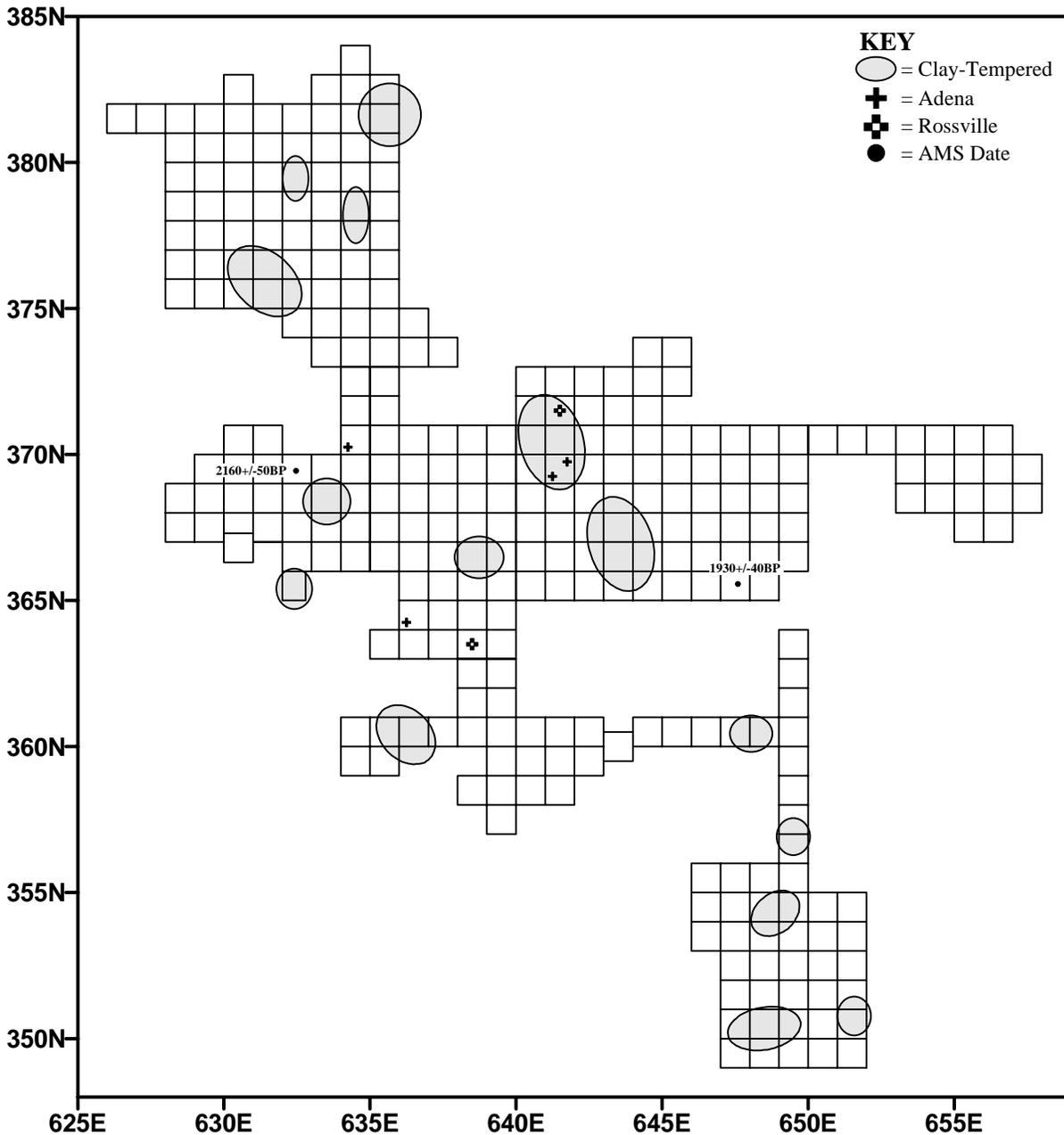


Figure 18.10 Northwest Main Block, Overlay of Late Early to Middle Woodland Chronological Indicators

Middle Woodland Mockley ceramics and Selby Bay projectile points were mapped next (Figure 18.11). Mockley ceramics were not as well represented as the other types within the

block, but their presence was important as it illustrated the continued use of the area. The clusters were small and found sporadically throughout Loci F and G, while two showed spatial proximity in the northern part of Locus H. Clusters of these ceramics were noticeably absent from both the western and eastern portions of Locus G. The Selby Bay projectile points were not found within the ceramic clusters, but two were located about 1 m from two separate clusters. The radiocarbon date that corresponded to this time period was not found in spatial proximity to the artifacts.

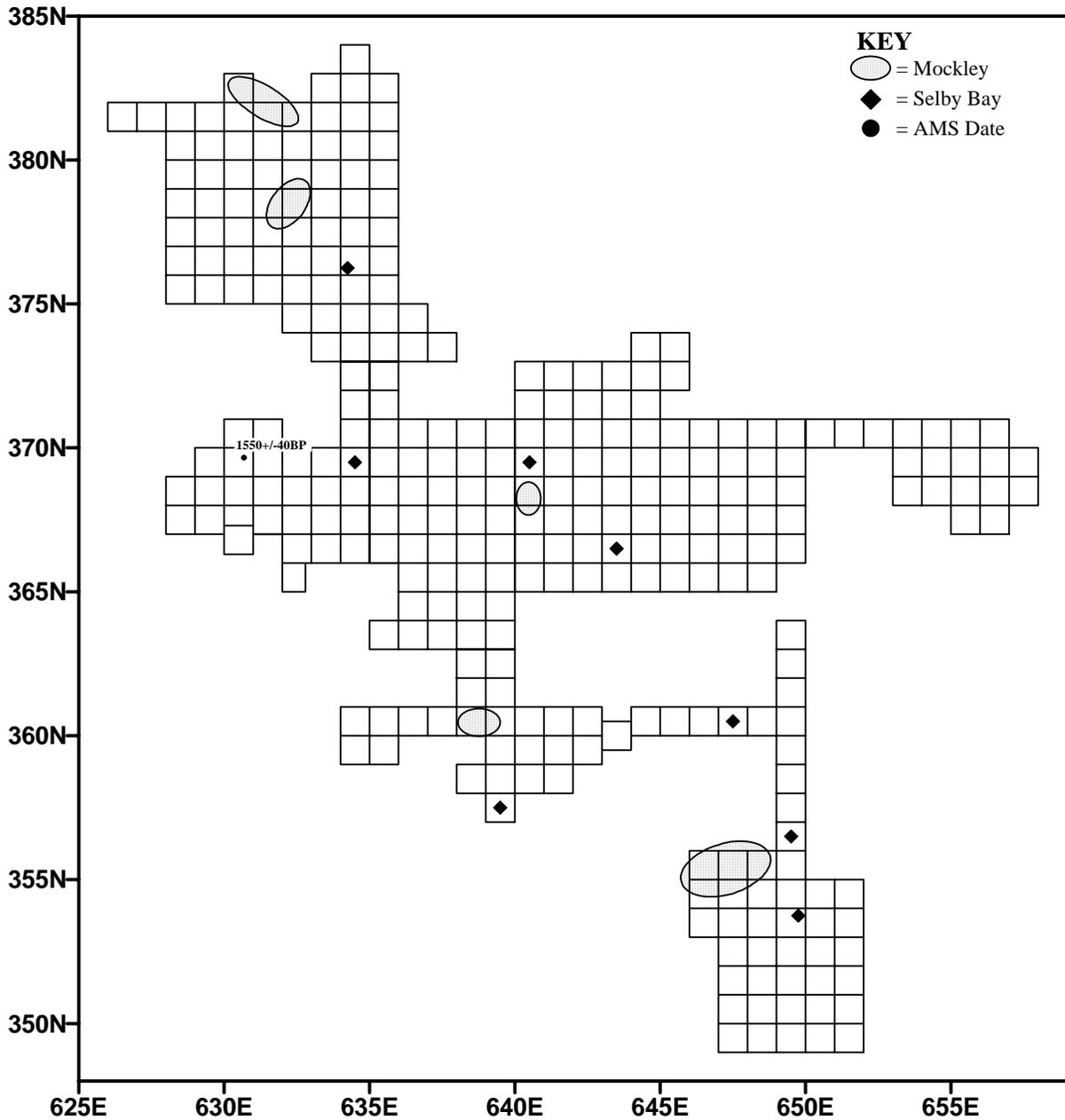


Figure 18.11 Northwest Main Block, Overlay of Middle Woodland Chronological Indicators

The number of Townsend ceramics within the Northwest Main Block was very small in comparison to the other types, but they represented the clearest indicators of Late Woodland presence at the site. Three small clusters of Townsend ceramics were identified near the bluff edge in Loci F, G, and H (Figure 18.12). A Levanna projectile point was found near the ceramic cluster located in Locus F, while an unidentified triangle projectile point was found to the west of the Townsend clusters in Locus G. Likewise, several Late Woodland radiocarbon dates were obtained, but were found in areas away from the diagnostic artifacts.

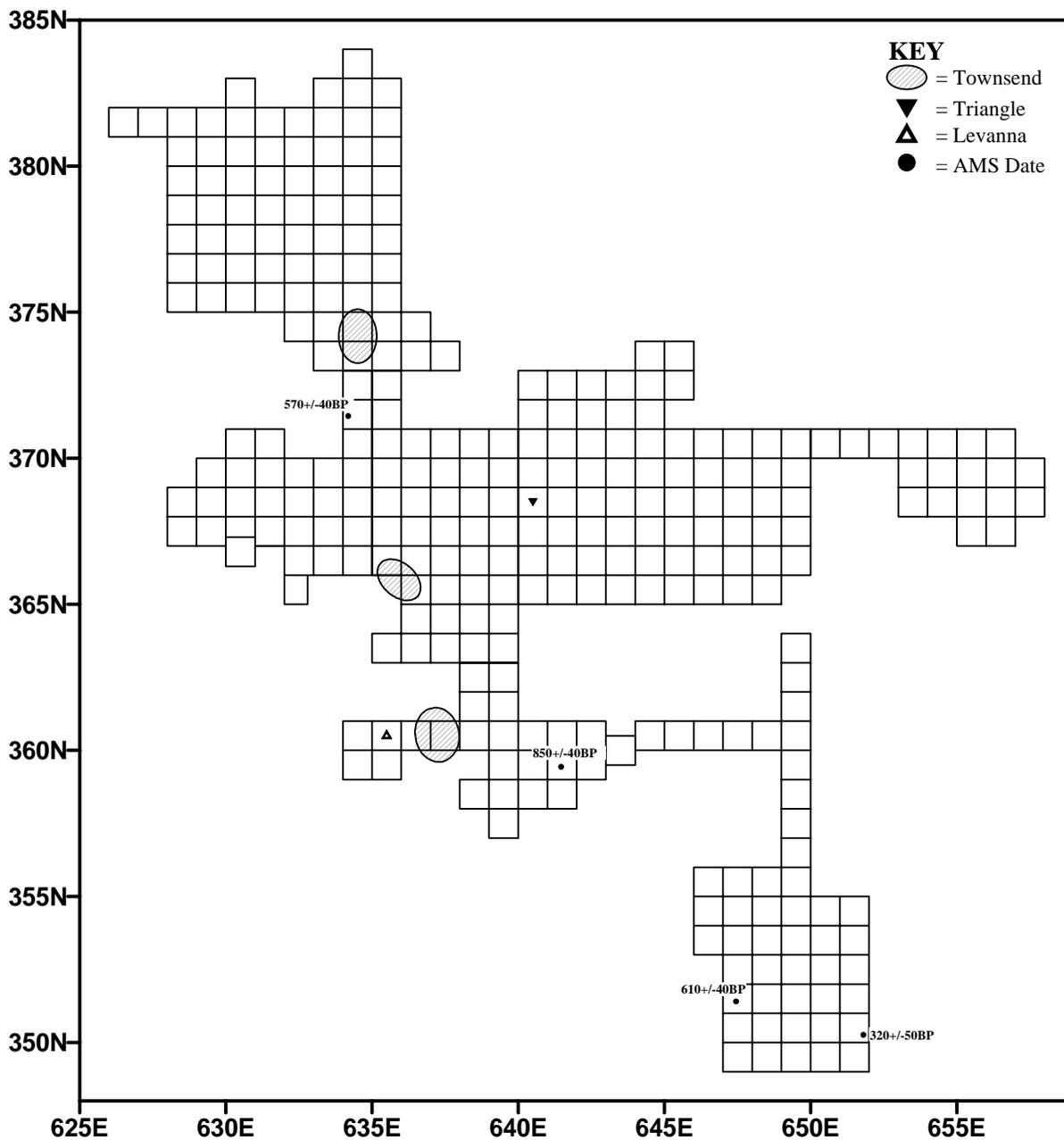


Figure 18.12 Northwest Main Block, Overlay of Late Woodland Chronological Indicators

When viewed separately, the maps of the chronological indicators suggested some patterned use of the area. However, when all represented periods were overlaid, the resulting map illustrated the complexity and overprinting between the assemblages (Figure 18.13). The ceramic clusters of divergent chronology evidenced more overlap, especially the Marcey Creek and Clay Tempered ceramics in Locus F and the northern and western parts of Locus G. The northern part of Locus H that had been primarily Clay Tempered ceramics now evidenced

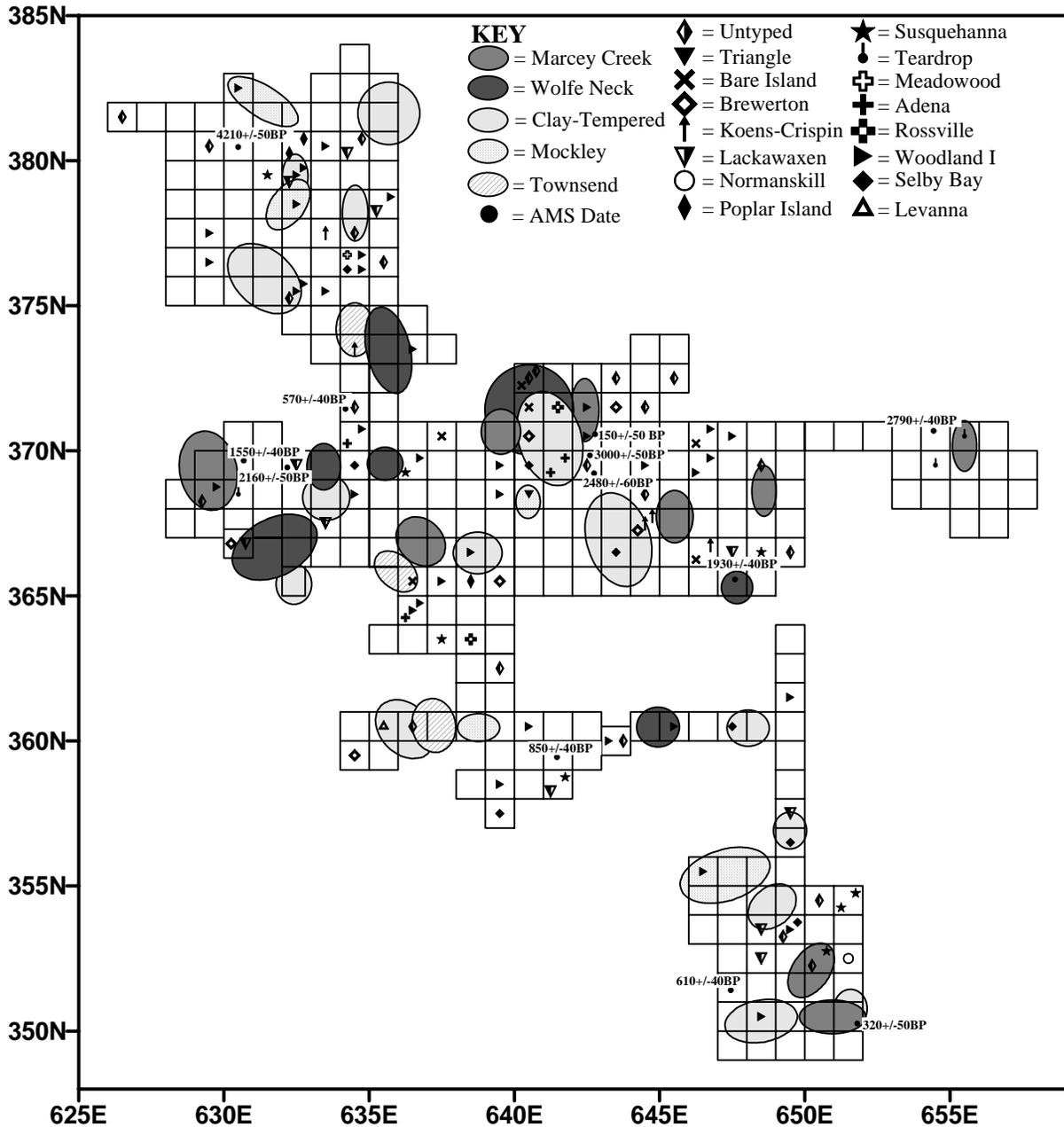


Figure 18.13 Northwest Main Block, Overlay of All Chronological Indicators

overlap with Mockley ceramic clusters. The eastern part of Locus G was the only portion of the block that maintained some chronological integrity with a cluster of Marcey Creek ceramics and an associated radiocarbon date without significant mixing. The overlay of all projectile points further complicated matters as Late Archaic points (Lackawaxen, Bare Island, Brewerton, and Koens-Crispin) were located within the same horizontal limits of several ceramic clusters with which they did not temporally belong. The overlay of chronological indicators suggested the difficulty that would be encountered when attempting to associate non-diagnostic artifacts and features to specific time periods. As a result, identification of short-term site structure also would be difficult. The pattern suggested heavy and repeated use of the block through the Early, Middle and Late Woodland periods.

Artifact and Feature Co-occurrences

The TAS clusters generally matched very closely with the evident TAS features identified during excavations (Figure 18.14). This was not surprising given that, by definition, TAS features were artifact concentrations. There were some notable exceptions, however, including Features 174 and 272. These remained apart from latent TAS clusters, suggesting that they had maintained some spatial integrity and did not have a dispersal ring around the feature. Several more TAS clusters were identified that did not correspond to any evident TAS features. Examples occurred near basin Feature 2, adjacent to basin Feature 275, south of Feature 169, and in Locus F west of Feature 46.

Debitage clusters occurred regardless of feature location and could be found across basin features of all sizes, TAS clusters, and in areas without evident features. Debitage clusters that covered large spatial areas often encompassed clusters of ceramics and/or TAS. There were a few examples of debitage clusters that might be related to evident features however. Adjacent to the east of Feature 46, there was one large cluster of debitage suggesting an association of activity. Another debitage cluster, which consisted primarily of rhyolite, was also located approximately 3 m north and west from the edge of Feature 46, along the edge of Feature 275. A debitage cluster that overlapped with a ceramic cluster was also identified adjacent to several evident TAS features in Locus F: Features 158 and 176. This cluster might also represent an associated activity area.

Ceramic clusters were identified across different feature types and in areas without features. One cluster corresponded with Feature 178, an evident concentration of Marcey Creek ceramics. Ceramic clusters were noted around TAS features such as Features 46, 158/176, 165/166, 249, 274, and 280/281. Basin features such as Features 1, 129, 169, 184, and 265 were associated with various ceramic clusters. The general distribution of these clusters appeared regardless to feature types, although there was a recurrent pattern of ceramics located near TAS features in many, but not all, cases.

Formation Processes

Excavations in the Northwest Main Block (Loci F, G, and H Block 1) identified a total of 116 features (Table 18.3, Table 18.4 and Table 18.5). These included 48 features that represented natural occurrences including tree root and mold patterns, rodent burrows, geomorphic discontinuities, or otherwise undetermined natural disturbances. An additional five,

Features 303, 305, 306, 307, and 308, were identified but not excavated; these were initially considered to indicate the presence of basin features, but re-examination of the data suggested they were likely natural occurrences.

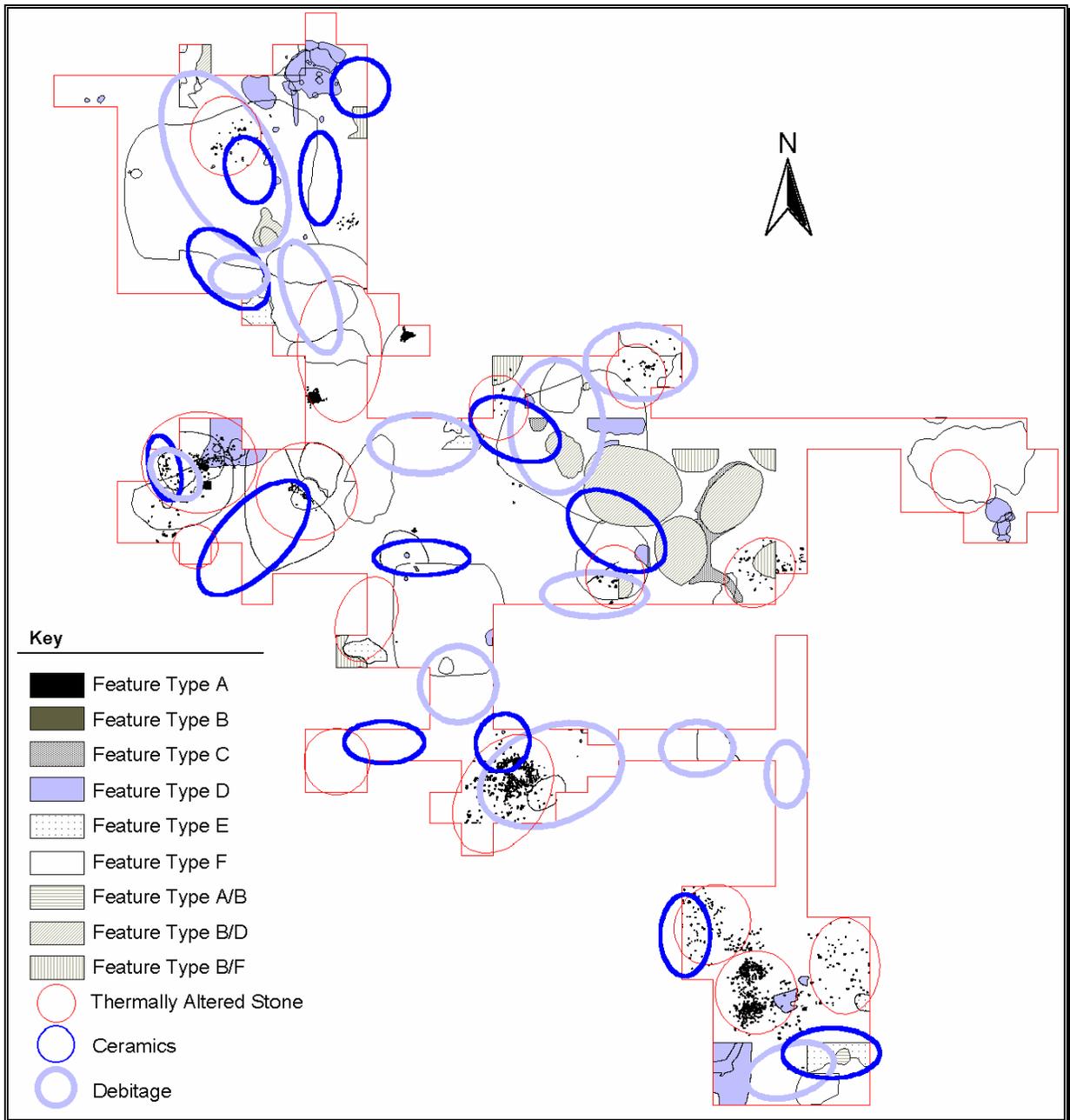


Figure 18.14 Northwest Main Block, Activity Area Composite and Evident Features

Several natural features were noteworthy for the site formational information they provided. Feature 56 represented a tree mold pattern and was located in Locus F adjacent to several evident TAS clusters. There were some scattered artifacts immediately adjacent to Feature 56 that indicated some disturbance of the stone features, but the disturbance was localized and did not

Table 18.3 Summary of Features, Artifacts, and Diagnostics for Locus F

| Feature | Type | Total Artifacts | Diagnostics |
|---------|----------|-----------------|-----------------------------|
| 24 | E-2 | 0 | |
| 37 | B-3a/A-2 | 10 | Marcey Creek, Clay Tempered |
| 44 | B-3a | 5 | |
| 46 | A-1b | 759 | Marcey Creek |
| 56 | D-2 | 16 | |
| 60 | B-1 | 46 | |
| 139 | B-2 | 118 | Susquehanna Point |
| 142 | D-1 | 0 | |
| 158/160 | A-1b | 204 | |
| 159 | A-1a | 26 | |
| 164 | A-1c | 73 | |
| 181 | D-1 | 2 | |
| 188 | E-1 | 21 | |
| 224 | A-1a | 17 | |
| 233 | B-2 | 24 | |
| 259 | D-3 | 3 | |
| 280 | A-1b | 37 | |
| 281 | A-1c | 74 | Clay Tempered |
| 289 | A-1a | 4 | |

Table 18.4 Summary of Features, Artifacts, and Diagnostics for Locus G

| Feature | Type | Total Artifacts | Diagnostics |
|---------|---------|-----------------|---|
| 1 | B-1d | 1431 | Marcey Creek, Wolfe Neck, Clay Tempered, Mockley; Woodland I Stemmed Point, Brewerton Side-Notched Point |
| 2 | B-1a | 206 | Marcey Creek, Clay Tempered |
| 31 | B | 0 | |
| 32 | D-3 | 1 | |
| 33 | E-2 | 8 | |
| 34 | E-2 | 0 | |
| 35 | D-3 | 0 | |
| 36 | C-2 | 0 | |
| 47 | D-2 | 28 | Clay Tempered |
| 55 | A-1c | 69 | Clay Tempered |
| 87 | A-1b | 173 | |
| 88 | D-1 | 21 | Wolfe Neck |
| 89 | C-2/F-1 | 0 | |
| 101 | A-1a | 30 | Marcey Creek, Clay Tempered, Popes Creek |
| 167 | F-1 | 0 | |
| 168 | F-1 | 0 | |
| 169 | B-1a | 238 | Marcey Creek, Wolfe Neck, Woodland I Stemmed Point |
| 172 | A-1b | 115 | Marcey Creek, Clay Tempered |
| 178 | A-2 | 9 | Marcey Creek |

Table 18.4 Summary of Features, Artifacts, and Diagnostics for Locus G (Continued)

| Feature | Type | Total Artifacts | Diagnostics |
|----------------|-------------|------------------------|--|
| 180 | B-2 | 179 | Marcey Creek, Clay Tempered |
| 184 | B-1a | 491 | Wolfe Neck, Clay Tempered; Lackawaxen Point |
| 187 | C-2 | 0 | |
| 228 | D-3 | 0 | |
| 230 | A-1a | 40 | |
| 232 | B-1c/D-3 | 96 | Clay Tempered; Koens-Crispin Point |
| 234 | B-2 | 117 | Marcey Creek |
| 249 | A-1a | 23 | Marcey Creek, Clay Tempered |
| 254 | D-1 | 1 | |
| 255 | D-1 | 1 | |
| 258 | C-1 | 46 | Clay Tempered |
| 261 | D-3/1 | 12 | Clay Tempered |
| 265 | B-1c | 355 | Marcey Creek, Clay Tempered, Mockley; Selby Bay Point |
| 270 | B-3a | 14 | |
| 271 | B/F-1 | 15 | |
| 273 | B-1 | 100 | Clay Tempered |
| 274 | B-1 | 72 | Clay Tempered |
| 275 | B-1d | 353 | Marcey Creek, Wolfe Neck, Clay Tempered; Susquehanna, Poplar Island, Woodland I Points |
| 279 | B-1 | 60 | Marcey Creek, Clay Tempered |
| 282 | B | 15 | Wolfe Neck |
| 283 | D-1/F-1 | 0 | |
| 284 | A-1a | 91 | Wolfe Neck, Clay Tempered; Woodland I Side-Notched Point |
| 287 | B-1c/D-3 | 165 | Marcey Creek, Clay Tempered |
| 291 | B-1c/D-1 | 25 | Marcey Creek |
| 293 | D-1 | 0 | |
| 294 | A-3 | 3 | |
| 295 | E-1 | 0 | |
| 296 | A-1a | 107 | |
| 297 | B-1b | 257 | Marcey Creek, Wolfe Neck, Clay Tempered, Popes Creek; Woodland I Stemmed Point |
| 298 | B-2 | 44 | Clay Tempered |
| 300 | D-1 | 0 | |
| 301 | D-1 | 0 | |
| 302 | D-1 | 0 | |
| 303 | F-1/B-1 | 0 | |
| 305 | F-1/B-1 | 0 | |
| 306 | F-1/B-1 | 0 | |
| 307 | F-1/B-1 | 0 | |
| 308 | F-1/B-1 | 0 | |
| 309 | F-1/D-2 | 0 | |
| 310 | B-2 | 282 | Wolfe Neck, Clay Tempered |

Table 18.4 Summary of Features, Artifacts, and Diagnostics for Locus G (Continued)

| Feature | Type | Total Artifacts | Diagnostics |
|---------|-----------|-----------------|-----------------------------|
| 311 | A-1b | 19 | |
| 313 | B-2/D-2/3 | 105 | Marcey Creek, Clay Tempered |

Table 18.5 Summary of Features, Artifacts, and Diagnostics for Locus H Block 1

| Feature | Type | Total Artifacts | Diagnostics |
|---------|----------|-----------------|---|
| 58 | E-3 | 0 | |
| 61 | E-1 | 0 | |
| 63 | D-2 | 8 | Clay Tempered |
| 64 | D-1 | 0 | |
| 65 | D-1 | 0 | |
| 66 | D-2/B? | 27 | Clay Tempered, Mockley; Woodland I Stemmed Point |
| 68 | D-1 | 0 | |
| 69 | D-2/3 | 23 | Clay Tempered |
| 71 | D-1 | 0 | |
| 72 | D-1 | 0 | |
| 77 | B-1a | 656 | Marcey Creek, Wolfe Neck, Clay Tempered, Townsend; Koens-Crispin Point |
| 94 | B-1 | 121 | Clay Tempered; Meadowood, Woodland I Stemmed, Selby Bay Points |
| 128 | D-1 | 1 | Clay Tempered |
| 129 | B-1d | 2406 | Marcey Creek, Wolfe Neck, Clay Tempered, Mockley; Lackawaxen, Poplar Island, Susquehanna, Woodland I Stemmed/Side Notched Points |
| 132 | D-1 | 0 | |
| 140 | D-1 | 0 | |
| 141 | D-1 | 0 | |
| 144 | D-1 | 0 | |
| 147 | D-1 | 0 | |
| 148/149 | D-3 | 7 | |
| 150 | D-1 | 1 | |
| 156 | D-1/2 | 1 | |
| 165 | A-1a | 6 | |
| 166 | A-1a | 47 | |
| 185 | D-1 | 0 | |
| 186 | F-1 | 0 | |
| 231 | D-1 | 1 | |
| 257 | F-1/B? | 43 | Marcey Creek, Clay Tempered; Lackawaxen Point |
| 267 | B-3b | 2 | |
| 268 | D-1 | 1 | |
| 272 | A-1a | 7 | |
| 277 | F-1/B-1 | 2 | |
| 288 | B-1 | 55 | Wolfe Neck |
| 290 | B-3b/D-1 | 0 | |
| 299 | B-1 | 34 | Marcey Creek, Wolfe Neck, Clay Tempered |
| 304 | E-1 | 21 | Clay Tempered |

extend much further than the visible boundaries of the mold pattern. Feature 63 located in Locus H Block 1 represented a tree stump that was burned in place as evidenced by the presence of charred wood and heavily oxidized soil. Interestingly, no depression or evidence of this feature was noticeable on the surface above the stump, despite it being shallowly buried. This suggested a rapid infilling of the void left by the stump removal. Several rodent burrows were identified in Locus G (Features 32, 35, and 261) that overlapped and disturbed several basin features and illustrated the intermingling of natural and cultural processes. The various geomorphic features present in the block were mostly related to the range of different soil formational processes present at the site. The number and range of natural features present within the Northwest Main Block emphasized the number of possible sources of dispersion at work at the site.

The majority of TAS clusters were associated with 22 evident TAS features. These latent clusters may be the remains of disturbed clusters or represent secondary deposits of TAS artifacts. One of these latent clusters was located in and around basin Feature 2, while another was located near probable basin Feature 271 and geomorphic Feature 295. The remaining two latent TAS clusters were not associated with any type of evident feature. Some of the clusters were wider than the evident TAS features with which they were associated, suggesting that several of these features had experienced levels of dispersion. Artifacts had been moved beyond the visible boundaries delineated for the features, both vertically and horizontally. Dispersion could be from natural agents or cultural behaviors, such as re-use or cleaning, or a combination of both. However, overall, the identified TAS features maintained spatial integrity despite being shallowly buried.

Although the ability to isolate the structure of specific occupations was lacking for the Northwest Main Block, there were some general patterns of importance. One of the most obvious patterns was the “line” of large, both evident and latent, TAS concentrations that stretched northwest to southeast across the bluff edge: from Feature 87, to Feature 46, to Features 158, 176, and 280/281. The contemporaneity of these features may be questionable, but there was a recurrent pattern of large TAS clusters located along the bluff edge. On the other hand, the smaller TAS clusters, such as Features 165, 166, 174, 296, 230, 249, and 274, were located east and away from the bluff edge. Detailed analysis of several of the features indicated a wide variety of characteristics that went beyond just the physical size and morphology. Differences in refit percentage, material composition, thermal altering, and percent completeness suggested that the features likely served different functions during their use lives and were subject to different levels of re-use and dispersion after their initial use. For instance, Feature 46 was one of the largest and most densely packed clusters of TAS at Hickory Bluff. However, detailed analysis revealed that the feature had an overall low refit percentage, high fracture percentage, and high percentage of stones less than 50 percent complete. These results suggested not only intense use, but also that many fragments had likely been removed from the feature, presumably for use in other TAS clusters. On the other hand, Feature 230, located to the north of Locus G, evidenced a high degree of thermal alteration, but also a higher than average refit percentage that suggested that the stones remained relatively in place. The variability observed within the TAS features identified in the Northwest Main Block suggested that a range of different functions were being conducted in this portion of the site.

Variability was also evident within the 25 basins and the six combination basin/natural features identified in the Northwest Main Block. The variation included the sizes, which ranged from small to large, as well as shapes, depths, and degree of overprinting. The differences between the basin features highlighted the degree of variability often overlooked and suggested functional differences between the features. Content did not vary significantly, as large basin content was essentially the same as what was found in the units outside the feature boundaries. Most of the large basins contained mixed chronological indicators making clear associations between features difficult to determine.

The wide range of chronological indicators was most evident in the three examples of large basins that were also wide and shallow (B-1d): Features 1, 129, and 275. All three features covered a broad horizontal area measuring between 3-5 m, while remaining only 30-40 cm at their deepest points. Feature 1 contained several Early and Middle Woodland ceramic types, in addition to Late Archaic and Woodland projectile points, among its 1,431 total artifacts. Feature 129 had the widest range of chronological indicators having a range of Early and Middle Woodland ceramics, three styles of Late Archaic projectile points, and Woodland projectile points among its 2,406 total artifacts. Feature 275 was the smallest of the three and contained the least number of artifacts with only 353. Among these were several Early Woodland ceramic types, two Late Archaic projectile point types, and Woodland projectile points. Each of these features also exhibited several different biotic intrusions and often unclear spatial boundaries, which suggested a complex formational history for these basins. Their large size and range of chronological indicators suggested that the features represented large areas of intense and repeated use. In fact, the mix of artifact cluster types within Features 1 and 129 was similar to the large basins observed in Locus A Block 2. Feature 275 was slightly different as it showed discrete artifact clusters along its edge, ceramics along the north, debitage to the south, and TAS to the west, while within the actual feature boundaries there was an apparent lower frequency of artifacts. Beyond the edges of Feature 275 to the north was another area of relative low artifact frequency. The large shallow basins contained a large cultural input, although their formational genesis was not clearly distinguished.

Several other large basin features contained a high percentage of biotic disturbances that complicated their interpretation. Features 232, 271, 287, 291, and 277 were basin features that showed enough disturbances to be categorized as combination features. These features displayed varying numbers of artifacts and often mixed chronological indicators, suggesting complexity in their formation. In addition, these combination features, with the exception of Feature 277, were clustered near Feature 1 within the southeastern portion of Locus G, evidenced a high degree of overlap between basins and natural features.

In general, the Northwest Main Block was characterized by overlapping features (Figure 18.14). This was observed in the southern portion of Locus F with several overlapping and adjacent TAS and medium basins; the western side of Locus G that contained several overlapping TAS, large and medium basins, and natural features; the south-central portion of Locus G that contained a large basin overlapping with a small basin, several biotic disturbances, and a geomorphic feature; the main portion of Locus G, from north to south, that contained overlapping basins, biotic features and TAS clusters; and all of Locus H that contained several

overlapping large basins, TAS clusters, and biotic disturbances. The only large basin that did not evidence a high degree of overlap was Feature 2 in the eastern portion of the Locus G.

Feature 2 was located along the eastern limits of Locus G in area with a generally low frequency of artifacts for the Northwest Main Block. The feature remained discrete, except for a later natural/modern disturbance, Feature 228. A latent TAS concentration was the only elevated artifact type associated with Feature 2 and represented either a disturbed hearth location or the secondary deposit of the material into Feature 2. Although Feature 2 contained a mix of ceramic types in its upper portions, the deeper segments contained only Marcey Creek ceramics and returned a radiocarbon date within the accepted frame for this ware (Figure 17.7). A mixture in the upper portions may be anticipated as a basin this size would be expected to maintain a surface depression for some time that could infill with later material. The isolation of Feature 2 was significant and represented an anomaly for the otherwise overprinted block.

Within Locus G, areas of higher artifact concentration were apparent and separated by areas of lower artifact frequency. For example, the center of Locus G was characterized by a lack of both evident features and artifact clusters. This relatively open area north of Feature 275, east of Feature 297, and west of Feature 1 was anomalous amidst the otherwise intensely used block. However, the “lower” artifact frequency was in relation to the rest of the Northwest Main Block and, when compared to other portions of the site, would be still considered higher than average. Nonetheless, these differences suggested some level of site structure and separation of activities as indicated by artifact types. The mix of chronological indicators present across most of the block did not allow for clear associations to be made between the artifact clusters and the features, and blurred any clear associations between the features with which to assess patterning. The pattern that emerged was one of complexity that suggested intense activity and re-use within the same localized area of the site, indicating site selection preference for the areas adjacent to the bluff edge.

LOCUS H BLOCK 2

Artifact Plots

The composite map of artifact clusters by type demonstrated a high degree of overlap within the main portion of the block with more discrete clusters along the periphery (Figure 18.15). The identified clusters within Locus H Block 2 included three TAS, three debitage, and five ceramic clusters. The greatest frequency of all artifacts occurred along the western edge and stretched from north to south across the block. This area contained all three TAS clusters, the two larger debitage clusters, and two of the ceramic clusters. All seven of these clusters evidenced a high degree of overlap with each other. The western side of the block also contained a discrete cluster of debitage that likely extended past the limits of the excavation. The remaining three ceramic clusters were located to the east in Locus H Block 2. The first was adjacent to the overlapping artifact clusters along the southwest edge of the block. The other two clusters remained spatially discrete from clusters of other artifact classes.

Chronological Indicators

The distribution of chronological indicators in Locus H Block 2 lacked clear spatial associations (Figure 18.16). Overall, the block evidenced lower ceramic counts than the majority of the Northwest Quadrant.

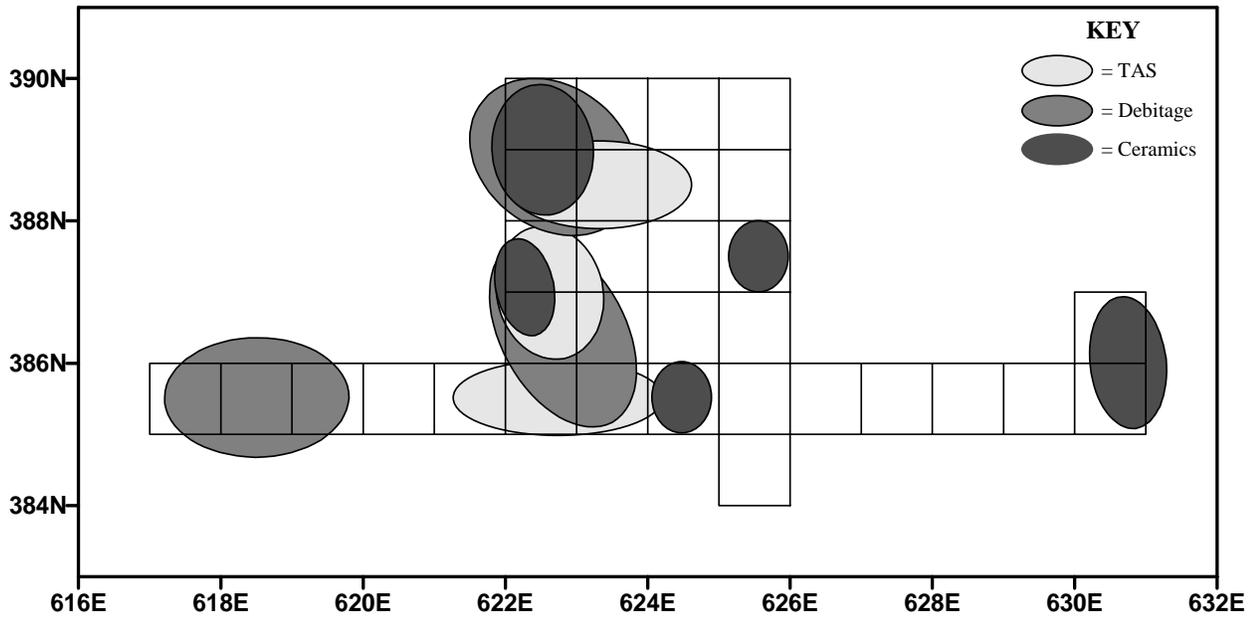


Figure 18.15 Locus H Block 2, Activity Area Composite

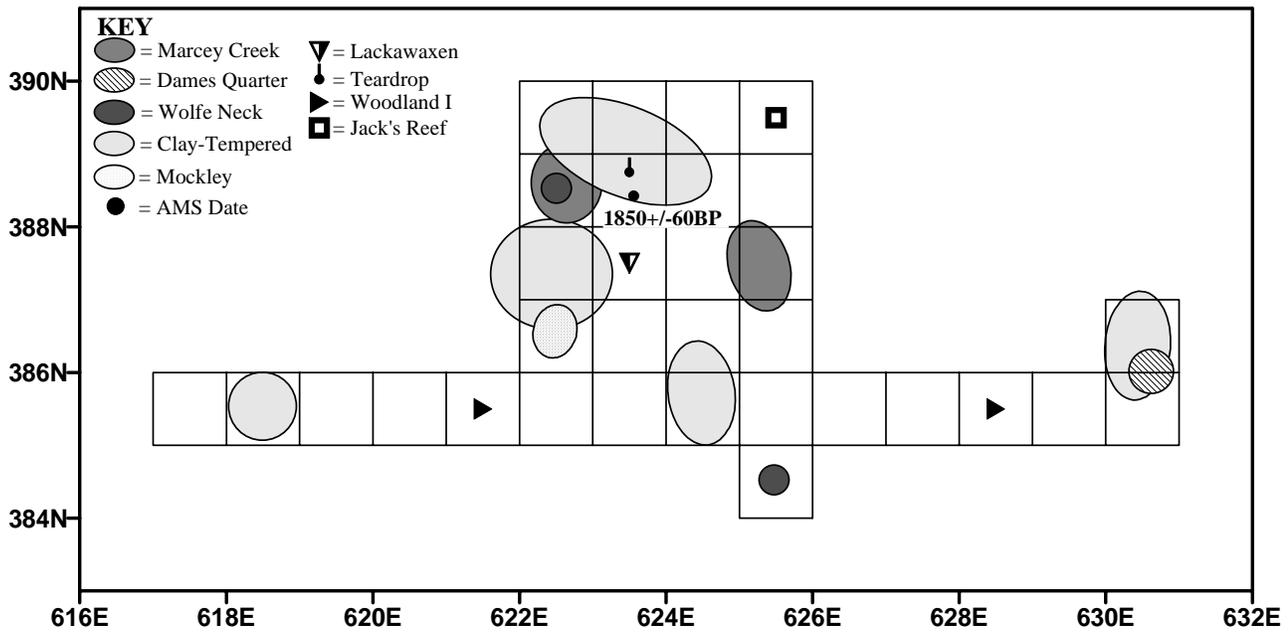


Figure 18.16 Locus H Block 2, Overlay of Chronological Indicators

The northwest corner of the block contained two horizontally extensive clusters of Clay Tempered ceramics that overlapped a small cluster of Marcey Creek ceramic sherds and random Wolfe Neck and Mockley ceramic sherds. Two other Clay Tempered ceramic clusters maintained horizontal separation from other types, while the final Clay Tempered ceramic cluster in the eastern portion of the block exhibited some overlap with a random Dames Quarter sherd. Although the spatial implications are not as significant for the ceramics in this block, the presence of several diverse types that span a wide chronological sequence was important and suggested the continued use of this area of the site. The projectile point locations remained separate from the ceramic clusters, except for one Teardrop point found within a cluster of Clay Tempered ceramics. These two types have a degree of chronological overlap, but are not typically associated with each other. A Late Archaic Lackawaxen projectile point was found adjacent to the Clay Tempered ceramic cluster, which demonstrated the range of diverse diagnostics and the difficulty in making clear spatial associations for “typically” associated diagnostic artifacts.

Artifact and Feature Co-occurrences

The two main groups of overlapping artifact clusters were located in the vicinity of Feature 78, a large basin and Feature 82, a geomorphic anomaly (Figure 18.17). The clusters to

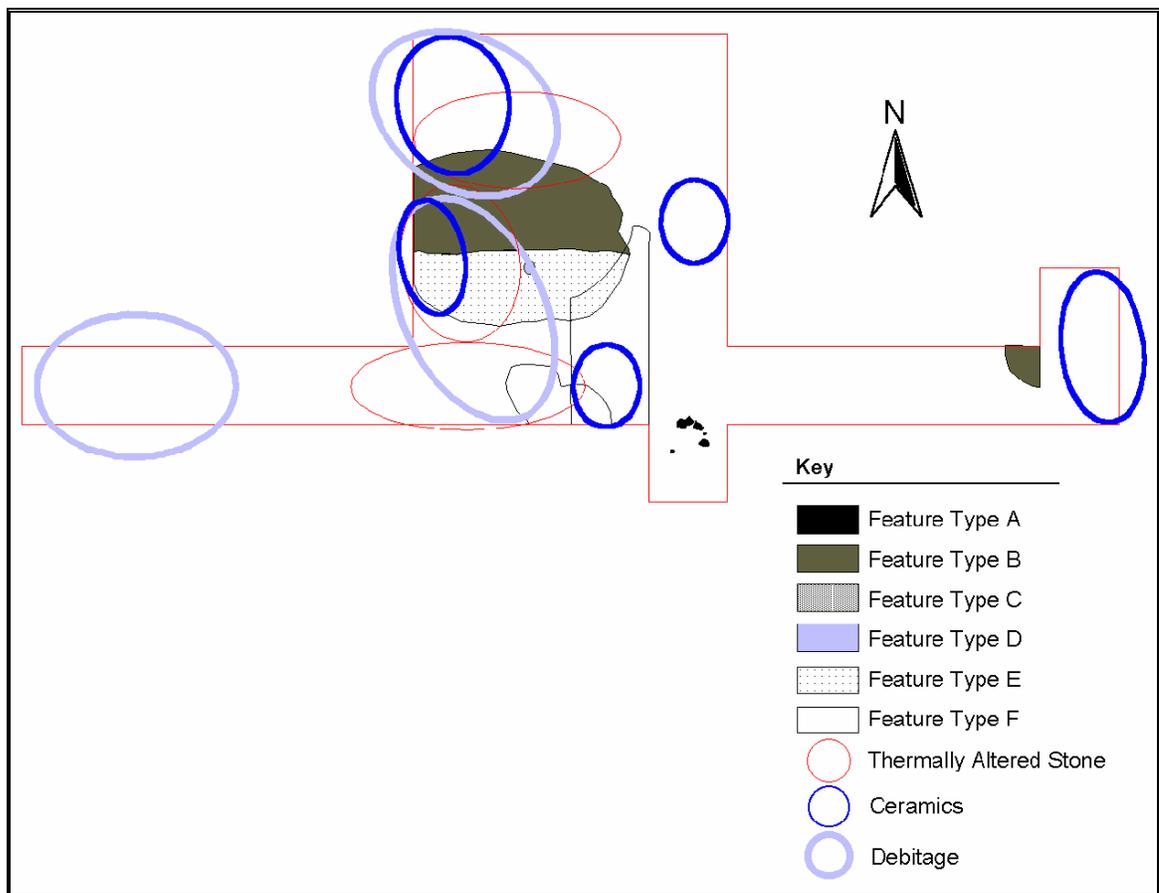


Figure 18.17 Locus H Block 2, Activity Area Composite and Evident Features

the north spread beyond the boundaries of Feature 78, which contained elevated artifact counts. The three TAS clusters did not correspond to the location of the single evident TAS feature (Feature 227). This was a small artifact cluster made up of only a few stones that was masked by the higher artifact TAS frequencies found to the west. The discrete cluster of debitage and the two discrete ceramic clusters were located in portions of the block devoid of evident features. These might represent activity areas separated from the feature locations and suggested at least some level of differential space use.

Formation Processes

Locus H Block 2 contained seven evident features, of which four represented various natural processes (Table 18.6). Feature 82 was a large area of “displaced” B-horizon soil found in the central part of the block. This feature also contained Feature 153, a tree root disturbance, and was adjacent to or overlapped Feature 183, another discontinuity in the soil profile that lacked clearly defined boundaries or shape. The remaining natural occurrence was Feature 85, a tree mold or rodent burrow that extended south and out of the block. These natural features indicated the variety of soil formation processes at work within a small area of the site and specifically along the edge of the bluff.

Table 18.6 Summary of features, artifacts, and diagnostics for Locus H Block 2

| Feature | Type | Total Artifacts | Diagnostics |
|---------|-------|-----------------|------------------|
| 78 | B-1b | 534 | Lackawaxen Point |
| 82 | E-1 | 35 | |
| 85 | D2/F1 | 14 | |
| 153 | D-1 | 1 | |
| 183 | F-1 | 12 | |
| 227 | A-1a | 11 | |
| 276 | B-3a | 1 | |

The natural features did not necessarily correlate with dispersed artifact clusters. Several artifact clusters overlapped each other and the areas of natural features. This overlap suggested that the artifact clusters were present despite the natural features and the two may have had little association. However, two of the latent TAS clusters could have been disrupted by natural overprinting given their proximity to noted natural features. The single evident TAS cluster, Feature 227, was not associated with any of the latent TAS clusters. The feature was small and consisted of only 11 total artifacts, and its low frequency was masked by higher counts within the latent clusters. This indicated further that Feature 227 maintained spatial integrity and clear boundaries. The other latent TAS clusters identified represented disturbed clusters or redeposited artifacts and therefore lacked identifiable spatial boundaries, despite the higher artifact frequency. Results of the detailed analysis of Feature 227 revealed a lower refit percentage and a high percentage of stones less than 50 percent complete, which implied that larger fragments from the feature had been removed. Feature 227 also contained high mean weights and a diversity of material types that suggested a more generalized function for the feature. This observation indicated that the stones were selected primarily for their size, while material type was of secondary concern.

A single large basin (Feature 78) was identified in Locus H Block 2. This feature was deep, penetrating the C-horizon and was located immediately adjacent to the base of a living tree. Several artifact clusters of all types overlapped with each other and the boundaries of the large basin, which contained a high artifact count of 534 total artifacts. The overlap of the artifact type clusters within Feature 78 indicated a less strict functional correlation between the feature and the artifacts, and that the artifacts were likely secondary deposits into the basin feature. The high total counts of artifacts and lack of discrete clustering indicated that this portion of the block represented the accumulation of material through site maintenance activities, such as clearing surface debris out of the main part of the site, in this case, to the bluff edge. Artifact counts decreased on both sides away from the large basin. Feature 78, therefore, is considered to represent a basin that was infilled with refuse for disposal, although this may not have been the original intent of the basin construction.

Despite its close proximity to the large, contiguous Northwest Main Block, the feature density within Locus H Block 2 was noticeably lower and lacked the degree of overprinting evident across much of the site. The overlap that did occur was between natural features and basins, specifically Features 78 and 82, and illustrated the complex array of site formation processes.

LOCUS I

Artifact Plots

A total of 10 artifact clusters was identified within Locus I: four TAS, four debitage, and two ceramic (Figure 18.18). There were two main areas of overprinted artifact clusters in the western half of the main portion of the block. The first group contained all three artifact classes and was less intermingled. It occurred near the southwest corner of the block and although there was overlap, the different artifact clusters showed a degree of separation and diverged in different directions from each other. Just north of this area was another area of intermingled artifact clusters. This group displayed more overlap between types, especially the TAS cluster, which was smaller than and co-occurred with the debitage and ceramic clusters. Just north of this area, a discrete cluster of debitage was identified. West of this debitage cluster, an overprinting of TAS and debitage artifacts was identified in the northwest corner of the block. The remaining cluster was a discrete cluster of TAS found just east of the center of the block.

Chronological Indicators

Locus I contained a range of chronological indicators that spanned the Middle Archaic through the Middle Woodland periods (Figure 18.19). Several ceramic clusters of different types overlapped along the west-central portion of the block and included Marcey Creek, Clay Tempered, Mockley, and Hell Island wares. The Clay Tempered ceramics tended to maintain more horizontal separation from other types. A few random sherds of Wolfe Neck, Mockley, Hell Island, and Townsend wares also were recovered from sporadic locations within the block. Projectile point locations added further complexity to the patterning of chronological indicators. Three separate Middle Archaic Brewerton points were found within clusters of late-Early Woodland Clay Tempered ceramics. A Late Archaic Bare Island point was found in the same unit as Middle Woodland Mockley ceramics. However, in one instance, a Late Woodland

Townsend ceramic sherd was recovered from the same unit as a Triangle point. The resulting patterns were therefore complex, indicating temporal overlap within the block, as well as some possible co-associations.

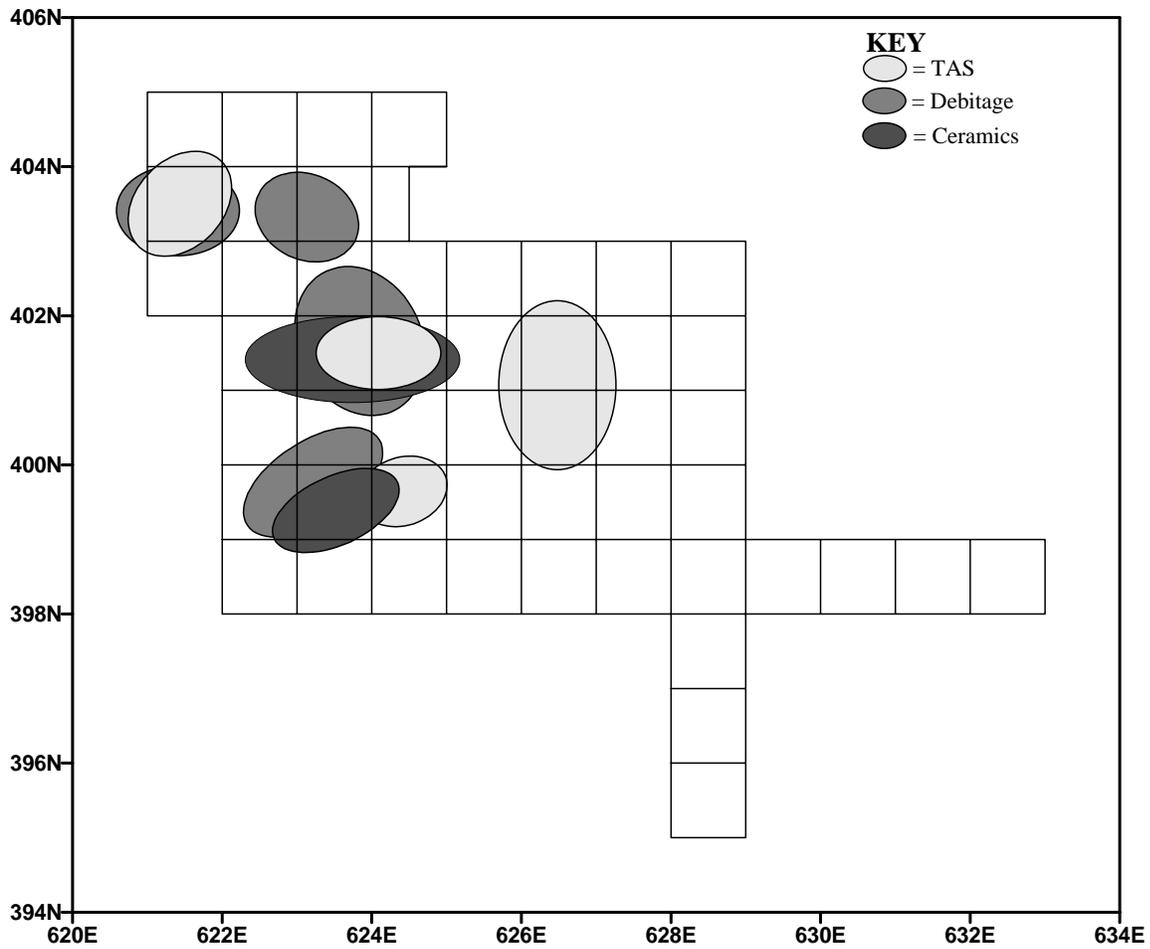


Figure 18.18 Locus I, Activity Area Composite

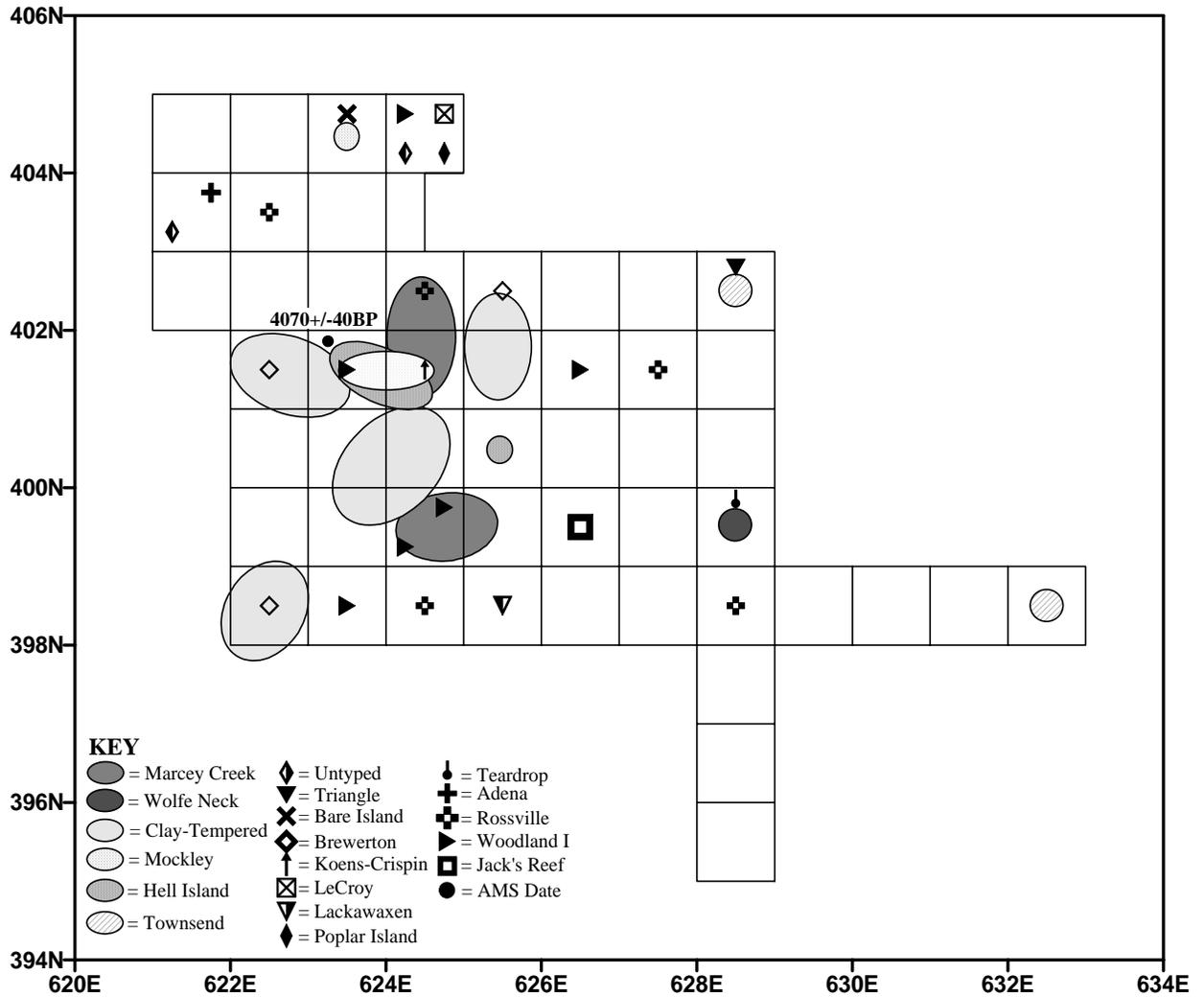


Figure 18.19 Locus I, Overlay of Chronology Indicators

Artifact and Feature Co-occurrences

The area of greatest overlap between artifact types was located in the vicinity of Feature 90, a large and deep basin (Figure 18.20). The center portion of the feature contained a mix of all artifact types. The southern part of Feature 90 was located adjacent to an area of overlapping artifact clusters. These clusters maintained a better degree of separation from those contained within Feature 90, and extended in divergent directions from each other. The intermingled clusters of debitage and TAS in the northwest corner occurred south of basin Feature 278. The debitage cluster east of this area also overlapped partially with Feature 90. The single discrete TAS cluster was located in association with the two evident TAS features within Locus I, Features 173 and 175.

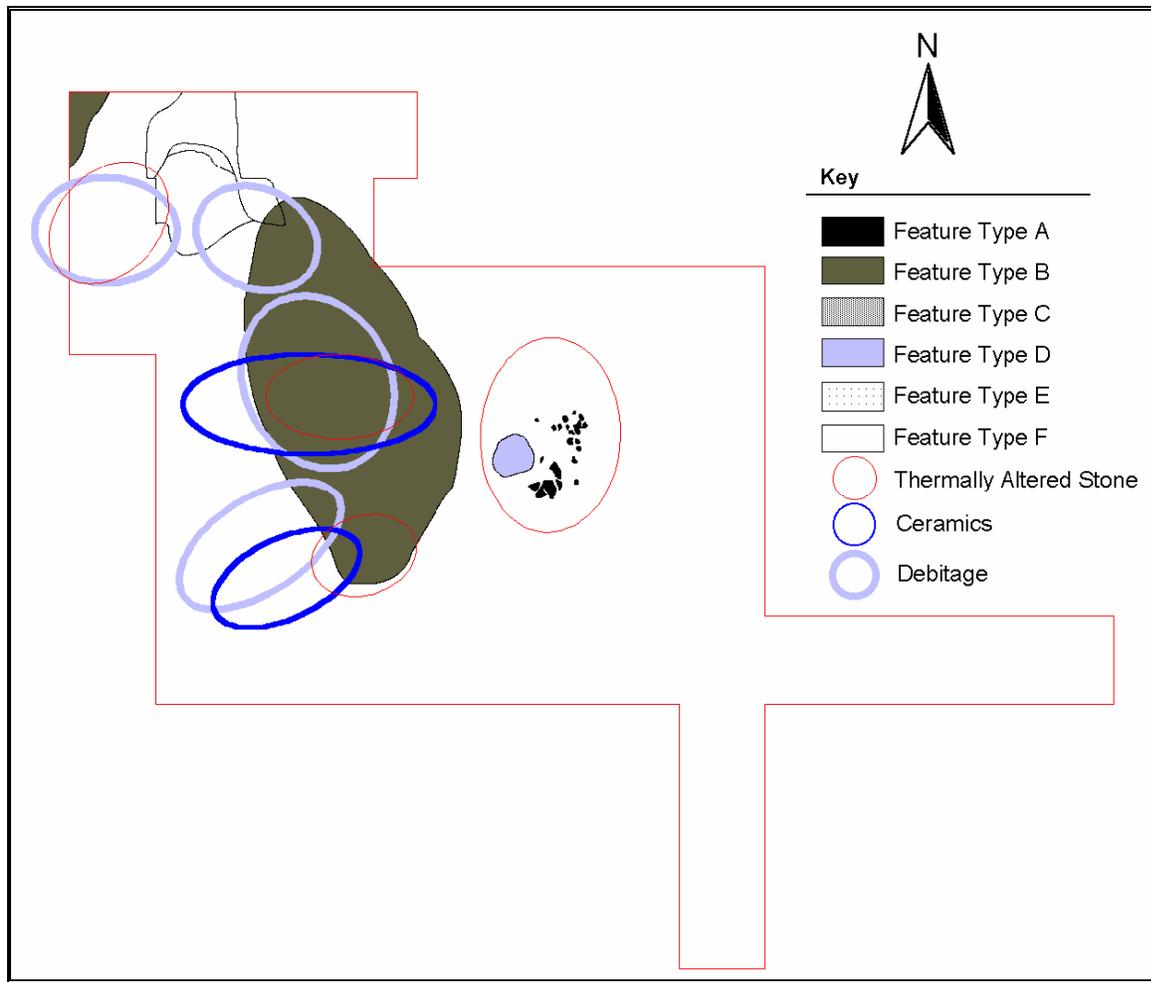


Figure 18.20 Locus I, Activity Area Composite and Evident Features

Formation Processes

Excavations in Locus I identified only six evident features (Table 18.7). Of these, two were considered natural occurrences. The first was related to a large taproot disturbance, Feature 179. It was located slightly north and west of the evident TAS features and may have been a source of disturbance within the block. The other natural feature identified was Feature 292. This feature was identified at the base of the E-horizon, had an indeterminate shape, and reflected undulations in the subsoil deposits in the localized area. Only minor root intrusions were noted within Feature 90 and were not substantial enough to treat separately from the feature. The relative lack of large natural disturbances suggested good integrity for the block, while Feature 292 illustrated the differential soil formation processes.

Table 18.7 Summary of Features, Artifacts and Diagnostics for Locus I

| Feature | Type | Total Artifacts | Diagnostics |
|---------|------|-----------------|--|
| 90 | B-1a | 899 | Marcey Creek, Clay Tempered, Mockley, Hell Island, Woodland I Stemmed, Koens-Crispin |
| 173 | A-1a | 31 | |
| 175 | A-1a | 22 | |
| 179 | D-1 | 1 | |
| 278 | B-2 | 9 | |
| 292 | F-1 | 0 | |

Two evident TAS features were identified within the block. These features remained adjacent to and outside of the large basin feature. The larger extent of the latent TAS cluster, which incorporated the two evident clusters, indicated that artifacts may have been dispersed both horizontally and vertically. Such movement may have occurred through natural agents such as tree roots or groundwater run-off, or from a variety of cultural actions such as site maintenance/cleaning activities, re-use, or trampling of stones across the surface. Evidence of re-use was apparent in Feature 173, as approximately 85 percent of the large boulder was refit, with the noticeable exception of a large fragment from the center of the stone that was not recovered. This large fragment was likely removed and used elsewhere, as it was not located in spatial proximity with the rest of the fragments that comprised the feature. The close spatial proximity of Features 173 and 175 implied a relation between the two, with Feature 175 acting as the source of heat for Feature 173.

Feature 90 was a large and discrete basin feature that contained elevated artifact counts relative to the surrounding block, indicating cultural input. Breakdown of the chronological indicators within the basin illustrated a diverse range, including a Late Archaic point and radiocarbon date found stratigraphically above both Early and late-Middle Woodland ceramics (Figure 18.21). The ceramics contained within the feature were also mixed and spanned the Woodland period. The Hell Island sherds that were recovered deep in the feature from Levels 9 and 12, provided an effective *terminus post quem* for the feature fill (i.e., sometime during or after the late Middle Woodland period). This was important as it implied that if the feature was not formed during the late-Middle Woodland period, its deepest (if not all) portions were still open during this later site occupation, given the lack of large disturbances within Feature 90. The feature contained high numbers of all artifact types and they were found throughout the vertical extent of the feature. The artifact clusters within the basin were mixed and the basin may have disrupted earlier activity areas. Following this reasoning, when the basin was filled, it incorporated a redeposited mix of artifacts. Geoarchaeological investigation of the feature concluded that the feature was filled relatively rapidly, as the feature fill contained no stratification of sediments or evidence of slumping and weathering. The mixture of artifact types could also imply that the basin may have been used secondarily as an area for refuse disposal, thus causing an overlapping of higher artifact counts of all types. The observation of less mixed artifact clusters along the southern edge of the feature suggested that the feature impact might have been less intrusive in that part of the block.

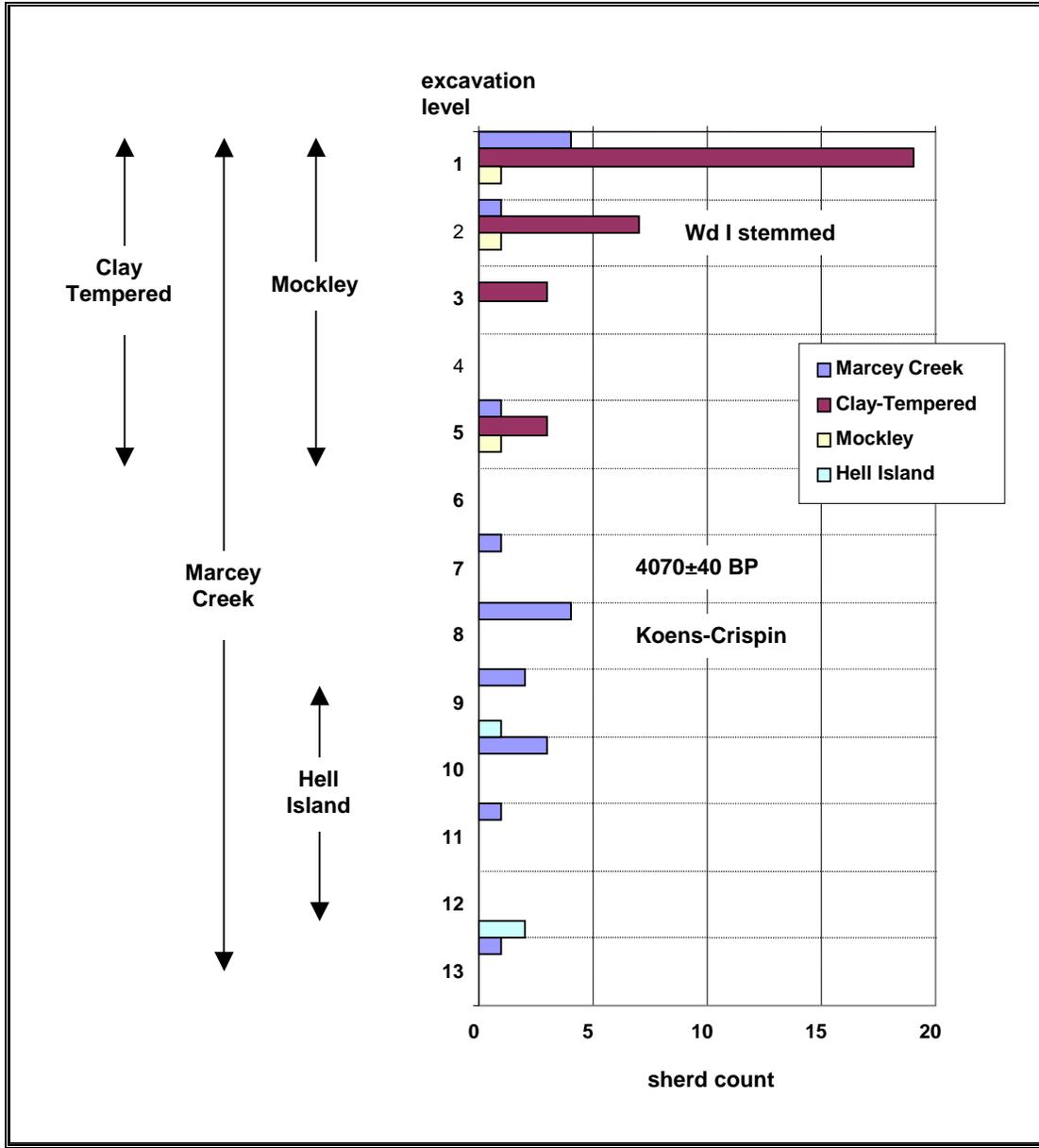


Figure 18.21 Vertical Distribution of Chronological Data in Feature 90

Locus I yielded important site structure information and exhibited evident patterning. The basic pattern consisted of a single large basin feature that contained elevated artifact counts, located adjacent to two small TAS features. A lack of both artifact clusters and features was evident in the south and east portions of the block and further suggested some deliberate differential utilization of space in this area. Locus I was also significant for the relative lack of feature overprinting, which was different than much of the Northwest Quadrant. Chronological indicators within the block were mixed and seemingly contradictory; for example, the block contained point types from the Middle Archaic through the Middle Woodland and ceramics that spanned the Woodland sequence. Despite the lack of clear chronological indicators for the block, the patterns observed were valid and implied moderately intense use of the area.

GENERAL OBSERVATIONS

Hickory Bluff had major implications for understanding of the structure and formation of large-scale sites. The distribution of both artifacts and features illustrated that the focus of site occupations was along the bluff edge within the current treeline. The occupations were generally continuous 170 m north to south along the bluff, and between 25-30 m west to east from the bluff edge. The mix of chronological indicators from these blocks, primarily spanning the Late Archaic to Middle Woodland periods, indicated that similar selection preferences were at work throughout this time period and focused activities along the bluff edge. The identification of lower artifact and feature density in the eastern portion of the site indicated that few materially based activities occurred in this part of the site. The features identified in the eastern side of the site (e.g., Features 3, 113, and 118), illustrated use of the area, albeit with low intensity. This pattern of differential east-west artifact and feature density was more indicative of wider group behaviors with residues accumulating consistently in the same locations.

Another pattern that recurred across the site was the association of small TAS features located adjacent to large basins. The TAS features were usually within 1 m of a basin boundary and normally maintained horizontal integrity. Examples included the following basins and associated TAS features: Feature 1 with Feature 249 (Locus G); Feature 25 with Feature 62 (Locus B); Feature 90 with Features 173 and 175 (Locus I); Feature 94 with Feature 174 (Locus H); Feature 184 with Feature 284 (Locus G); and Features 273 and 274 with Feature 230 (Locus G). However, there were a few examples of TAS features crossing basin feature boundaries that implied a different formational history; these included Feature 129 with Features 165 and 166 (Locus H); Feature 169 with Features 87 and 172; Feature 265 with Feature 311 (Locus G); Feature 299 with Feature 272 (Locus H); and Feature 407 with Feature 417 (Locus A Block 2). The co-occurrence of TAS features and large basins was a pattern recurrent across much of the site and suggested the contemporaneity of the feature types in several instances. This pattern may also be related to the function of these specific features indicative of recurring and similar site activities.

The distribution of features evidenced a wide degree of overlap and intersection between feature types in most areas in the site. This overlap made determining associations between the features, which would be indicative of short-term site structure, difficult. This problem was compounded by the fact that while many features did not contain chronologically diagnostic artifacts, those that did, often contained material that was mixed in age. Of the 331 total features, 83 contained chronologically diagnostic artifacts, and of these, 38 contained mixed chronological indicators. The complexity of the feature overlap and lack of clear associations between the majority of features across the site indicated the repeated use of the area.

The distribution of chronological indicators was also indicative of repeated site use. The maps of the different ceramic assemblages showed some temporally and horizontally discrete activity areas. At the same time, adjacent areas appeared heavily re-used, with temporally diverse ceramic wares being found in close spatial association. Another level of complexity in the data was evident when projectile point distributions were overlaid on the ceramic clusters already identified. Point types associated with different time periods were found in close horizontal proximity, even occurring within the same one meter square. Moreover, many point

types were found within clusters of diagnostic ceramics with which they did not match chronologically. Radiometric data from the site provided dates that ranged from the nineteenth century to 4200 years B.P. Often, the dates were not within, or close to the accepted ranges of the ceramic clusters with which they were spatially associated. As a result, the radiometric dates comprised an incongruous data set. The disparity between the ceramics and radiocarbon dates was likely an indication of repeated site use as well as of the natural movement of carbonized material within the shallowly buried cultural deposits.

The complexity presented by the spatial data at Hickory Bluff did not provide simple answers to the question of site structure. In situations such as these, words like “palimpsest” and “overprinted” are often used to describe depositional contexts. Clear associations of activity areas, feature types, and diagnostic artifacts that would suggest a large-scale, short-term structured site, were not found consistently at Hickory Bluff (Figure 18.22).

However, some evidence of site structure was contained, for example, within the identified ceramic clusters. The intersecting feature types as well as overlapping chronological data, were all suggestive of smaller repeated occupations. Evidence from the site suggested that the landscape was intensively utilized and this has resulted in an often confusing and contradictory array of data. Short term patterns and behaviors were present at the site, but were isolated and provided glimpses of co-associations. The majority of data from the site indicated that the primary site structure concerned re-use behaviors, which would mask the individual occupations.

Many sites along the St. Jones River and other Coastal Plain drainages with a similar presence of dense artifact assemblages from multiple time periods, have been interpreted as “macro-band base camps” (Griffith 1974; Gardner 1982; Custer 1986, 1989). The use of such a term has several implications for site interpretation. It implies the relative contemporaneity of many assemblages and a more intensive and patterned occupation of relatively short duration. This would further indicate that occupation areas were relatively large, indicating greater populations and the likelihood of resulting changes in social complexity. Typing of sites in this way also carries over into wider concepts of landscape use and selection preferences through time that may affect the interpretation of other sites.

The concept of “macro-band base camps” on the Delmarva has been revisited with the excavation of several large and dense sites, such as the Leipsic, Snapp, and Pollack sites (Custer 1994; Custer et al. 1994; Custer et al. 1996; Custer and Silber 1995). It had been more recently acknowledged that it would be difficult to distinguish between a “macro-band base camp” settlement and a series of overlapping “micro-band” camps (Custer 1994). Examination of the data from these sites indicated a wide range of chronological indicators and a fair degree of feature overlap that tempered their interpretation as structured and large “macro-band base camp” settlements.

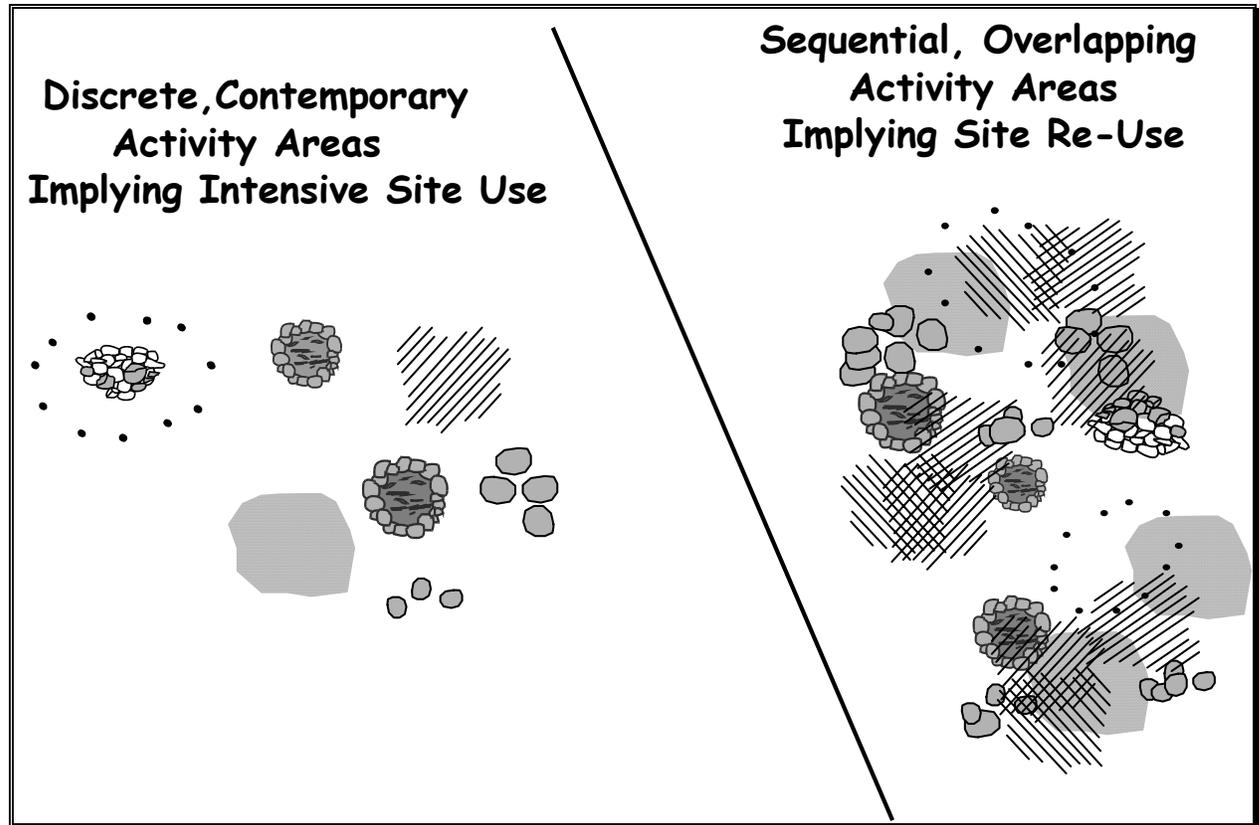


Figure 18.22 Schematic Comparison of Intensive Site Use and Site Re-use

The processes of site formation are numerous and varied, influenced by both cultural and natural agents. It is important, for example, to distinguish between single episode events, such as knapping clusters that result in high numbers of artifacts, and cyclical events such as repeatedly utilized fire hearths, which may have longer use lives without producing substantial increases in artifacts (e.g., Binford 1982). These distinctions are critical as they imply notions of intensive versus extensive use of a site. Adding to the complexity, natural processes including sedimentation rates and post depositional forces are important in the formation of an archaeological site, as they may influence the location, density, and condition of artifact deposits (e.g., Butzer 1982, Waters 1992).

Hickory Bluff was spatially a large site that covered an area measuring approximately 200 by 200 m. Careful mapping of the available data from Hickory Bluff has allowed for a more focused view of the complexity of this particular site. The spatial distribution analyses indicated the horizontal mixing of temporally diagnostic artifacts as well as the overlap of features. This pattern was more likely the result of the cyclical re-use of the landform by relatively small groups. The context of the Hickory Bluff site was similar to that of other large sites along the St. Jones River drainage in terms of size and layout, in addition to artifact and feature diversity and distribution (Custer 1989). Thus, it may be that a re-evaluation of site structure interpretations in similar settings, utilizing new analytic tools available, will be useful in providing a fuller understanding of regional settlement patterns. The “typing” of sites based on existing settlement models is probably not warranted. Site functions changed over time (Binford 1982) and

therefore represent a accumulation or amalgam of many different groups and site visits, and not occupations by one or two large groups.

The relationship between these different sites may also be more informative for concepts of landscape use and spatial patterning over larger areas. Analysis focused on individual “sites” with boundaries that are often arbitrary and reflective of current conditions or project needs, is not indicative of the cultures being studied and may mask important associations. The notions implied by site typologies may be valid, but may require a wider focus on the available data than is currently the norm in the Mid-Atlantic region. Indeed, the St. Jones River drainage provides an excellent opportunity for such a synthetic comparison, to identify the contemporaneity between many divergent sites that would provide a more accurate interpretation of past behaviors.

Site structure at Hickory Bluff indicated re-use by many peoples, producing both short-term co-associations and intermingling. However, it did not indicate the tight organization of features and artifact assemblages associated with large-scale and short-term occupations. Instead, the patterns that were generated relate to repeated and cyclical use of the site over longer intervals of time. This patterning was more indicative of a group level interaction than an individual occupation level. Hickory Bluff represented the accumulated residues and re-use of the landscape for a myriad of activities. There may be underlying site structure related to individual site occupations, but their identification would require much more sensitive data analysis, if they are still discernable. The level of overprinting and mixing of chronological indicators has made such absolutely clear associations rare for the site and too isolated for discussion of every single activity set.