Plymouth Archaeological Rediscovery Project (PARP)
Specialist Studies
Lithic Analysis from the Agawam Prehistoric Site Wareham, MA
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Theory

Late Archaic to Early Woodland Research Design

In order to understand the importance of the Agawam site one needs to view it in the context of the current state of research regarding the Late Archaic, Transitional Archaic and Early Woodland periods in southeastern Massachusetts. To accomplish this, a literature search was made for all the relevant sources related to these periods. After the sources were reviewed, the most important research questions were identified and the research topics that can be investigated at this site were outlined. This section begins with an outline of what is known and not known about these periods with regards to technology, foodways, settlement and current research topics. It then goes on to outline what the Agawam site has to offer to some of these topics.

Small Stemmed and Squibnocket Triangle points have often been considered to be temporally diagnostic of the Late Archaic period in New England prehistory. The earliest dates for the presence of Small Stemmed points have been pushed back into the second or third millennium before present by work in the 1980s (PAL 1982 a, 1982b, 1983). Small Stemmed points have been characterized by four varieties (Small Stemmed I-IV) which can be lumped together into two categories- squared to rectangular stems and rounded stems. The first category includes Small Stemmed I and II. These are characterized by narrow isosceles triangular blades, a steeply angled cross section with hard hammer percussion flaking, a short roughly rectangular to square stem that is wide in relation to the maximum blade width (1:1.5) and length to width ratios of 1.5:1 to 3:1 (MHC 1984: 86-91). These generally date from 6000-3000 B.P. The second category includes Small Stemmed III and IV. These are characterized by narrow isosceles triangular blades, a steeply angled cross section with hard hammer percussion flaking, a bluntly pointed to rounded base that may be thinned, ground or rubbed and length to width ratios of 2.5:1 to 4:1 (MHC 1984: 92-95). These have been roughly dated from 5000-3000 years B.P. The predominant raw material used to produce these points is locally available quartz gathered in cobble form from the coast, river edges and glacial drift. The second most common material is argillite either originating in the Taunton River drainage or from glacial drift cobbles. A wider variety of materials was utilized to the north and west of the Boston Basin where rhyolite and argillites were the predominate local materials.

Some researchers see Small Stemmed points as a backwards extension of the Orient and Susquehanna Broad spear traditions into early 5th millennium essentially making them an early intrusive element of this tradition (Hoffman 1985: 59; Ritchie 1969:214; Snow 1980:228). Ritchie sees this as "unquestionably happening" as he believed this quartz pebble-based technology move into New England from somewhere to the south, probably the Mid-Atlantic, along coastal plains and via large river valleys. Snow states that this tradition may have been intrusive from the lower Susquehanna into southern and eastern New York, New Jersey and New England. Dincauze feels that this may have happened but favors an indigenous development in southern New England that evolved out of the Neville/ Stark/ Merrimack sequence (Dincauze 1975, 1976). The later may be likely as the Small Stemmed of the points appear to generally resemble these antecedent forms.

The earliest dates for Small Stemmed Points are from the Bear Swamp 1 site (4600-4500 BP) located on the Taunton River estuary and the Kirby Brook site (4400-4000 BP) located in middle Shepaug (Hoffman 1985:59). Many sites in southeastern Massachusetts have a higher number of these points than anywhere else in the state which has lead Dincauze to speculate that the Narragansett drainage basin was an important focus for this tradition (Dincauze 1975). These points remained very popular and widespread in the Late Archaic, eventually declining in occurrence from 3800 BP forward. The most latest dates for them are 955 +/- 155 BP from the Black Bear site (PAL 1982b) and 850 +/-205 BP from the G. B. Crane site Taunton (PAL 1983). Current research indicates that these points continued in use after the Late Archaic and well into the Early Woodland and possibly Middle Woodland (Mahlstedt 1986:9; Moffet 1957; McBride 1983; PAL 1982a, 1982b, 1983, American Antiquity Current Research 1981: 696).

Also occurring with Small Stemmed points are small cordiform triangular points generally called Small Triangles or more commonly Squibnocket Triangles. Squibnocket Triangles have bases that are usually concave but occasionally straight with and equilateral to isosceles triangle blade. Width ranges from 1.3-2.5 centimeters and length ranges from 2-4 centimeters with a length to width ratio of 1:1 to 2.5:1 (MHC 1984: 98-99). The temporal range for these points is generally the same as the second category of Small Stemmed points, 5000-3000 years B.P. The most common materials for these points is the same as for Small Stemmed, quartz and argillite with some quartzite and volcanics being used.

Other tools utilized by this culture were rough and ground stone choppers, plummets, unpitted hammerstones, plano-convex adzes, shallow-groove adzes, polished splinter awls, barbed antler harpoon heads and graphite and hematite paint stones but apparently not many scrapers, drills or knives (Ritchie 1969:215). Pestles and weirs also appear in the tool kits for the first time. These tools indicate that the Small Stemmed (or Mast Forest tradition as Snow (1980) identified them) utilized a wide variety of resources. In fact, sites associated with the Small Stemmed Tradition occur in micro-environments that show great diversity in their hunting and gathering strategies. Coastal shell middens, estuarine fish weirs, estuarine shore sites, and sites on lakes, ponds, springs, streams, brooks, river shores and quarries all show how wide their procurement strategies reached. Fishing was accomplished by hand with hooks, lines and stone plummets as well as weirs such as the Boylston Street Fish weir(s) which has been directly associated with the Small Stemmed Tradition (Dincauze 1974: 48). It has been found that the inhabitants of southern New England at this time utilized more of the lower links on the food chain at this time as well such as shellfish, seeds, nuts, and small game, all resources that were not used to the same extent by their predecessors (Dincauze 1974: 48). This may have been a response to an increased population in the area at this time. As a way of coping with a higher population, a wider variety of more marginal resources had to be exploited to feed the greater number of people. This led to a well-balanced adaptation by a people who were very familiar with their surroundings.

Possibly, at this time, people were living in small open communities of only a few families on or near the sea coast in the spring to fall, moving to more permanent lakeside communities which formed the core of their territorial identity in the fall and winter (Ritchie 1969:219; Dincauze 1974: 48.) They may have had a river basin territoriality with a focus that thus would have constrained their communication and trade networks by being so watershed focused. This interpretation is similar to Snow's and Pagoulatos' who see the Small Stemmed traditions resource utilization system as a central based wandering one with winter camps in the back country or uplands and summer camps on the coast. Sites in this sort of system would not be large but they would be numerous and occurring in a wide variety of settings with a broad range of fish, mammals, birds, plants and mast producing trees being exploited (Snow 1980:230; Pagoulatos 1988). Pagoulatos sees the Small Stemmed Tradition, called the Tinkam Phase in Connecticut, as having a resource systems like the Micmac that was essentially mobile. He sees them as always moving to specific resource zones at specific times of year. This results in a high number of residential camps and locations and few task camps. Residential camps are found away from the Connecticut River in areas of high wetland potential such as the interior swamps, marshes and lakes (Pagoulatos 1988: 85). This interpretation appears somewhat different than that for southeastern Massachusetts where Small Stemmed populations appear to have exploited the coast and inlands. It is also interesting to note that it was at this time that shellfish were first exploited in much of the northeast. Ritchie viewed the initial exploitation of quahog and oysters over soft shell clams in the Late Archaic as evidence of immigrants moving into an area, being unfamiliar with shellfishing and basically collecting what they could see, the oysters and quahogs, and not what lay below the mud, the clams (Snow 1980:229).

It appears that by 3700 B.P. the cultural system of the people who were using Small Stemmed points in southern New England had begun to change. This period, from 3700-2700 B.P, has variously been called the Transitional or Transitional Archaic. During this time there appears to have been an immigration into southern New England of people using tools of the Broad spear or Susquehanna tradition. Projectile points of the Susquehanna style characterize the early part of this period while those of the Orient Fishtail style, a possible merging of indigenous Small Stemmed and Susquehanna styles, dominate the latter half (Snow 1980:237; Dincauze 1975: 27). The Orient point tradition appears to have remained in New England and eventually evolved into the Rossville and Lagoon points of the Early Woodland Period.

Points of the Susquehanna/ Broad spear style include the Susquehanna Broad, Wayland Notched and Atlantic points. Susquehanna Broad points are a corner notched point that has diamond-shaped blade and shoulders with obtuse shoulder angles and generally straight or concave bases with a basal width less than the maximum blade width. The bases often show basal grinding or rubbing and the cross section is flat with soft hammer percussion flaking evident. These points can range from 2.5 to 20 centimeters long, making them a generally large point with a length to width ratio of 2:1 to 3:1 (MHC 1984:108-109). These points were produced from 4000-3500 years B.P. Unlike the Small Stemmed points, these are often made of exotic cherts and local volcanics with quartz, quartzite and argillite rarely used.

Atlantic points are triangular bladed stemmed points with strait-bottomed parallel-sided squared bases whose basal width is greater than or equal to 1.5 cm. The shoulders are well defined and approach a 90-degree angle with the stem the junction of which is formed by indirect percussion with a punch. These points can range from 5 to 15 centimeters long, making them another large point with a length to width ratio of 1.5:1 to 2:1 (MHC 1984:106-107). These points were produced from 4100-3600 years B.P. Local volcanics are common as raw materials with quartzites, argillites and cherts also used. Quartz is a raw material for Atlantic points, again, like the Susquehanna Broad, showing a sharp break in technology from the Small Stemmed Tradition.

Wayland Notched points are a side-notched point that has a triangular shaped blade with a straight to slightly concave base that is often less than the maximum blade width. The bases often show basal grinding or rubbing and the cross section is flat with soft hammer percussion flaking evident. These points can range from 3.5 to 11 centimeters long, making them a medium-sized point with a length to width ratio of 2:1 to 3:1 (MHC 1984:110-111). These points were produced from 3600-3000 years B.P. Local volcanics are common with chert and argillite also used.

Orient Fishtail points are a side-notched point with a narrow lanceolate blade shape reminiscent of Small Stemmed points. The stem is expanding and the base is usually straight to concave and occasionally angled with a basal width less than or equal to the maximum blade width. The shoulders are rounded and often poorly defined with an obtuse shoulder angle. In cross-section these points range from flat to steeply angled and evidence of soft to hard hammer percussion is present. These points range from 2.5 to 10 centimeters long with a length to width ratio of 2.5:1 to 4:1 (MHC 1984: 112-113). These points were produced from 3000-2000 years B.P. Common raw materials include local volcanics quartz and quartzite. The blade shape, poorly defined shoulders and raw material choice hints that these points are a blending of Susquehanna and Small Stemmed traditions.

The Susquehanna Tradition created a sharp change in the archaeological continuity of the Small Stemmed Tradition as far north as Maine (Dincauze 1975:27). This is probably the result of an infiltration or migration of peoples from the southwest. There appears to be a distinct difference in cultural and industrial traditions from the indigenous populations but no evidence of assimilation of populations. Various researchers have attempted to determine if there was a large migration of people associated with the Susquehanna Tradition or if it was merely a small influx with a new specialized tool, the Broad spear, that was adapted as an adaptation by local populations to exploit marine fish resources (Turnbaugh 1975: 57).

David Sanger used six criteria to examine the Susquehanna Tradition and determine if it met these criteria for migration. The criteria were 1) identify the migrating people as an intrusive unit in the region it has penetrated, 2) trace this unit back to a homeland, 3) determine that all occurrences of this unit are contemporaneous, 4) establish the existence of favorable conditions for migration, 5) demonstrate that some other hypothesis, such as independent invention or diffusion of traits, does not better fit the facts of the situation, 6) establish the presence of all cultural subsystems and not an isolated one such as the mortuary subsystem (Sanger 1975). Sanger concluded that all of these criteria were met in Northern New England, thus lending support to an immigration hypothesis. Work by Pagoulatos (1988) reached much the same conclusion about the Susquehanna in the Connecticut River Valley. He looked at the chronological setting, site types and settlement patterns and determined that the users of the Susquehanna tools represented a complete cultural system focused on the riverine areas that displaced the local Small Stemmed populations (Pagoulatos 1988: 85). Small Stemmed populations practiced different subsistence and procurement strategies than the Susquehanna users and thus allowed two different cultural systems to coexist.

Susquehanna populations in the Connecticut River Valley had relatively stable residences that allowed the exploitation of specific resource zones throughout much of the year. Organized task groups left a central base camp to establish temporary fishing and hunting camps, thus they moved less frequently, had a lower number of large residential camps and a high number of field camps (Pagoulatos 1988:86-89). Susquehanna populations appear to have practiced a resource procurement strategy similar to what Binford found for stable hunter-gatherer groups. In Binford's work he found that communities were situated along the river courses for much of the year with the organized task groups leaving the camp to procure and process mammal resources by setting up temporary field camps. In this case aggregation would be expected on the riverine and terrace locations with smaller field camps in the uplands. The few larger residential camps found within a territory would show high intrasite and low intersite variability (Binford 1980:18) Basically many of the tasks, stone knapping, skin processing, cooking, plant processing, etc., would be done at this central residential base camp and the structure and evidence of activities would not vary much between different residential camps.

The later half of the Transitional Archaic was dominated by people who used the Orient Fishtail Point Tradition. This appears to have been a time of great change in New England with new technologies appearing and by 3000 years B.P. an interrelated series of climatic, environmental, cultural and social changes that is seen as dismantling the "finely balanced Archaic adaptive systems" (Dincauze 1974). Environmental changes included climate cooling with a possible regression of marine shorelines, a cessation of marine transgression, a change in the forest composition from oak and hickory to chestnut and by 2000 years B.P. a breakdown of reliable trade networks (Ritchie 1969:164; Dincauze 1974: 49). Work on the I-495 corridor in the by the Public Archaeology Laboratory, Inc. in the 1980s suggests that favorable habitats were reduced at this time due to a lower availability of open water. As a result, the margins of the largest and deepest wetlands were extensively used as well as an intensification of the use of riparian locations (PAL 1982, 1982a). Orient Tradition sites are thus often found near the seashore or on major rivers, an occurrence that Dincauze attributes partially at least to the dissolution of trade networks, usually in locations that are protected from the prevailing winds possibly with a move to interior camps in the winter, although again, Dincauze sees year round coastal settlement by Orient Tradition peoples (Dincauze 1974:49). Interior sites along major wetland margins, such as those identified by the I-495 work may represent these winter quarters or were the locations of special purpose resource procurement locations. Funk (1976) proposed that camps located on bluffs were occupied in the winter while riverside sites probably represent spring to fall fishing sites where anadromous species such as alewife, herring and shad were collected through the use of weirs. There appears to be a clear separation of activities by season and site location, possibly a result of a change in settlement and procurement strategies similar to what Pagoulatos (1988) found in the Connecticut River Valley. By the end of the Orient phase, the elaborate burial ceremonialism that characterized the Susquehanna phase also appears to have come to an end

(Dincauze 1974:49). The ultimate cause of all these changes and the general Transitional Archaic cultural readaptation are unknown or unrecognized but it may be related to the climatic deterioration and the changing forest composition that could have led to a lessening of the reliance on inland sites (Dincauze 1974: 49).

The Orient Tradition is characterized by resurgence in the acquisition and use of non-local cherts and jaspers from New York and Pennsylvania (Ritchie and Leveilee 1982) as well as the use of steatite for bowls. The pattern of long-distance exchange suggests a reestablishment of expanded exchange system that contrasts with the earlier Late Archaic system (MHC 1982: 25). The Orient Tradition was first identified by Ritchie on Long Island close to Orient New York and was initially characterized by the burial of dead upon high knolls. This led some to speculate that the Orient Tradition was nothing but a mortuary cult for from New England (Ritchie 1963: 196). This was later proved to not be the case as habitation sites were identified.

Foods used by Orient Tradition users appear to possibly include an appreciable amount of shellfish and fish as well as deer, turtle, turkey and duck species, and small mammals such as woodchuck, gray fox, and mink. Features associated with the processing of these resources include earth ovens where foods were baked, stone platforms for roasting and the use of boiling stones. The tool kit of the Orient Tradition is characterized by the Orient Fishtail point, which make up about 88% of the point type used, and many of the same tools used earlier in the period such as atl atl weights, full-grooved axes, rectangular celts, plano-convex and grooved back adzes, small gouges, ovate and triangular knives, strait, stemmed and fishtail point drills of quartz and chert with few scrapers and anvil stones (Ritchie 1969:170). Also included in this inventory are ellipsoidal and rectanguloid stone gorgets, lots of graphite and hematite paint stones and steatite bowls and some of the earliest occurrences of locally made pottery.

Steatite (a.k.a. soapstone) vessels have come to be one of the hallmarks of the later half of the Transitional Archaic in New England. These vessels are oval, rectangular or nearly circular or trough-like, generally with rounded corners, rims and bases with slightly out sloping to vertical walls and squarish lobate lugs on the exterior. The range in size from 14 to 46 centimeters long and 5 to 8 centimeters high and are sometimes found smoke stained and soot encrusted, possibly indicating direct use on fires for cooking. Their general shape suggests that they were originally modeled on wooden bowl prototypes. This technology does not seem to represent an independent invention in New England, but appears to have spread north from the as far south as the Virginia to North Carolina Piedmont area, eventually splitting with one northern production center being in Pennsylvania (possibly associated with the Broadpoint/ Susquehanna Tradition) and another in New England (possibly associated with the Small Stemmed Tradition)(Ritchie 1963: 170). Few sources appear to have been exploited for soapstone bowls in New England with the known ones being in Rhode Island, Connecticut and central Massachusetts. Soapstone bowls are generally found at camp sites along major streams and not in remote inland sites where the lack of canoe transport made moving the heavy objects more difficult (Snow 1980:240). Alternately, Funk (1976) sees the presence of steatite more often on the coast as a result of seasonality.

Steatite vessels represent the first imperishable vessel form in the northeast. It does not appear in New England before 4000 years B.P. with earliest date reported by Hoffman being 3655 +/- 85 years B.P. (Hoffman 1998:48). Steatite may have been found at the Wapanucket 6 site in association with Squibnocket Triangles and radiocarbon dated at 4355+/- 185 years B.P. possibly making this the earliest occurrence in New England (Fiedel 2001:104). Steatite achieved its chief popularity between 3000-2500 years B.P. and disappeared after 2500 years B.P. There does not seem to have been a clear transgression from steatite to clay pottery and their occurrences appear to overlap at some sites. This may indicate separate but complimentary uses for these vessels.

The original reason why any sort of imperishable vessel was made or used in New England may lay in the social changes occurring in the Transitional Archaic. These reasons include an indigenous response to the increasing population densities in floodplain environs with durable vessels being a way to process resources more efficiently (Pagoulatos 1988: 85-91). These resources may have included chenopodium and wetland grass seeds. The environmental changes that were occurring at the time that may have changed the available resources and led to an increase in reliance on anadromous fish (Turnbaugh 1975). Finally a diffusion or migration of peoples or ideas from the southeast (Snow 1980: 242; Tuck 1978).

Steatite may have had a more ceremonial place in Transitional Archaic culture as well. The makers of the steatite vessels are assumed to have been men, possibly ones who were engaged in ceremonial exchange with the steatite being the exchanged item (Snow 1980: 250). This may account for more centralized distribution of steatite and the mortuary associations of it. Sites where steatite occur may be central ceremonial sites where males gathered for inter and intra regional trade or to participate in mortuary ceremonies (Hoffman 1998: 52). This may be related to the use recorded ethnographically from the southeast of large vessels by males for the consumption of ritual "black drink" (Sassaman 1993:170, Klein 1997: 146). This ceremony may have been similar to that recorded in southeastern Massachusetts where young men undergoing ritual purification in preparation to become pneiseuk consumed a drink of white hellabore. Edward Winslow, prominent Plymouth Colony settler, described the pnieseuk as

"men of great courage and wisdom, and to these also the Devil appeareth more familiarly then to others, and as we conceive maketh covenant with them to preserve them from death, by wounds, with arrows, knives, hatchets, etc. or at least both themselves and especially the people think themselves to be freed from the same. And though against their batters all of them by painting disfigure themselves, yet they are known by their cottage and boldness, by reason whereof one of them will chase almost an hundred men, for they account it death for whomsoever stand in their way. These are highly esteemed of all sorts of people, and are of the Sachems Council, without whom they will not war or undertake any weighty business. In war their Sachems for their more safety go in the midst of them. They are commonly men of the greatest stature and strength, and such as will endure most hardness, and yet are more discreet, courteous, and humane in their carriages then any amongst them scorning theft, lying, and the like base dealings, and stand as much upon their reputation as any men.

And to the end they may have store of these, they train up the most forward and likeliest boys from their childhood in great hardness, and make them abstain from dainty meat, observing divers orders prescribed, *to the end that when they are of age the Devil may appear to them, causing to drink the juice of Sentry and other bitter herbs till they cast, which they must disgorge into the platter, and drink again, and again,* till at length through extraordinary oppressing of nature it

will seem to be all blood, and this the boys will do with eagerness at the first, and so continue till by reason of faintness they can scarce stand on their legs, and then must go forth into the cold: also they beat their shins with sticks, and cause them to run through bushes, stumps, and brambles, to make them hardy and acceptable to the Devil, that in time he may appear unto them. " (Italics mine) (Young 1974: 340)

This ceremony that helped to create the pniese may be a descended from an earlier one in the Transitional Archaic that utilized the steatite vessels. The rise of the elite fighting class of the pniese may have been a response to increased population pressure in the area and a need to defend resources. If steatite bowls were associated with males and male ceremonies, one would expect to find them in male graves as opposed to female ones. Unfortunately, the majority of the graves of he Transitional Archaic consist of cremation burials that have produced bone that was in such a fragmented and calcined state that assignment of sex was impossible. One Transitional Archaic burial and two possible burial caches from Jamestown, Rhode Island again could not be assigned to sex, but the items included may point towards male having been interred in the grave that contained steatite bowls and the other internments being assignable to male tool kits. In the single grave that contained calcined bone as well as steatite, other objects interred with the individual included a small grooved axe blade, a perforated black pebble, a clutch of graphite pebbles, a slate drill blade, a chert flake, six projectile points including one of Pennsylvania Jasper, lumps of red ocher a red pigment stone and a 35.5 cm long pestle, a perforated and incised steatite pendant, a flat incised stone "tablet" and an incised quahog shell fragment (Simmons 1970: 17-27). The caches containing steatite also had graphite pebbles, a rhyolite drill, two side-notched points of slate, a chert Orient Fishtail point, two "crude" pebble choppers a side-notched rhyolite point and two small quartz pebbles (Simmons 1970:27-32). Unfortunately it is difficult to assign sex of a burial based on grave goods alone due to the fact that grave contents may not reflect items actually used by the person interred there. They may be items placed in the grave by friends and relatives of either sex as gifts to them and thus a mixture of male items may be in a female grave or female items in a male grave. This could be a topic that needs to be researched more in the future.

After steatite bowls ceased to be present in the archaeological record, other vessels such as wood may have taken the place of the stone vessels. The use of a wooden vessel as opposed to a pottery one may have continued the association of a male created vessel used for a strictly male ceremony. Steatite bowls exclusively used by males may also have been replaced by chlorite and later steatite and pottery smoking pipes and pipe ceremony that went along with them. This too seemed to have been an almost exclusively male pursuit with some ritual significance. Pipes first make their appearance after steatite bowls ceased to be found archaeologically in New England. Like the association of steatite with male graves, the decline of the steatite bowl industry and rise of the smoking pipe and smoking ceremony is another avenue of future research.

Other research questions related to steatite were proposed by Sassaman (1999). These include the following: Did soapstone vessel production and exchange in southern New England emerge in the context of the expanding broadpoint cultural front as one of several means of alliance building with central New York groups? Did successful ties with such groups efficiently preclude or thwart assimilation between indigenous and immigrant populations in southern New England? Was the burial ceremonialism of southern New England a context of mediating ethnic distinctions

between indigenous and immigrant populations as suggested by Dincauze (1975b:31)? Did the growing technological contrasts in the third millennium B.P.-notably the exclusive use of Vinette I by Meadowood groups of New York and the coexistence of both soapstone and pottery in Orient contexts of southern New England and Long Island-signify an end to traditional alliances?

Most researchers see the use of steatite as being antecedent to the use of clay pottery, although Hoffman has attempted to make the case for pottery having been used prior to the introduction of steatite (Hoffman 1998). The shift from steatite to pottery probably occurred gradually over time with both technologies being in use for at the same time. Funk (1976) sees the coeval existence of pottery and steatite and their relative occurrence in inland and coastal sites as being a result of seasonality. In this situation, steatite was used on the coast in the spring to early fall and pottery was used at inland winter sites. Pottery dates as far back as 3600 years B.P. in southeastern New England and 3300 to 3100 years B.P. in southern New Hampshire (Sassaman 1999: 75). The eventual usurping of pottery over steatite may be related to a decreasing need in the Transitional Archaic for far-flung alliances (Fiedel 2001:106). Early pottery has been termed Vinette I and it is generally believed that at least the gross technological ideas of pottery production spread to the north from the south, possibly from the same general areas as steatite bowl production. This pottery type has been recovered in Connecticut in association with Susquehanna points (Levin 1984:15; McBride 1984:123; Pfeiffer 1984;79). The earliest pots were straight sided with pointed, concoidal bases and some archaeologists believe that these resemble basket styles common in these earlier periods (Braun 1994:63). This type was first identified in New York State but it is not confined to there. Vinette I pottery has been recovered from all of New England, New York and New Jersey. This type of pottery can be identified by its thick, straight wall and the use of abundant grit and grit as a tempering medium. Walls of Vinette I pottery range from .6-1.1 cm (Luedtke 240). The exterior and interior of Transitional Archaic to Early Woodland ceramics were commonly cord marked, a possible decorative technique resulting from the patting of the vessel with a cord wrapped paddle to help bond the coils together. Some smooth surfaces may also occur in some vessels either intentionally or accidentally.

Barbera Luedtke, in her work on the ceramics from the Shattuck Farm site, found that the Early Woodland vessels that have been recovered from Eastern Massachusetts have the characteristics (Luedtke 227):

Table 1. Early Woodland vessels characteristics

Vessel	Height	Max Diameter	Mouth Diameter	Max d/ht
1	22.9 cm	25.4 cm	25.4 cm	1.11 cm
2	26.7 cm	22.9 cm	22.9 cm	.86 cm

Vinette I pottery has been found to be heavily tempered with grit composed of coarse, poorly-sorted crushed-rock and sands with a general decrease in the size of the grit over time (Bunker 208; Luedtke 229). Native pottery may also be shell tempered and although this is generally believed to be a temper used in the Middle Woodland to Contact periods, Lavin, in her work on Cape Cod ceramics postulates that the type of temper may not be temporally related but may be more closely linked to where the vessel was made. Temper type on coastal sites may more often be shell tempered while those on inland sites may be more often grit tempered. This has to do with the temper resources available to Native potters. Rim shapes for Vinette I ceramics are round, with some decoration consisting of incised lines possibly being present (Luedtke 244). Decoration of the vessel itself takes the form of the cord marking, which was applied in a horizontal direction on interior and multiple directions on exterior and some incised lines (Bunker 208). The similarity of Vinette I pottery throughout the Northeast suggests a local center of invention or adoption from which the technology spread out. Ozker sees this similarity in form and structure as reflecting a similarity in function. He sees these vessels as only being used in a fall context and were not in daily use (Ozker 1982: 210).

The adoption of ceramics as well as soapstone is suggestive of changing cultural conditions at the time of their introduction. Pottery is difficult to transport without breaking, and while some mobile cultures that carry their pottery with them do exist, it is more common for pottery to be associated with an increase in sedentism. The use of sturdy vessels also may be indicative of an increase in the need to boil foods. Pottery is useful for simmering and slow boiling of nuts, tubers, seeds, gastropods, fat and marrow, and bones to either release their oils or to make them softer and more palatable (Fiedel 2001: 103). Ozker postulated that pottery was initially produced on site for the boiling of nutmeats to release their oils and subsequently for storing that oil (Ozker 1982). This technique may have been similar to that noted among the Micmac in the seventeenth century. It was noted that when a moose was killed " they collected all the bones of the moose, pounded them with rocks upon another of larger size, reduced them to a powder; then they placed them in their kettle, and made them boil well. This brought out a grease that rose to the top of the water, and they collected it with a wooden spoon. They kept the bones boiling until they yielded nothing more, and with such success that from the bones of one moose, without counting the marrow, they obtained 5-6 pounds of grease as white as snow, and firm as wax. It was this they used as their entire provision for living when they went hunting. We call it Moose butter..." (Denys 1969:118). Pottery could also be used to boil foods to feed to infants, thus decreasing the age of weaning and possibly leading to population growth (Fiedel 2001: 103).

Unlike steatite Vinette I pottery is generally not recovered from mortuary contexts in New England. The exception to this is at Boucher site in Vermont where seven ceramic vessels were recovered from six burials (Heckenberger et al 1990: 120). One of these vessels is decorated with a incised triangular motif near the rim. Similarly decorated vessels are known from Maine , New Brunswick (Trumbull 1986) and Vermont (Loring 1985). The burials from this site are associated with Adena related artifacts and appear to represent somewhat anomalous event in New England prehistory.

As women are assumed to have been the producers of pottery, their role as producer may have been enhanced in Transitional Archaic due to the increased use of wild plants and shellfish and pottery production (Feidel 2001: 103). The shift to pottery production may also reflect a societal shift in gender roles in the Transitional Archaic. Wood and soapstone carving are assumed to have been men's roles whereas pottery production and gathering were women's. Fiedel postulated that due to an increased reliance on shellfish and wild plants and perhaps the production of ritual feasts women were held in higher esteem (Fiedel 2001:106). The production of pottery may have indirectly fostered some of the population growth seen in the Transitional Archaic through the causative pathways of being a more efficient food processing technology, enhancing the status of women, and being an adjunct to sedentism (Fiedel 2001:106).

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

What we are left with are a few new projectile point styles, the Adena, Meadowood, Lagoon and Rossville and a number of trends that began in the Transitional Archaic such as a possible drop in New England population, increasing shoreline stabilization, possible cultural fragmentation, and environmental change. Adena points may have been antecedent to the slightly later Rossville and Lagoon points commonly found in coastal areas of New England and New York. These points are defined as lanceolate to triangular bladed stemmed points with lobate or rounded stems and a convex base whose basal width is greater than or equal to 1:1.5. The shoulders are well defined and approach a 90-degree angle. These points can range from 4.5 to 12.5 centimeters long, making them a moderately large point with a length to width ratio of 2:1 to 3:1 (MHC 1984:118-119). These points were produced from 2800-1200 years B.P. Exotic cherts were commonly used and these are considered extremely rare in eastern Massachusetts. They are part of a culture complex often associated with mortuary ritual containing chlorite tubular pipes, copper and exotic lithics. They probably represent either an immigration of people from the southeast or a large-scale import of materials and ideas.

Rossville points are diamond-shaped bladed contracting stem points with a convex to often pointed base. The shoulders are weakly defined or nonexistent. These points can range from 3 to 6.5 centimeters long, making them a smallish point with a length to width ratio of 1.5:1 to 2.5:1 (MHC 1984:116-117). These points were produced from 2450 to 1600 years B.P. (Fiedel 2001:108). Quartz and quartzite are common raw materials, but local volcanics were also used. These points are not considered common in eastern Massachusetts. Cape Cod examples are finer made than those of other areas, possibly showing a reliance on this technology in this area. They also tend to be longer and thinner than other examples with quartzite being the raw material most frequently used (MHC 1984:117). The under-representation of these point types in collections may be the result of examples being identified as other projectile point styles such as Starks and possibly Small Stemmed IV. They can be distinguished from Starks on the basis of their steeply angled cross-section and maximum blade width being located at the midpoint and from the Small Stemmed by their weak shoulders.

Lagoon points were identified by Ritchie in his work on Martha's Vineyard (1969) and they became part of what he identified as a Lagoon complex. These points are a narrow, thick, and rather crudely made lobate stemmed points of medium to large size. they range in length from 4.8 to 7.6 centimeters and have an average thickness of .95 cm. The length to width proportion of Lagoon points is 2.5:1 to 3:1. The blade shape is trianguloid in outline, biconvex in cross section with straight or slightly excurvate edges. the shoulders are weak, rarely moderately well defined, merging into contracting medium long to long lobate in outline stem that has a convex to slightly squarish base. No basal or stem grinding is seen (Ritchie 1969: 245). These points have approximately the same date range as Rossville points, 2450 to 1600 years B.P. (Fiedel 2001:108). Ritchie stated that they are fairly common and widely distributed over southern New England, but before his Martha's Vineyard work, had not previously been described or culturally attributed. Similarly shaped points have also been recovered from eastern and southern New York where they occur in Early Woodland contexts on sites in the Hudson Valley and Long Island. The common raw materials used were volcanics and quartzites on Martha's Vineyard, but quartz and chert were also used further west. This point type is not widely identified in Eastern Massachusetts perhaps due to its similarity in shape to Stark points. Based on the available information it is difficult to easily distinguish the two.

Meadowood points are isosceles triangular bladed expanding stem side-notched points with a straight to convex base whose width is greater than or equal to the maximum blade width. The shoulders are well defined and approach a 90-degree angle with the stem the junction of which is formed by indirect percussion with a punch. These points can range from 4.5 to 9 centimeters long, making them a moderate sized point with a length to width ratio of 2.5:1 to 3:1 (MHC 1984:114-115). These points were produced from 3000-2500 years B.P. Exotic cherts were most commonly used and local volcanics are less common. These points are considered rare but widely distributed in eastern Massachusetts and are more common in New York, Pennsylvania and Ontario.

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

A dramatic population collapse has traditionally been one of the defining characteristics of the Early Woodland and while Hoffman (1985) does not see evidence of any break. Filios (1989) came to a similar conclusion although her data shows a break in radiocarbon dates from 2700-2400 years B.P. possibly showing a population decline after 3800 years B.P. and a greater decline after 2800 years B.P. (Fiedel 2001: 117). If there was in fact a population collapse, reasons for it have included climatic and environmental change, epidemics, the effects of plant and animal die-offs and socio-cultural factors (Fiedel 2001: 118). One of the main causes may have been if nut bearing trees, already in decline in the Transitional Archaic, were hit hard by plant disease or environmental change, then this may have caused a population reliant on this resource to die off. This would account for the drop in inland sites in the period. Alternately the populations living on the coast that focused their procurement strategies on river valley, estuarine and inshore resources may have remained relatively unscathed. These would be the Rossville and Lagoon point users, point styles that show a high concentration in coastal areas especially Cape Cod.

The Late Archaic to Early Woodland Periods provide one of the most fascinating and controversial research areas of New England prehistory. Some of the research questions that need to be investigated concerning this time have been outlined by the MHC (1984:30). These include the following:

-The examination of Late Archaic adaptations to severe environmental conditions, including detailed understanding of the relationships between Laurentian, Susquehanna and Small Stemmed Traditions.

-The analysis of the southeast Massachusetts quartz industry. Collections in this area generally include a larger percentage of quartz particularly Squibnocket, Small Stemmed and Levanna related materials. Definition of quartz quarrying strategies, manufacturing techniques and patterns of workshops sites across space and time. Study of Small Stemmed Tradition , its chronological range and spatial relationship

-The analysis of the Transitional Archaic/ Woodland transition. Examination of changing adaptive strategies including the establishment of swidden agriculture. Information on site seasonality and distribution critical for this.

-The current state of knowledge is strongly weighted towards interior sites. Survey is needed in the coastal zones, especially along Buzzards Bay. This would allow for comparisons between coastal and interior settlement patterns.

-Finally, to what extent does varied site size and internal composition reflect change in social organization as opposed to site function or seasonality?

From the review of the current state of research on the Late Archaic, Transitional Archaic and Early Woodland, the following areas of research can be added.

-How was the culture using Small Stemmed points affected by the appearance of the Broad spear technology?

-Was the appearance of Broad spear points the result of migration of technological diffusion?

-What was the subsistence strategy of the Small Stemmed users and how did it change or adapt in the face of the Susquehanna/ Broad spear appearance? Was there competition for resources or quiet coexistence?
-What was the settlement pattern of the users of the Small Stemmed points in southeastern Massachusetts at the beginning of the Transitional Archaic? Was it similar to what Pagoulatos found in Connecticut or was it more sedentary? Why?
-How do Orient Fishtail point fit into the chronological framework? Were they a merging of Broad spear and Small Stemmed traditions and if so what does this say about the culture at the time?
-What is the importance of long distance trade in the Transitional Archaic to Early Woodland?
-How does steatite fit into the cultural system in southeastern Massachusetts and why did this vessel form disappear? Is there a male versus female dichotomy involved in end of the steatite bowl industry and the rise of the pottery industry?
-Why was pottery technology accepted/ practiced in southeastern Massachusetts? How did it fit in to the cultural system?
-What is the Early Woodland? Was their population collapse of have sites just been misidentified?

One of the main research issues related to the Late Archaic to Early Woodland periods is the heavy reliance on local quartz that characterizes the Small Stemmed/ Squibnocket industries. This technology may be a result of environmental changes including the rise in sea level and major desiccation that happened in southeastern Massachusetts during the 4th millennium (Hoffman 1985: 65). This ongoing process that occurred from 6000-2000 B.P. may have led to group territorial restriction that resulted from, or in, a breakdown of interregional trade and thus a need to rely on locally available quartz. The dramatic increase in the number of Late Archaic sites in southeastern Massachusetts may have been the result of a reorganization of social structure to adapt to scarce resources by maintaining a base camp and dispersing groups to collect floral and faunal resources at specialized task camps (Hoffman 1985:65). Hoffman sees the incorporation of the quartz technology into the social system of the Late Archaic as being the real indicator of increased social complexity and the trigger to increased site density and population growth in southeastern Massachusetts (Hoffman 1985: 65). He does not see environmental change as a significant factor for the change in population size and site density. Hoffman believes that due to the greater opportunities for resource procurement and settlement caused by decrease in the reliance on specific exotic or traded lithics, New England populations made a conscious choice against aggregation and decided to split up and settle over a wider area (Hoffman 1985:65). Quartz essentially provided a viable alternative to the concentration on trade networks or lowland lithic resources.

2. Methods

The attributes that have been selected for the analysis are familiar to most researchers of lithic technology. This was done to ensure that others researching the field can readily use this analysis. As a means of investigating these questions, the debitage from the site was analyzed in the following fashion. Initial sorting separated the material type and recorded the color of the debitage. This was followed by separating the shatter, cores and flakes/ flake-like debris. The shatter was counted, weighed and measurements of length, width and maximum thickness was made. It was identified as to type of shatter, block and plate, and whether those are decortification or interior shatter pieces. The shatter was categorized as to shape (rectangular, triangular, square or amorphous) and they was examined for flake scars. It was hoped that this analysis of the shatter helped to determine the reduction sequence that was used and the amount of waste generated by it.

Flakes and flake-like pieces were counted and the overall length, width, weight and thickness was recorded for each piece. The flake shape, parallel, divergent, convergent, displaced or other, was identified and the platform was measured for width, thickness, striking angle and type (cortex, 1 facet, 2 facet, 3 facet, missing). The striking angle is expected to be steep, 80-90 degree angle, for flakes that were essentially driven into the core during the early stages of biface manufacture. The bulb was measured as to its thickness and the maximum thickness just below the bulb. Dorsal flake scars on the flake was counted and if possible measured for length and width and angle. The total assemblage was tabulated to the percent with cortex and percent without and was grouped in size categories.

During the analysis of the debitage, the attempt has been made to stay away from the standard typologies used when speaking of debitage (primary flake, secondary, tertiary) due to the fact that these classes have had a tendency in the past to be too linked to the percentage of cortex remaining and represent an invariant sequence of flake reduction with no technological dependency between them and core reduction (as outlined by Sullivan and Rozen 1985). The amount of cortex on a flake can be the result of a number of other factors aside from the "stage " of reduction when that flake was removed. These include 1) raw material type 2) nodule or core size 3) intensity of reduction 4) nature of raw material procurement and reduction system 5) stylistic and functional factors (Sullivan and Rozen 1985:756). Essentially "stage" typologies have been found to be based on the assumption that the technological origins of individual artifacts can be determined from the combination of key attributes alone. By applying Sullivan and Rozen's mutually exclusive debitage categories of complete flakes, broken flakes, flake fragments, and debris, it is hoped that a more factual representation of the lithic reduction process and the possible technological reason behind it was more evident.

The results of the analysis was compared to Sullivan and Rozen's findings from Arizona. In the series of Archaic sites that they examined, they found five varieties of assemblages characterized by varying proportions of the categories outlined above. These assemblages were identified as:

Group I: (core use only) which had a higher percentage of cores and complete flakes, a lower percentage of flakes and flake fragments and bore more evidence to core reduction.

Group IA: (unintensive core reduction) which had an extremely high percentage of cores and complete flakes, a very low percentage of broken flakes and flake fragments and was found to be an exaggerated expression of group I. Group IA flakes should be large, cortical, and thick assuming flakes become smaller, less cortical and relatively thinner once more reduction takes place.

Group IB1: where the percentage of debris was much lower than IB2 and appears to have not been the result of intensive core reduction and may in fact represent both core reduction and tool manufacture. The amount of flakes and flake-like pieces present in this group is expected to be intermediate between tool manufacture and core reduction with respect to flake size, relative thickness, cortex while the frequencies of platform lipping and faceting are expected to be lower than II but greater than IB2.

Group IB2: (intensive core reduction) which had a very high percentage of debris pieces with shattered striking platforms and the bulbs of percussion were increasing abundant as core reduction became more intensive and core platform angles increase. These were interpreted as the products of intensive core reduction rather than core reduction and tool maintenance. The amount of flakes and flake-like pieces present in this group is expected to be intermediate between tool manufacture and core reduction with respect to flake size, relative thickness, cortex while the frequencies of platform lipping and faceting are expected to be lower than II but less than IB1

Group II: (bifacial tool manufacture) which had the lowest percentage of cores and complete flakes, the highest percentage of broken flakes and flake fragments and appear to represent mainly the byproducts of tool manufacture. The flakes that are expected for this group are small, non-cortical, and thin especially if soft hammer used and are characterized by abundant faceting and lipping. (Sullivan and Rozen 1985: 759-764).

It is hoped that the artifact categories identified at the Agawam site was able to be cautiously compared to those from Sullivan and Rozen's study (Table 2), to help determine what technology was the end result of the lithic reduction at the site.

Table 2. Artifact categories (by percent) for each Technological group (Sullivan and Rozen 1985: 762)

Artifact Category	Technological Group (%s)			
	IA	**IB1**	**IB2**	**II**
Complete Flakes	53.4	32.9	30.2	21
Broken Flakes	6.7	13.4	8.1	16.8
Flake Fragments	16	35.3	34.7	51.3
Debris	6.1	7.9	23	7.3
Cores	14.7	2.8	2	.6
Retouched Flakes	3.1	7.5	2	3.1

The results were compared to Cowan's 1999 findings from his work in interior New York state. Cowan found a strong relationship between lithic technology strategies and the degree of mobility practiced by the populations who created the debitage (Cowan 1999:593). The variation in tool design and production can then be used as clues to social organization in prehistoric settlement systems and to the organizational roles of the sites within settlement systems (Cowan 1999:593). Cowan's study focused on interior sites dating to the Late Archaic, Early Woodland and Late Woodland. Subsistence models previously developed predict that small interior sites played different roles during the three periods under consideration and are the result of different patterns of mobility. Because mobility places constraints on the technological options available to the society, predictions can be made for the kinds of tool production and use strategies that occur.

The lithic technology employed at these sites was expected to take the form of either the striking off of flakes from a core to use them as such, the reduction of a core to facilitate the creation of a biface or a combination of technologies. The flake tools struck from cores are easy to produce but they also have short use lives, the consume a large amount of raw material, they are difficult to haft, they have very little multifunctional utility and it is difficult to transport a large core to make more tools. On the other hand bifacial tools take a longer amount of time and require more skill to produce but they have a long use life, they consume a smaller amount of raw material, are easier to haft, can be used for a variety of functions and are easy to transport (Cowan 1999: 594). As a result of these advantages and disadvantages to the two forms of technology, the mobility of the users can be predicted. Interior Late Archaic sites in New York have been found to be small and sparse in artifacts, representing a short term residential camp for a small group of people who were highly mobile (Cowan 1999:596). They are expected to have an eclectic tool kit present representing the diverse tool needs of these seasonal activity residential camps. Early Woodland interior camps were special purpose sites that were the focus of resource procurement activities and maintenance tasks that required a diverse mostly bifacial tool kit (Cowan 1999:597). Small Late Woodland interior sites have been found to be highly variable in function, structure and content with tool production and use strategies varying with the activities being preformed at the sites and whether or not the sites are seasonal base camps or short term task group sites (Cowan 1999:597). The expected assemblages at these sites were predicted as shown below:

Table 3. Cowan's expected tool production and use strategies (Cowan 1999:597)

Period	Site Role	Tool Production Strategy
Late Archaic	Residential Camps	Biface and moderate core use
Early Woodland	Logistical Camps	Bifaces
Late Woodland	Logistical Camps	Bifaces
	Seasonal Base Camps	Cores

In order to investigate these strategies, Cowan analyzed the assemblages by focusing on seven measures to summarize them. These were the proportions of cortex to non-cortex bearing flakes, proportion of flakes with angular or irregular dorsal surface cross sections, proportions of flakes with platforms edge (core face) trimming, proportion of flakes with platform edge grinding or abrasion, median flake thickness, median maximum-dimension-to-thickness ratios (Cowan 1999: 600). The presence of a large amount of thick flakes bearing cortex on their dorsal surface which were angular in cross-section and little or no platform preparation were found to be characteristic of Late Woodland seasonal base camps and to a moderate degree the Late Archaic camps. This indicated that these were sites where material was transported to the site as cores and thus worked down in situ. The Early Woodland and Late Woodland Logistical camps showed the opposite to be true. At these camps, cores were worked down elsewhere and the bifaces were finished at the site. This left a larger amount of thinner flakes bearing smaller cortical patches with well-formed platforms (Cowan 1999: 604). The logistical camps also showed a high presence of thin non-cortical flakes with well formed platforms edges while the other sites yielded thick noncortical flakes that were angular in cross-section and cortical striking platforms, or a mixture of the two types (Cowan 1999:604).

Cowan's findings indicate that the Late Archaic people lived in small social groups that moved often to exploit a variety of resources with a mixed tool kit containing a broad range of tools and production methods. The resource being exploited and the tool that best suited the job determined the tools and methods used at various sites or times. Early Woodland populations were represented by extremely mobile groups that were exploiting resources and returning to a separate base camp. Their tool assemblages reflect this, being composed of bifaces and preforms without much core reduction. The Late Woodland seasonal base camps appear to have been occupied by small family groups tending crops near a main village while the logistical camps were used for the procurement and processing of game and other forest resources to be transported away from the sites (Cowan 1999:605).

Cowan's findings were compared with those from the Agawam site in an attempt to determine if the site was used as a task camp focusing on the river or as a residential camp. It is hoped that the degree of mobility that was practiced by the people who created the site was better illustrated this way.

The quartz component from the site may date to either the Late Archaic production of Squibnocket Points, the Late Woodland production of Levanna points or to an unidentified industry. The production techniques used on the Squibnocket Triangles and the Levannas was analyzed from the specimens recovered and the findings from this analysis was compared to the debitage recovered. As it now stands there was not expected to be any major differences in the technology that produced the Levannas and that which produced the Squibnocket Triangles. Both of the projectile point types have been recorded as having had their edges retouched by pressure flaking and both have been produced by soft hammer percussion. It is hoped that by examining the point themselves the angles at which flakes were struck off was able to be determined and compared with the debitage. Boudreau in 1981 found that on Squibnocket triangles the final edge work is accomplished by a series of collateral flakes removed from the edge to the median (Boudreau 1981:9). It is hoped that comparison of the points would highlight other differences as well.

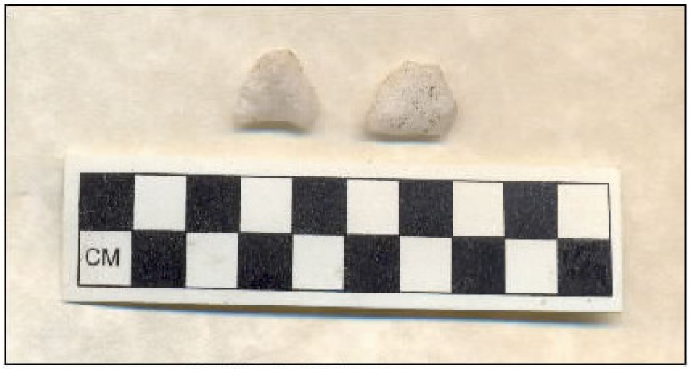
Quartz itself does not lend itself well to functional or micro-wear studies due to the fact that even the differences between hard and soft hammer percussion are difficult to distinguish (Callanan 1981:77; Boudreau 1981: 14). This is predominantly due to the fact that quartz shatters upon detachment from the core, resulting in four main types of debitage (as recorded by Boudreau 1981:18): 1) unflake-like pieces of debitage bearing no flake scars. These pieces are rough and irregularly shaped and can be found in any size, most of which bear square edges resulting from the separation of the pieces on flaw planes.; 2) Many flake-like pieces of shatter with square edges that are the result of simple breakage. Their uniform flat nature is very different from angled pieces produced during biface manufacture and is due to the fact that they were accidentally separated from a flat core face. Flat pieces with humped dorsal faces are also found that result from the purposeful trimming of the core and removal of irregularities.; 3) flakes from bifacial reduction that usually display a curvature associated with the production of biconvex cross-sections. Another distinct type of bifacial reduction flake has a thickness of .2 cm. Bifacial production flakes are expected to have a platform angle of about 70 degrees, be free of irregularities and be ground for strength. Primary reduction flakes are expected to be either moderately large flat flakes greater than 2 cm, thin with parallel faces, or block flakes with greater thickness that tend towards chunkiness and bear obscure bulbs (Barber 1981:54). Finally, the exhausted core is the eventual end result of quartz manufacture. These may in fact be worked down so much as to look like thick flakes trimmed around the edges by perpendicular flaking. Evidence for bipolar splitting of cobbles was looked for. This took the form of crushing on one or both ends of a large core piece.

Results

Seven different raw material types were recovered (quartz, rhyolite, hornfels, quartzite, Saugus jasper, chert, argillite) with quartz and rhyolite making up the majority of them. All artifacts recovered were analyzed in the manner described above.

Crystalline Silicates

This class includes **quartz** and **quartzites**. Quartz may include crystalline, milky or smoky. Quartz is a vein forming mineral that was deposited in the fissures in other rocks. A total of 245 quartz artifacts (flakes, shatter, projectile points, cores and biface fragments) were recovered. Quartz accounted for 43.6% of the total lithic assemblage. The majority of the quartz debitage (flakes, shatter and cores) was recovered from Concentration 2, 178 of 245 fragments (72.7%), while the majority of the cores and projectile points, all Late Woodland Levannas, were recovered from Concentration 1 (Table 4) (Figure 1).



Squibnocket Triangles
Left: EU 4 NW 0-10 cm Right: EU 2 NE 20-30 cm

Levannas
Left to right: EU 1N 10-20 cm, TJ 0-10 cm, TF 0-10 cm

Bifaces
Top row left to right: TG-3 10-20 cm, EU 3 NE 20-30 cm
Middle: EU 3 SE 10-20 cm

Figure 1. Quartz projectile points and bifaces recovered

Table 4. Quartz artifact occurrence

	Concentration 1	Concentration 2	Totals
Point	4/ 6%	2/ 1.1%	**6**
Biface	3/ 1.5%	2/ .6%	**5**
Core	1/ 1.5%	0	**1**
Shatter	21/ 31.3%	102/ 57.3%	**123**
Flake	40/ 59.7%	76/ 41.8%	**116**
Total	**69/ 27.3%**	**182/ 72.7%**	**251**

Four Late Woodland quartz Levannas were recovered from Concentration 1 and two Late Archaic quartz Squibnocket Triangles were recovered from Concentration 2 (Figure 1). Three quartz biface fragments were recovered from Concentration 1 and two were recovered from Concentration 2 (Figure 1). Quartz flakes made up the majority of the artifacts recovered from Concentration 1 (59.7%) while shatter was in the majority in Concentration 2 (57.3%). The differences in shatter to flakes between the two concentrations is likely the result of different raw material sources. Concentration 1 saw the use of cobble cores while a quartz vein located in a glacial boulder located in EU3 accounted for much of the quartz shatter recovered in Concentration 2.

Quartz flakes ranged in size from .4 to over 4 cm in length in both concentrations (Table 5).

Table 5. Quartz reduction flake sizes

Size	Concentration 1	Concentration 2
Retouch/ Finishing	**12/ 30%**	**19/ 25.7%**
.1-.4 cm		1
.5-.9 cm	12	18
Late Stage	**23/ 57.5%**	**47/ 63.5%**
1-1.4 cm	18	34
1.5-1.9 cm	5	13
Early Stage	**5/ 12.5%**	**8/ 10.8%**
2-2.4 cm	2	1

The distribution of flakes of three main size classes, representing stages of lithic reduction, were consistent between the two concentrations, indicating that the same reduction strategy was used in each area.

The striking angles measured from the platforms of the flakes was found to support the hypothesis that bifacial manufacture and finishing was the main lithic reduction strategy occurring at the site

(Table 6).

Table 6. Comparison of quartz debitage striking platform angles

Angle	Concentration 1	Concentration 2	Total
40-50 degrees	8/ 27.6%	11/ 36.7%	19
55-65 degrees	13/ 44.8%	10/ 33.3%	23
70-80 degrees	5/ 17.2%	7/ 23.3%	12
85-90 degrees	3/ 10.3%	2/ 6.7%	5
Totals	29	30	59

The shallower the angle, the later they were struck off of the preform during bifacial thinning. Flakes from both concentrations showed a predominance of shallow angle platforms.

Cortex was present on 10% of the total count of flakes and shatter from Concentration 1 while cortex was on only 5.7% of those from Concentration 2. This difference in cortex occurrences may also be the result of a focus on cobble reduction in Concentration 1, where one quartz core was also recovered, versus the reduction of cobbles and vein quartz in Concentration 2.

Quartzite

Quartzite, a metamorphosed sedimentary rock that originated as ancient beaches with a coarse grained texture and no phenocrysts or banding, commonly occurs in glacial drift deposits. Sources for quartzite have been identified in Westboro in the Sudbury and Assabet Drainages and Worcester at the South Bay quarry. Quartzite that has been highly metamorphosed is called metaquartz or mylonite. These are extremely fine grained occasionally with a glassy texture ranging from green to light green to white. These have been identified from the Concord/ Sudbury and Ware/ Quaboag drainages and may outcrop in Central Massachusetts.

The majority of the quartzite artifacts were recovered from Concentration 2 in the northern section of the project area where the identifiable Middle Woodland artifacts were recovered (Table 7). Nine flakes were recovered from Concentration 1 in the southern section.

Table 7. Quartzite artifacts

	Concentration 1	Concentration 2	Total
Point		1	1
Pt Frag			
Biface		1	1
Core			
B. Frag		1	1
Edge T.			

Shatter		**3**	**3**
Flake	**9**	**20**	**29**
Total	**9/ 26.5%**	**26/ 73.5%**	**35/ 6.2%**

Concentration 2 also yielded one mostly complete projectile point of a possible Lagoon style made from grey quartzite (EU 2) (Figure 2), several pieces of decortification shatter, primary and

Figure 2. Quartzite Lagoon point (EU2 SW 10-20 cm)

secondary flakes and one biface fragment. This indicates that the quartzite was primarily worked in this area, possibly at the same time as the point. The quartzite flakes ranged in size from .7 to 4.9 cm with the majority occurring in the 1 to 1.9 cm range. This indicates that while all stages of reduction occurred, the primary activity likely was biface production. The range of lithic debitage will be discussed further below in the assemblage comparison section.

Quartzite debitage occurred in shades of green, grey and tan . The majority of the debitage was grey with tan be the second most common (Table 8). The range of colors indicates that at least

Table 8. Quartzite debitage colors

	Concentration 1	Concentration 2	Total
Green		1/ 4%	1/ 2.9%
Green Grey	3/ 33.3%	4/ 8%	7/ 20.6%
Grey	3/ 33.3%	11/ 44%	14/ 41.2%
Light Grey	1/ 11.1%		1/ 2.9%

Very Dark Grey	1/ 11.1%	1/ 4%	2/ 5.8%
Tan	1/ 11.1%	4/ 16%	5/ 14.7%
Light Tan		2/ 8%	2/ 5.8%
Tan grey		2/ 8%	2/ 5.8%
Total	9/ 26.5%	25/ 73.5%	34/ 100%

three quartzite cobbles, green to green grey, grey, and tan, were reduced. In the Concentration 2 grey and tan made up the majority of the debitage while in Concentration 1, the majority was green grey and grey. It is likely that there were two areas of quartzite reduction, with quartzite being more intensively reduced in Concentration 2. Based on the material recovered from Concentration 2, at least part of the quartzite assemblage likely dates to the same time period as the point, either Middle Archaic or Early Woodland. If it was reduced during the early Woodland, it would make it contemporaneous with the majority of the material from Concentration 1.

The striking angles measured from the platforms of the flakes was found to support the hypothesis that bifacial manufacture and finishing was the main lithic reduction strategy occurring at the site (Table 9). The shallower the angle, the later they were struck off of the

Table 9 Comparison of quartzite debitage striking platform angles

Angle	Concentration 1	Concentration 2	Total
40-50 degrees	**1/ 33%**	**4/ 44.4%**	**5**
55-65 degrees	**1/ 33%**	**4/ 44.4%**	**5**
70-80 degrees			
85-90 degrees	**1/ 33%**	**1/ 11.1%**	**2**
Totals	**3**	**9**	**12**

preform during bifacial thinning. Flakes from both concentrations showed a predominance of shallow angle platforms.

Fifteen flakes of quartzite were recovered from the Wareham High School Site (19-PL-564) and 44 flakes were recovered from the Red Brook Site 19-PL-186 (Dunford 1990). Contexts for the Wareham High School material appears to be Middle to Late Archaic while that from the Red Brook Site is Middle to Late Woodland. Quartzite made up small portion of the non-quartz and rhyolite lithic assemblage at both sites, 9% at the High School and 21.4% at the Red Brook site, possibly indicating a greater use of quartzite during the Woodland period.

Felsites/ Rhyolites

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

Felsite/ Rhyolites include Black with white phenocrysts (originating in the Newbury Volcanic Complex), Green Fine-Grained, a dark green felsite lacking visible phenocrysts (originating in the Lynn Volcanic Complex in Melrose, Massachusetts), Maroon/ Purple/ Red (originating in the Lynn Volcanic Complex in Marble head, Massachusetts), Grey with dark small phenocrysts (originating in the many volcanic complexes), Blue-Grey with dark phenocrysts (originating in the Blue Hills Complex in Braintree, Massachusetts), Cream and Rust Stained coarse grained grey green to tan with pyrite crystals (originating in the Mattapan Volcanic Complex in the Sally Rock Quarry in Hyde Park), Red Banded with dark red to pink fine banding or swirls on a light red, tan or cream matrix, also called Mattapan Red Felsite (originating in the Mattapan Volcanic Complex on the Neponset River), Red to Maroon Porphyritic with dark red or white phenocrysts (outcropping in Hingham, Massachusetts), Green porphyritic visible dark glassy and white

phenocrysts (outcropping at Mount Kineo on Moosehead lake in Maine), Red light red to pink with a coarse texture phenocrysts may or may not be visible but are pink or tan feldspar or translucent silica glass, banding may occur in same composition as phenocrysts, also known as Attleboro Red Felsite (outcropping in Attleboro, Massachusetts), Banded and Other Porphyritic.

The majority of the rhyolite at the site was recovered from Concentration 2, 61.9% of the total of 223 rhyolite artifacts (Table 10). One core and one biface were also recovered from this concentration. Flakes overwhelmingly made up the bulk of the rhyolite artifacts, 92.9

Table 10. Rhyolite distribution

	Concentration 1	Concentration 2	Totals
Point	1/ 1.2%	0	1/ .5%
Biface	1/ 1.2%	1/ .7%	2/ 1%
Core	0	1/ .7%	1/ .5%
Shatter	4/ 4.7%	7/ 5.1%	11/ 4.9%
Flake	79/ 92.9%	130/ 94.2%	209/ 93.7%
Total	85/ 38.1%	138/ 61.9%	223

to 94.2%, from both concentrations while shatter accounted for approximately 5% of each. Cores, points and bifaces accounted for very small percentage of each assemblage. One point, a Small Stemmed point from Feature 1, was recovered from Concentration 1(Figure 3).

Figure 3. Rhyolite Small Stemmed point (EU1 F1 SE 35-40 cm)

The size distribution of the complete rhyolite flakes (Table 11) indicates that all stages of lithic reduction took place at each of the concentrations. Concentration 1 showed a higher occurrence of medium and small-sized flakes, indicative of a possible greater emphasis on late stage and retouch/ finishing stage of lithic production. The Middle Woodland Period Concentration 2 showed more larger early stage flakes, indicative of the initial stages of reduction.

Table 11. Comparison of complete flake lengths

Size	Concentration 1	Concentration 2
Retouch/ Finishing	**9/ 12.2%**	**13/ 9.5%**
.1-.4 cm		
.5-.9 cm	9	13
Late Stage	**51/ 73.9%**	**92/ 67.2%**
1-1.4 cm	36	64
1.5-1.9 cm	15	28

Early Stage	**9/ 12.2%**	**23/ 16.8%**
2-2.4 cm	6	17
2.5-2.9 cm	2	1
3-3.4 cm	1	4
3.5-4 cm		
4+ cm		1
Totals	**69**	**137**

The striking angles measured from the platforms of the flakes was found to support the hypothesis that bifacial manufacture and finishing was the main lithic reduction strategy occurring at the site (Table 12).

Table 12. Comparison of rhyolite debitage striking platform angles

Angle	**Concentration 1**	**Concentration 2**	**Total**
40-50 degrees	11/ 18.9%	17/ 34%	28
55-65 degrees	22/ 37.9%	12/ 24%	34
70-80 degrees	17/ 29.3%	16/ 32%	33
85-90 degrees	8/ 13.8%	5/ 10%	13
Totals	58	50	108

The shallower the angle, the later they were struck off of the preform during bifacial thinning. Flakes from both concentrations showed a predominance of shallow angle platforms. There was a greater variety of striking platform angles present for rhyolite as compared to other materials, likely indicating that more of the reduction process was carried out on site for this material.

The color range of rhyolite debitage was relatively consistent between concentrations (Table 13),

Table 13. Colors of rhyolite flakes

		Concentration 1	**Concentration 2**
Gray		**64/ 74.4%**	**81/ 66.9%**
	Black	4	10
	Very Dark	13	27
	Dark	12	16
	Gray	19	19
	Light	4	1
	Green	11	5
	Brown	1	3
Purple Gray		**8/ 9.3%**	**16/ 13.2%**

Dark	3	1	
Purple gray	3	14	
Light	2	1	
Purple	**5/ 5.8%**		**7/ 5.8%**
Very dark	1	1	
Dark	0	4	
Purple	0	1	
Light	1	1	
Maroon Purple	**3/ 3.5%**		**10/ 8.2%**
Dark	3	9	
Maroon purple	0	1	
Purple other	**2/ 2.3%**		**1/ .8%**
Purple tan	0	1	
Purple pink	2	0	
Maroon	**2/ 2.3%**		**2/ 1.6%**
Dark	2	2	
Tan	**1/ 1.1%**		**3/ 2.4%**
Tan	0	2	
Light	0	1	
Maroon Brown	**1/ 1.1%**		**0**
Red Brown	**0**	**1/ .8%**	
	86	121	

indicating either that the raw materials came from the same sources or contemporaneous occupation of both areas. The most common color of rhyolite was grey to dark grey, a variety that is commonly found in glacial till in the Wareham area. The distribution of artifacts of certain color rhyolites was also consistent between concentrations with greys and purples accounting for the majority of the raw material colors that were used (Table 14).

Table 14. Colors of rhyolite points, core, and shatter

	Concentration 1	**Concentration 2**
Small Stemmed Point		
Dark Purple Grey	1	
Squibnocket Triangle		
Green grey	1	
Cores		
Grey		1
Shatter		
Purple	1 with cortex	
Dark purple		1 with cortex
Black	1	
Grey	1	2 with cortex
Very dark grey	1	1

Dark Grey	2 (1 with small amount of cortex)

Argillite

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

The majority of the argillite debitage was recovered from Concentration 2, making it likely that it was used during the Middle to Late Woodland periods (Table 15).

Table 15. Argillite distribution

	Concentration 1	Concentration 2	Total
Point			
Pt Frag			
Biface			
Core			
B. Frag			
Edge T.			
Shatter			
Flake	**2**	**4**	**6**
Total	**2**	**4**	**6**

flakes ranged in size from 1.8 to 3.5 cm for the two decortification flakes recovered and 1 to 2.4cm for the secondary flakes. The presence of decortification flakes and a mix of sizes for secondary flakes indicates that argillite raw material was reduced through a number of stages at the site, possibly with biface production as the end product. The striking angles measured from the platforms of the flakes showed steeper angles (Table 16).

Table 16. Comparison of argillite debitage striking platform angles

Angle	Concentration 1	Concentration 2	Total
40-50 degrees	1/ 50%		**1**
55-65 degrees		2/ 50%	**2**
70-80 degrees	1/ 50%	2/ 50%	**3**
85-90 degrees			
Totals	**2**	**4**	**6**

The steeper the angle, the earlier they were struck off of the preform during reduction. Flakes from Concentration 1 showed a predominance of steeper angle platforms.

The colors (Table 17) of the argillite ranged from tan to green grey, possibly indicating the Narragansett bay or at least the Taunton River drainage as the source for the raw material.

Table 17. Argillite colors

	Concentration 1	Concentration 2	Total
Green Grey	**1**	**2**	**3**
Grey	**1**	**1**	**2**
Tan		**1**	**1**
Total	**2**	**4**	**6**

Argillite was not recovered from the Red Brook site, but it made up a significant portion of the non-quartz and non-rhyolite assemblage, 86.2%, from the Wareham High School site. Testing here identified one bifacial tool, two Small stemmed points, three point fragments and one point identified as a possible Stark, all made from green argillite and concentrated at what was termed the "Main Site". The Main site yielded Transitional Archaic material in the form of Susquehanna related material (Decima et al 1993: 59). It is possible that the possible stark is in fact a point similar to the quartzite possible Lagoon point from Concentration 2 at the Agawam site, thus making it a Transitional Archaic to Early Woodland point, tying it in with the other argillite Small Stemmed points from the site.

Hornfels

Hornfels are dark grey to black metamorphosed lithics formed by the baking of sedimentary deposits by cooling bodies of magma and are found in quarries in the Blue Hills outside of Boston. Hornfels was recovered only from Concentration 2 (Table 18).

Table 18. Hornfels distribution

	Concentration 2	Total
Point		
Point Fragment		
Biface		
Core		
Biface Fragment		
Edge Tool		
Shatter	2	2
Flake	10	10
Total	12	12

Hornfels is often associated with Middle Woodland occupations, so the occurrence in the area of the site where other Middle Woodland materials, pottery and a feature, were recovered is not surprising. One piece of hornfels was also recovered from Feature 9 which was radiocarbon dated to the Middle Woodland period. Hornfels flakes bearing cortex (n=2) averaged in size from 1.5 to 3 cm while secondary flakes (N=8) ranged from .7 to 2.3 cm, with the majority being between .7 and 1.2 cm in length. Two fragments of secondary shatter were also recovered measuring 1.5 and 2.4 cm long. Flakes bearing portions of cortex were recovered from C2 and E4. This indicates that the hornfels was worked from the state of a roughed quarry blank or unmodified raw material, to an unknown finished form at this site.

The striking angles measured from the platforms of the flakes showed an even split between flake striking platforms with steeper angles and those with shallower angles(Table 19). This likely

Table 19. Comparison of hornfels debitage striking platform angles

Angle	Concentration 2	Total
40-50 degrees	1/ 12.5%	1
55-65 degrees	3/ 37.5%	3
70-80 degrees	1/ 12.5%	1
85-90 degrees	3/ 37.5%	3
Totals	8	8

indicates that a blank of hornfels was transported to the site and subsequently was worked down through initial to thinning reduction during the course of the production of a biface.

No hornfels was recovered from the Wareham High School site, but at the Red Brook site, it made up 8.3% of the non-quartz and non-rhyolite assemblage. One Middle Woodland Fox Creek point made from Hornfels was recovered from the Red Brook site as well.

Saugus Jasper

Saugus Jasper, a type of fine-grained rhyolite and not a true jasper, was recovered from Concentration 2 (Table 20). The use of Saugus Jasper is often associated with the Middle

Table 20. Saugus Jasper distribution

	Concentration 2	Total
Point		
Point Fragment		
Biface		
Core		
Biface Fragment		
Edge Tool		
Shatter		
Flake	5	5
Total	5	5

Woodland period. Saugus jasper flakes ranged in size from 2 to 2.3 cm in length and were recovered from the 10-20 cm (n=3) and 20-30 cm (n=2) levels. The large size of the flakes indicates that the material recovered represents early stage reduction of blanks or lightly modified raw material. No cortex was present on any of the five flakes.

The striking angles measured from the platforms of the flakes showed a predominance of flakes with shallower striking platforms angles (Table 21). This likely was the result of later stage

Table 21. Comparison of Saugus Jasper debitage striking platform angles

Angle	Concentration 2	Total
40-50 degrees	1/ 33%	1
55-65 degrees	1/ 33%	1
70-80 degrees	1/ 33%	1
85-90 degrees		
Total	3	3

reduction during the course of biface manufacture. Saugus Jasper was not recovered from the Wareham High School site, but made up 5.8% of the non-quartz and non-rhyolite lithic assemblage from the Red Brook Site. The majority of the flakes were in the 1 to 3 cm size range, indicative of late stage biface reduction.

Chert

These sedimentary rocks are extremely fine-grained and as a result, are the perfect type of stone for flint knapping. There are few fractures running through them and due to their tight molecular crystalline structure, the flake with sharp strait edges. None of the cryptocrystalline silicates found archaeologically are known to occur as outcrops in Massachusetts and when recovered from a site are generally believed to have arrived through trade or were carried there by the past inhabitants. This class of lithic includes chalcedonys and cherts. Chalcedonys include Grey, such as Ramah chalcedony (originating in northern Labrador) and White (originating from Flint Ridge, Ohio). Cherts include Green, such as Coxsackie and Deepkill, (outcropping in the Hudson Valley), Grey (outcropping in the Western Onondaga formation, New York), Grey and Brown Mottled, commonly associated with Meadowood points (outcropping in the Western Onondaga formation, New York), Scoracious or pitted (outcropping at Fort Ann, New York), Banded, commonly associated with Paleoindian sites, Black (outcropping at Normanskill, Fort Ann, Helderberg and Munsungen Lake, New York), Dark Brown (occurring in the Normanskill and Central Onondaga formations, New York), White, a weathered variety of black or brown chert, and Fossiliferous, or those containing fossils.

Chert was recovered from Concentration 1 and to a lesser degree from Concentration 2 (Table 22).

Table 22. Chert distribution

	Concentration 1	**Concentration 2**	**Total**
Point	**1**		**1**
Point Fragment		**1**	**1**
Biface	**1**	**1**	**2**
Core			
Biface Fragment			
Edge Tool	**1**		**1**
Shatter			
Flake	**6**	**3**	**9**
Total	**9**	**5**	**14**

In both concentration, flakes and finished tools or fragments of tools were recovered. Concentration 1 yielded one drill tip (J2) and one rejected Orient Fishtail point from Feature 1 which was dated to the Transitional Archaic to Early Woodland period. One utilized flake was also recovered from this area. Concentration 2 yielded one burned point tip and one other biface fragment possibly associated with the burned point tip. Both of these artifacts were recovered from the area of Feature

9 which was dated to the Middle Woodland period. This point tip and biface fragment may be from a Fox Creek point. This point will be further discussed below in the section on projectile point analysis.

Debitage from Concentration 1 included one 2.4cm long flake bearing cortex and five secondary flakes ranging in size from .7 to 2.1 cm in length. Concentration 2 yielded secondary flakes from 1 to 1.9 cm in length. The presence of a decortification flake from Concentration 1 indicates that raw material or roughly reduced material was being reduced here. The relatively small size of the flakes in both areas may be indicative of a conscious conservation of an exotic raw material. Flakes from Concentration 1 ranged in color from grey to black, while those from Concentration 2 were black to green grey. The colors of the cherts in both concentrations possibly indicate an Onondaga, Normanskill, Fort Ann, Helderberg or Munsungen Lake, New York source.

Striking platform angles from Concentration 1 showed a predominance for shallower angles, the result of later stage thinning, but an appreciable amount of steeper angled platforms were also present (Table 23). This may indicate that larger pieces of raw material were brought to the site

Table 23. Comparison of chert debitage striking platform angles

Angle	Concentration 1	Concentration 2	Total
40-50 degrees	**2/ 22.2%**	**1/ 50%**	**3**
55-65 degrees	**4/ 44.4%**	**1/ 50%**	**5**
70-80 degrees	**1/ 11.1%**		**1**
85-90 degrees	**2/ 22.2%**		**2**
Totals	**9**	**2**	**11**

during the Early Woodland, but by the Middle Woodland occupation evidenced in Concentration 2, only shallower angles were represented. This may indicate that mostly completed pieces were brought to the site by this period and the final finishing was accomplished here. This may indicate a change in trade patterns or contact between this area and the source of the chert during the Middle Woodland, foreshadowing the eventual cessation of import of cherts by the Late Woodland Period.

Two flakes of chert, 1.2% of the non-quartz and non-rhyolite assemblage, were recovered from the Wareham High School Site while 6 flakes, 2.9%, were recovered from the Red Brook Site. At neither site was chert a significant lithic that was used.

Lithic Tools

Very few lithic tools were recovered when compared to the amount of lithic debitage. Lithic tools took the form of five bifaces, one uniface and ten projectile points.

Biface fragments were recovered from test pits G2, G3 and J1 and also from EU 3 (n=2). Three of the recovered bifaces were made of quartz with two being triangular in shape (G3 and J1) and one being irregularly shaped (EU 3). The triangular shaped bifaces may be fragments of Squibnocket Triangle or Levanna projectile point preforms. The two other biface fragments were made of green grey rhyolite. One (G2) was triangular in shape and again may be a Squibnocket or Levanna preform while the other is irregular in shape (EU 3). One green chert unifacially worked flake was recovered from test pit G1.

Identifiable projectile points were recovered from test pits F2 and J1 and from excavation units 1N, 1 (n=2), 2 and 4. Projectile point fragments were recovered from test pit J2 and excavation units 3 and 4. Three of the identified points were Late Woodland Levannas (F2, J1 and EU 1N) and all three were made of quartz. The recovery of these points occurred in the southern half of the project area. Two quartz Squibnocket Triangles were recovered (EU 2, 4), both from the northern half of the project area near features associated with the Middle to Late Woodland period. One grey quartzite Early Woodland Lagoon point was recovered from the northern half of the project area (EU 2) in the same unit as one of the Squibnocket Triangles. One rhyolite Small Stemmed point was recovered from Feature 1 (EU 1) in association with a grey chert Orient Fishtail point.

Three projectile point fragments were also recovered. All were made of chert. One, recovered from test pit J2, may be the tip of a drill. The other two fragments were recovered from Feature 9 in EU 3 and from EU 4. These two fragments may be part of one point. A dark olive brown chert concave possible basal fragment was recovered from Feature 9 while a burned projectile point tip was recovered from EU 4. The fragments may have originally been parts of a Middle Woodland Jack's Reef Corner Notched point (1600-1100 BP).

Research Questions

The analysis of the lithic debitage from the site was being carried out to investigate the following research questions:

-Is there a difference in reduction strategies for the quartz versus non-quartz components of the assemblage? Do any differences noted possibly relate to differential desired end product?

There does not appear to be an appreciable difference between the utilization of quartz versus other materials at the site as seen in Table 24. In the case of all the raw materials, with the

Table 24. Comparison of flakes sizes by material

	Rhyolite	Quartz	Quartzite	Chert	Hornfels	Argillite	Jasper
Retouch							
<1 cm	11.5%	36.7%	14.8%	13.3%	27.3%	12.5%	

Late Stage							
1-3	86%	67.9%	81.4%	86.7%	72.8%	75%	80%
Early Stage							
3-5	2.5%	3.6%	3.7%			12.5%	20%
Totals	**200**	**112**	**27**	**15**	**11**	**8**	**5**

exception of Saugus Jasper, the majority of the flakes that were recovered fell into the size category for late stage (67.9 to 86.7%) and retouch (11.5 to 36.7%). This indicates that while some initial reduction occurred at the site, the focus of the lithic reduction activity was on the finishing of tools, likely bifaces. It appears that in the cases of quartz and rhyolite at least, cobbles were being reduced with the purpose being the production of a tool from the core. Table 25 shows that bifaces and projectile points were likely the final product of the lithic

Table 25. Comparison of lithic artifact occurrence by material

	Quartz	Rhyolite	Hornfels	Quartzite	S. Jasper	Chert	Argillite
Point	6	2		1		1	
Pt Frag						1	
Biface						1	
Core	3	1					
B. Frag	3	1		1			
Edge T.						1	
Shatter	111	10	2	4			
Flake	115	208	11	28	5	15	9
Debitage	**238/ 43.6%**	**222/42.1%**	**13/ 2.5%**	**34/ 6.2%**	**5/ 1%**	**18/ 2.9%**	**9/ 1.7%**

reduction that took place at the site. This appears to hold true for all classes of lithic raw materials, a finding supported by the range of flake sizes present.

-Were both materials utilized in the same manner or were flakes to be used in and of themselves the final product versus the production of bifaces?

Rhyolite and quartz made up the majority of the lithic component at the site. It appears that both materials were reduced in the same manner with the same end result, bifacial tools. The occurrence of complete flakes to flake fragments to shatter (debris) to cores that is presented by Sullivan and

Rozen does not exactly match the occurrences at the Agawam Site (Table 26 and 27).

Table 26. Comparison of debitage occurrence for quartz, rhyolite and quartzite

	Quartz	Rhyolite	Quartzite
Complete Flakes	59.8%	62.6%	65.6%
Broken Flakes/ Flake Fragments	15.7%	32.4%	21.9%

Debris	48.5%	4.6%	12.5%
Cores	1.3%	.5%	0
Retouched Flakes	0	0	0

Table 27. Artifact categories (by percent) for each Technological group (Sullivan and Rozen 1985: 762)

	IA	**IB1**	**IB2**	**II**
Complete Flakes	53.4%	32.9%	30.2%	21%
Broken Flakes/ Fragments	22.7%	48.7%	42.8%	68.1%
Debris	6.1%	7.9%	23%	7.3%
Cores	14.7%	2.8%	2%	.6%
Retouched Flakes	3.1%	7.5%	2%	3.1%

Generally, for the classes of quartz, rhyolite and quartzite, the overall trend was for a high percentage of complete flakes, a moderate percentage of flake fragments and a low percentage of cores. As can be seen in Table 44, quartz generated a larger amount of debris (shatter) than other classes, due to the nature of quartz as a raw material. If the high percentage of quartz shatter is removed from discussion, it can be seen that the quartz, rhyolite and quartzite assemblages resemble Sullivan and Rozen's Class IA most closely, indicative of unintensive core reduction. This interpretation is countered by the small number of cores actually present at the Agawam site, likely indicative of either a greater degree of reduction or of a working of preforms that are already past the core/ flake stage and are well into the biface reduction stage.

-What were the sources for the raw materials? Were they beach cobbles or quarried veins?
Small percentages of the shatter and flakes of rhyolite, quartz, quartzite, hornfels and chert flakes were found to bear cortex. This is indicative of the use of either exposed and weathered vein deposits or cobbles as a raw material. Quartz, quartzite and rhyolite all occur in cobble form within the glacial till of the Wareham's pitted outwash plain and this was the likely source for these raw materials. Hornfels and chert are considered exotics with the raw materials likely arriving at the site in a partially reduced form, but one which still bore some cortex. Quartz veins were identified in boulders in the general area of the project and one erratic was identified near EUs 3 and 4 that bore a vein which appeared to have been quarried. Some of the quartz from this section of the site likely came from this vein.

-Does the technology evident at the site in the lithic debitage relate to the level of mobility practiced by the people living at the site in the Transitional Archaic?

The possible degree of mobility of the inhabitants of the site, as defined by Cowan, was investigated by looking at the degree of reduction and stages of manufacture present in the assemblages as identified by using Sullivan and Rozen's methods. The variation in tool design and production can be used as clues to social organization in prehistoric settlement systems and to the organizational roles of the sites within settlement systems (Cowan 1999:593). Mobility places constraints on the technological options available to the society, and as a result, predictions can be made for the kinds of tool production and use strategies that occur in different situations.

By studying the occurrence of cores versus flakes versus flake fragments versus shatter and comparing this to the sizes of flakes present, it was determined that the inhabitants of both portions of the site were primarily interested in biface production from cores. Bifacial tools take a longer amount of time and require more skill to produce than flake tools, but they have a long use life, they consume a smaller amount of raw material, are easier to haft, can be used for a variety of functions and are easy to transport (Cowan 1999: 594). As a result of these advantages and disadvantages to the two forms of technology, the mobility of the users can be predicted. Cowan found that the interior Late Archaic sites in New York were generally small and sparse in artifacts, representing a short term residential camp for a small group of people who were highly mobile (Cowan 1999:596). Early Woodland interior camps were special purpose sites that were the focus of resource procurement activities and maintenance tasks that required a diverse mostly bifacial tool kit (Cowan 1999:597).

At the Early and Late Woodland logistical/ base camps, cores were worked down elsewhere and the bifaces were finished at the site. This left a larger amount of thinner flakes bearing smaller cortical patches with well-formed platforms and a smaller amount of cores (Cowan 1999: 604). These sites also showed a high occurrence of thin non-cortical flakes with well formed platforms edges while the other sites yielded thick noncortical flakes that were angular in cross-section and cortical striking platforms, or a mixture of thick and thin flakes (Cowan 1999:604).

Groups of people who lived in small social groups that moved often to exploit a variety of resources appear to have used a mixed tool kit containing a broad range of tools and production methods. The resource being exploited and the tool that best suited the job determined the tools and methods used at various sites or times. Early Woodland populations were represented by extremely mobile groups that were exploiting resources and returning to a separate base camp. Their tool assemblages reflect this, being composed of bifaces and preforms without much core reduction. The Late Woodland seasonal base camps appear to have been occupied by small family groups tending crops near a main village while the logistical camps were used for the procurement and processing of game and other forest resources to be transported away from the sites (Cowan 1999:605). These sites consisted of a mixture of reduction strategies with many stages of bifacial reduction being present.

At the Agawam site it is somewhat difficult to identify specific temporal associations with the lithics recovered. Generally, all lithic classes across the site showed a reduction strategy that appears to have focused on the late stage and finishing/ sharpening of bifaces. Quartz and rhyolite, the most commonly occurring lithic materials, showed a wider range of flake sizes, the presence of core fragments and flakes bearing cortex, indicating at least some cobbles were at least being partially reduced starting with early stage reduction (the removal of larger cortex bearing flakes).

The mobility that is hypothesized for the inhabitants of the site is mixed logistical and special purpose camps with moderate to high mobility being evident. Few tools aside from finished bifaces were identified, indicating that the inhabitants were possibly extremely mobile groups that were exploiting resources and returning to a separate base camp. The presence of all stages of reduction in the rhyolite and quartz assemblages also indicates that the site may have been a location of more sedentary or longer term habitation at certain times. Short term resource exploitation may have focused on the seasonal runs of herring and the utilization of the wetlands.

Donna Ingham has applied Cowan's findings to the Nourse/ Andrews 1, 2 and 3 sites in Westborough (Ingham 2002). Here she found that the Middle Archaic component of the site, consisting of 24 projectile points, 29 bifaces, 41 retouched flakes and six cores, was evidence of moderate mobility with mixed tool production (Ingham 2002: 106). The assemblage from the Agawam site points to moderate to high degree of mobility with the occurrence of fewer cores, and also to more sedentary existence with a wider range of flake sizes and more stages of manufacture present.

-Does a comparison of different concentrations within the site show that they represent stages in a single continuum of lithic reduction or that they are separate discrete reduction stations?

When Concentration 1 and 2 were compared, it was found that approximately the same types of lithic reduction with the same end products, were occurring at both locales. Cores, shatter and all sizes of flakes were found in both concentrations indicating that the occupants at both of them were carrying out the same activities. The material from the Agawam site was also compared with that from both the Wareham High School and the Red Brook sites (Table 28), it was found

Table 28. Comparison of the lithic assemblages from the Agawam, High School and Red Brook sites

Material	Agawam	Wareham HS	Red Brook
Rhyolite	130/ 42.1%	59/ 2.8%	322/ 28.2%
Flakes	124	51	314
Shatter	5		
Point	1	5	2
Biface		2	6
Edge Tool		1	
Quartz	146/ 43.6%	1664/ 88.2%	602/ 52.2%
flakes	86	1626	592
shatter	51		

Table 28. Comparison of the lithic assemblages from the Agawam, High School and Red Brook sites (Continued)

Material	Agawam	Wareham HS	Red Brook
Cores	4		
Biface	3	22	8
Point	2	14	1
Uniface		2	1
Quartzite	22/ 6.2%	15/ .8%	44/ 4%
flakes	16	15	44
shatter	4		
biface	1		
Point	1		
Hornfels	10/ 2.5%	0	18/ 1.6%
flakes	8		17
shatter	2		
Biface			1
Chert	7/ 2.9%	2/ .1%	6/ .5%
flakes	5	2	6
Biface	1		
Point	1		
Argillite	3/ 1.7%	154/ 7.8%	0
flakes	3	144	
shatter			
Cores			
Biface		3	
Point		5	
Uniface		2	
Saugus Jasper	1/ 1%	0	12/ 1.1%
flakes	1		12
Volcanic	0	0	105/ 2%
flakes			105
Unidentified	0	6/ .3%	22/ 2%

flakes		6	22
Totals	**518**	**1844**	**1134**

that the High School had a higher occurrence of quartz and argillite utilization while the assemblage from Red Brook bore a closer resemblance to that from the Agawam Site. The High School site was found to date predominantly to the Late and Transitional Archaic periods and was interpreted as a special purpose camp where activities related to the harvesting of wetland resources took place. The Red Brook and Agawam sites may have been logistical or base camps where parties went out to exploit resources at sites such as the High School one. This may have resulted in a wider range of lithic raw materials being present as well as the occurrence of pottery, steatite and fire-cracked rock at the base camp but not as much at the procurement camp. Quartz and argillite may have been favored materials for use at resource procurement camps. Both were likely readily available and could be quickly knapped into serviceable and expendable tools that were used and discarded.

Other Lithics: Steatite, Graphite and Fire Cracked Rock (FCR)

Steatite

Five fragments of one or more steatite bowls were recovered from four test pits. The fragments ranged in size from 1.7 to 3.5 cm long and had an average thickness of 3/ 10^{th} of an inch (.3, .3, .32, .375"). The test pits yielding the steatite fragments were B3 (n=2), E2, E7 and F1. The concentration of the steatite fragments in the northern half of the site indicate the use of this area during the Transitional Archaic and helps to link the northern and southern halves of the site. The limited amount of steatite recovered may indicate that the site was occupied only during the later Transitional Archaic to Early Woodland, at a time when pottery vessels was replacing steatite ones.

Only a limited amount of steatite was recovered by Stockley that, in his estimation, represented only one vessel. He stated that the vessel, approximately 33% of which was recovered, had cracked during its use life and had been repaired by having holes drilled in it and being lashed together. The distribution of the vessel appears to have been affected by the digging of one of the refuse pits, as it appears that shards were found on either side of it. Stockley estimated that the reconstructed bowl would have measured about 10" in diameter. The thickness of the sides averaged between ¼ and 5/8" thick and were smoothed on the interior and rough on the exterior.

Graphite

The fragments of graphite were recovered from across the project area, but are believed to be naturally occurring in the soils at the Agawam site. The closest source for graphite is in western Massachusetts in the Sturbridge area, but the small size of the fragments and their generally natural shape, makes it likely that they are natural and were not transported here by human hands. As can be seen in Table 29, graphite was recovered from almost all of the transect lines

Table 29. Graphite recoveries

Location	Depth	Count	Weight
B-3	30-40 cm	1	.1g
C-3	20-30 cm	1	.5g
C-5	20-30 cm	1	2.1g
D-1	0-10 cm	1	.3g
D-5	30-40 cm	2	4.7g
E-2	20-30 cm	1	1.3g
E-4	10-20 cm	1	.4g
E-4	20-30 cm	1	.1g
E-7	10-20 cm	1	1.5g
G-2	30-40 cm	4	1.2g
H-1	10-20 cm	1	.2g
H-1	20-30 cm	1	.7g
H-2	0-10 cm	1	.9g
H-3	20-30 cm	1	1.3g
I-2	30-40 cm	2	.9g
I-3	10-20 cm	1	.3g
J-2	10-20 cm	1	.4g
J-4	0-10 cm	1	3.7g
EU 1		13	11.5g
Feature 1		10	6.6g
EU 1E		1	.5g
Feature 5		2	.4g
EU 1N		4	1.5g
Feature 8		2	.9g
EU 3		17	27.6g
Feature 9		5	4.9g

EU 4	15	7.1g
Total	92	

and from all the excavation units and several features. The fragments of graphite recovered appear to have had a fairly random distribution with some concentrations correlating with test pits that yielded high lithic counts.

Graphite is commonly recovered from Late Archaic contexts. Small Stem culture assemblages often contain graphite and hematite paint stones (Ritchie 1969:215). When first describing Orient Fishtail cultural assemblages, he noted that they included lots of graphite and hematite paint stones, co-occurring with and steatite bowls and some of the earliest occurrences of locally made pottery (Ritchie 1969:170). Graphite likely served a ceremonial role in the culture and was included in Transitional Archaic burial assemblages such as the one from Jamestown, Rhode Island that contained a clutch of graphite pebbles as well as lumps of red ocher and a red pigment stone (Simmons 1970: 17-27).

Stockley recovered graphite during his excavations. He hypothesized that powdered graphite was used on the interiors of some of the Stage 2 pottery with the intention being to make the vessel waterproof. It is unknown if this was in fact the case, but it does seem unlikely. Perhaps Stockley encountered shards with burned residue on the interior. Many pieces of graphite were recovered though, some larger and some only 1" long. Some of the larger pieces exhibit scratches on the surface, likely a result of use.

Fire Cracked Rock (FCR)

Fire-cracked rock was recovered from all three portions of the project area (Table 30).

Table 30. Fire-Cracked Rock

Area	Count	Weight	Size	Material
Concentration 2	**54**	**26.6 kg**	**1.4-12.4 cm**	**granite, quartz, quartzite, sandstone, mudstone, rhyolite**
Concentration 1	**86**	**39.2 kg**	**1.2-8.3 cm**	**granite, sandstone**

The occurrence of FCR in all three areas was similar. Granite was the predominant material selected for the cobbles used in the fire, with quartz, quartzite, rhyolite and sandstone also being used. The similarity between the areas likely indicates that the entire area tested was occupied and used simultaneously at the time when the FCR was being used. Two features, Feature 13 and Feature 14, located in test pits F1 and H6, the first being a semi-circular hearth and the second a concentration of FCR and calcined bone, contained several pieces of FCR but no artifacts. Concentrations are noticeable in the southern, northern and southwestern portions of the site. The fire cracked rock distribution roughly corresponded with the shellfish concentrations but FCR was also concentrated at E2 and H6, both being test pits where possible hearths were encountered. Generally FCR appeared more widely scattered around the shellfish concentrations, possibly being evidence of fires that were used in association with their processing. The charcoal recovered also appeared concentrated with the FCR and shellfish generally

The FCR may have been derived from stones lining or encircling hearths and also from stones that were heated and used to boil liquids in steatite pots, wooden dishes and bowls or skin-lined pits. The boiling stones would have been used until the began to crack and fall apart as a result of the thermal shock of being repeatedly heated and rapidly cooled, until they were eventually thrown out. During the course of periodic cleaning, the smaller fragments of hearth stones would have been thrown out when along with the ashes of the fire. The majority of the FCR fragments were angular without many rounded exterior surfaces, indicating that they may have more likely been derived from hearth cleaning as opposed to stone boiling. Another possible source for the FCR is from granite that was burned for use as temper in the grit-tempered pottery.

Summary

Seven types of lithic raw materials (quartz, rhyolite, quartzite, argillite, Saugus Jasper, and chert) were identified across the Agawam site with the majority of it being quartz and rhyolite chipping debris, shatter, cores and finished tools. Most of the chipping debris was located in Concentration 2 while the majority of the finished tools were recovered from Concentration 1. Analysis of the flakes, shatter and cores indicates that late stage lithic reduction for the production of bifaces, was the primary lithic related activity carried out in both concentrations.

Quartz and rhyolite were recovered from both concentrations with tools made out off quartz occurring in both areas but one rhyolite projectile point being recovered from Concentration 1. Quartzite was also recovered from both concentrations, but occurred with greater frequency in Concentration 2 where an Early Woodland possible Lagoon point was also recovered. This may indicate that quartzite use was limited to the Early Woodland period at this site, although it has been found in Middle Archaic to Late woodland associations at the Wareham High School and Red Brook sites. Argillite was found only in Concentration 1, which supports findings from the Wareham High School site where it was recovered from possible Middle to Late Archaic contexts. Hornfels and Saugus Jasper debris was recovered only from Concentration 2 in association with Middle Woodland contexts. This confirms findings from the Red Brook site, possibly indicating more contact during the Middle Woodland with the Natives living to the north of Wareham in the area around present-day Boston. Chert was recovered from both concentrations indicating long distance trade likely with new York State during the Early to Middle Woodland periods, trade which appears to have ended by the Late Woodland to Contact periods

Due to the low occurrence of cores and high occurrence of late stage and retouch flakes, it appears that lithic activities at the site focused on the reduction of roughed or semi-finished preforms. It is possible that quartz, quartzite and rhyolite raw materials were collected near the mouth of the Agawam River, initially reduced there and that these preforms were brought back to the Agawam site for final reduction. The production and focus on the manufacture of bifaces may indicate that the people who occupied the site were semi-sedentary with a high degree of mobility. They may have used the Agawam site as a base camp from which they ventured to the shore and inland locales for resource collection, utilizing the bifaces produced at this site.

A comparison of the striking platform angles for the lithic materials recovered show several trends regarding the degree of reduction that occurred for each material type (Table 31). In this

Table 31. Comparison of striking platform angles between concentrations

	Concentration 1		Concentration 2	
Material	**40-65 °**	**70-90 °**	**40-65 °**	**70-90 °**
Quartz	72.4%	27.6%	70%	30%
Rhyolite	56.8%	43.1%	58%	42%
Quartzite			66%	33%
Argillite	40%	60%	100%	
Hornfels			50%	50%
Chert	66.6%	33.3%	100%	
Saugus Jasper			66%	33%

comparison, the shallower the angle, the further along in the reduction process was that flake taken off, the steeper the angle, the earlier. Quartz, chert, Saugus jasper and quartzite all showed the greatest percentage of late stage reduction for any of the material present, possibly indicating that these materials were brought to the site in a more finished form. Conversely, argillite showed more of an emphasis on early stage reduction, possibly indicating that the raw material was initially reduced at the site and then was finished elsewhere. A wider variety of striking platform angles was present for chert in Concentration 1 than in Concentration 2, where only angles of 40-65 degrees were present. This may indicate that the chert arrived at the site in a very finished form, possibly foreshadowing in the Middle Woodland, the cessation of import of chert from New York that characterized the Late Woodland in southeastern Massachusetts. Hornfels showed an even balance between striking platform of both gross angle measurements, indicating that pieces of raw material were brought to the site in an unfinished form and more finishing involving all stages of reduction took place here. This shift away from the New York cherts towards the Boston Basin sources for lithic raw material may reflect changing alliances or interactions occurring during the Middle Woodland period. Rhyolite also showed a similar distribution of striking platform angles, again indicating that more unfinished pieces were being worked throughout the entire reduction process as opposed to preforms arriving at the site already significantly worked. Rhyolite can be found locally in the glacial gravels, but the source of it also lies within the Boston Basin and Lynn volcanic series, again possibly indicating trade and interaction to the north.

Distributions of certain lithic types have been hypothesized to possibly reflect settlement systems and group territories, especially during the Late Woodland period (Ritchie 2002: 105; Luedtke

1997, 1998, 2002). In the simplest sense, there are essentially only two varieties of lithics: generic and name brand. Generic lithic include quartz, grey and black rhyolites, and quartzites, materials that have a widespread distribution, are common, and can be obtained from more than one source. Quartz outcrops everywhere in southeastern Massachusetts, and rhyolites, especially grey and black varieties, were carried as cobble by the glaciers a hundred miles south from their outcrops and are commonly found, along with quartzite and quartz, as cobble sin glacial till. Name-brand lithics include Melrose green rhyolites, Saugus Jasper, Pennsylvania Jasper, hornfels and New York cherts. These lithics are visually distinct and are restricted to small dikes in specific places. Ritchie sees the name-brand lithics as having the "potential to serve as useful markers of lithic procurement behavior of specific source areas that supplied material to native American groups" (Ritchie 2002: 107). The control of specific lithic sources by sachemships in the late prehistoric and early historic period is likely an example of the river basin territorial that has its roots in the Middle Archaic (Ritchie 2002: 107). This control may have replaced the long distance trade in exotic lithics such as Pennsylvania jasper and New York cherts that was common from the Late Archaic to Middle Woodland periods, perhaps reflecting the ongoing process of increased sedentism, decline in long distance interaction and differentiation of group territories (Goodby 1992: 3). An excellent example of group territories potentially affecting name-brand lithic distribution is the fact that in the Middleborough/ Bridgewater area, the north side of the Taunton River at the Native Settlement of Titicut, was under the control of the sachem of Massachusetts Bay, while the south side was not.

In the seventeenth century, the community of Agawam aligned themselves with the Massachuseuk of the Boston area against the settlers at Plymouth (Winslow 1624:37). This alliance may have been something that began in the Middle Woodland Period and continued into the Contact Period and is reflected in the lithic assemblage.

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Appendix A.
Artifacts from the Agawam/ Car-Tracks Site

Transect A

A-1

10-20 cm

2 quahog shell fragments .8g

5 railroad cinder .4g

1 (2 frags) possible grit-tempered pottery .3g, small

20-30 cm

1 quahog shell fragment .6g

1 whelk columnella 2.5g

5 railroad cinder .6g

1 coal fragment 1g

1 translucent very fine-grained grey green quartzite trim flake .7cm

1 translucent very fine-grained mottled grey green and maroon quartzite secondary flake 2cm

2 very dark grey rhyolite secondary flakes 1cm

1 dark brown grey rhyolite secondary flake 1.5cm

1 tan rhyolite secondary flake .5cm

30-40 cm

1 possible granite with a quartz vein FCR fragment 61.7g 6cm

1 quartz shatter probably natural from above FCR 2 cm

1 railroad cinder .1g

A-2

0-10 cm

3 light green bottle glass machine made body fragments

1 railroad cinder <.1g

20-30 cm

2 railroad cinder .3g

1 dark purple rhyolite secondary flake 2.5cm

A-3

10-20 cm

1 iron nail or wire fragment 4.5cm

20-30 cm

1 iron nail or wire fragment 3cm

1 light purple rhyolite secondary flake 1.5cm

1 green grey rhyolite secondary flake 1.5cm

A-4

0-10 cm

1 cupreous nail with "26" stamped on head telegraph pole nail 3.3cm

2 railroad cinder 19.5g

1 light aqua blue vessel glass fragment machine made

1 coal fragment 3.6g

10-20 cm

2 light aqua blue vessel glass fragment machine made, one with "-ing" embossed on

outside

1 white quartz possible shatter 3cm

1 wire nail 6cm

2 railroad cinder .3g

20-30 cm

1 light aqua blue vessel glass fragment machine made

1 railroad cinder <.1g

Transect B

B-1

0-10 cm

1 clear liquor bottleneck and shoulders machine made "FRANKFORT DISTILLERIES/ LOUISVILLE/ KY/ BALTIMORE/ MD/ INCORPORATED" embossed on top of aluminum cap

10-20 cm

73 oyster shell fragments 50.7g

15 left (in) oyster shell hinges 22.7g

7 right (out) oyster shell hinges 15.3g

3 quahog shell fragments 8.3g

1 whelk columnella 1.3g

1 light green machine made vessel glass body frag

B-2

0-10 cm

6 quahog shell fragments 2.8g

1 railroad cinder .2g

1 tan quartzite trim flake 1cm

10-20 cm

13 quahog shell fragments 1 hinge 20.9g

7 oyster shell fragments 1.9g

4 soft shell clam fragments .9g

1 white quartz decortification shatter 2.4cm

1 calcined white small mammal scapula fragment .1g

20-30 cm

32 quahog shell fragments 47.2g

17 oyster shell fragment 2.2g

1 maroon and tan banded Saugus jasper secondary flake 2cm

1 dark purple grey rhyolite secondary flake 1.5cm

1 light pink purple rhyolite secondary flake .8cm

30-40 cm

2 oyster shell fragments .1g

B-3

0-10 cm

1 quahog shell fragment .7g

1 steatite bowl body fragment .3" thick 3.5 x 2.5cm

10-20 cm

1 brick fragment 2.8g
1 whelk columnella .1g
1 granite FCR 273.3g 2.5"

20-30 cm

4 quahog shell fragments 3.6g
1 whelk shell columnella 1.1g
1 green very fine grained quartzite secondary flake 1.3cm
1 white quartz secondary flake 1.3cm
1 steatite bowl fragment .3" thick 2.5 x 2cm

30-40 cm

11 quahog shell fragments 12.1 g
1 oyster shell fragment <.1g
1 graphite fragment .1g
1 clear quartz trim flake .7cm
1 quartz secondary flake 4.2cm
1 black rhyolite secondary flake 1.5cm

40-50 cm

1 quahog shell fragment .2g
1 green grey rhyolite trim flake 1cm

B-4

10-20 cm

3 quahog shell fragments 6.2g
1 oyster shell fragment <.1g
1 Saugus jasper secondary flake 2.3cm
1 white quartz secondary shatter 1.3cm

20-30 cm

3 quahog shell frags, 1 hinge 1.9g
1 white quartz secondary shatter 1.6cm

B-5

10-20 cm

1 quahog shell fragment .6g
1 smoky quartz secondary shatter .8cm
1 white quartz secondary shatter 1.55cm

20-30 cm

1 hand wrought nail bent into ?-shape 7cm
1 quartz secondary flake 1.5cm
1 quartz secondary shatter 1.3cm

30-40 cm

1 quartzite FCR 39.2g 4.5 cm

B-6

0-10 cm

1 coal fragment .8g
1 white quartz secondary shatter 2cm

10-20 cm

1 quartz thick secondary flake 4cm

20-30 cm

1 coal fragment 4g

Transect C

C-1

0-10 cm

2 quahog shell fragments 2.2g

3 oyster shell fragments 1 left (in) hinge 3.2g

10-20 cm

4 quahog shell fragments 4.2g

2 oyster shell fragments <.1g

1 whelk columnella .9g

20-30 cm

2 quahog shell fragments 1.8g

1 white quartz secondary shatter 1cm

C-2

0-10 cm

5 quahog shell fragments 2g

1 whelk columnella 1.3g

10-20 cm

12 quahog shell fragments 9.2g

1 Hornfels with tan cortex and grey spots secondary decortification flake 3cm

1 dark maroon Saugus jasper secondary flake 2.1cm

20-30 cm

1 whelk columnella 2.3g

C-3

10-20 cm

4 quahog shell fragments 3.4g

3 railroad cinder .4g

1 grey chert secondary flake 1.4cm

1 Hornfels secondary shatter 2.4cm

1 purple grey rhyolite trim flake 1.1cm

1 granite FCR 3.5 cm 12.4 g

20-30 cm

5 quahog shell fragments 1.4g

1 whelk columnella 1.2g

1 graphite fragment .5g

1 railroad cinder <.1g

1 flat aqua glass frag

1 undecorated pearlware frag

2 granite FCR fragments 28.4g 1.4, 4 cm

1 purple rhyolite trim flake .8cm

C-4
0-10 cm
    4 quahog shell fragments 2.2g
    1 granite FCR 74.5g 7.3 cm
10-20 cm
    1 whelk columnella 2.2g
    1 grey purple rhyolite secondary flake 2.4cm
20-30 cm
    1 quahog shell hinge 2.1g
    1 unidentified shell fragment .1g
    1 grey rhyolite secondary flake 1.4cm
C-5
20-30 cm
    1 quahog shell fragment .9g
    1 graphite fragment 2.1g
    3 quartz shatter fragments 1, 1.5, 1.5cm
    1 banded grey and dark grey rhyolite trim flake 1.3cm
    1 green grey rhyolite secondary flake .7cm
30-40 cm
    1 quartz secondary flake 1cm
    1 quartz shatter 2cm thick

Transect D
D-1
0-10 cm
    1 graphite fragment .3g
    2 quahog shell fragments 1.6g
    1 very dark grey rhyolite secondary shatter fragment 1.4cm
10-20 cm
    1 quahog shell fragment .2g
30-40 cm
    1 white quartz secondary flake 1cm
D-2
0-10 cm
    5 quahog shell fragments 1.1g
    1 granite FCR 9.3g 3.5 cm
    1 dark grey rhyolite secondary flake 1.3cm
10-20 cm
    1 quahog shell fragment .7g
    1 granite FCR 1.3g 1 cm
20-30 cm
    4 quahog shell fragments 2.8g
    1 whelk columnella .2g
    2 granite FCR 6.9g 1, 1.5cm

1 quartz secondary shatter 1.4cm
1 grey brown rhyolite trim flake 1cm

30-40 cm
3 charcoal fragments .6g
1 whelk shell fragment .2g
1 quahog shell fragment .2g
1 blocky quartz shatter 1.5cm

D-3

0-10 cm
2 quahog shell fragments 2.5g
1 dark grey rhyolite secondary cd 1.5cm

10-20 cm
6 quahog shell fragments 9.2g
1 shell-tempered pottery fragment 1cm
1 grey rhyolite decortification flake 2cm

20-30 cm
8 quahog shell fragments 3.4g
1 maroon purple rhyolite secondary cd 1.4cm
1 dark grey rhyolite secondary cd 2.3cm

30-40 cm
10 quahog shell fragments 2.6g
1 dark grey rhyolite secondary shatter 1.5cm
1 possible shell-tempered pottery fragment 1cm

40-50 cm
6 quahog shell fragments 1.6g
1 granite FCR 3g 1.5 cm
1 white quartz secondary flake, thick 4.5cm possible vein quartz

D-4

0-10 cm
2 quahog shell fragments 1.1g
1 quartz decortification shatter 1.5cm
1 dark grey rhyolite decortification shatter 1cm
1 dark grey rhyolite secondary flake 2cm
1 black Hornfels trim flake 1cm
1 shell-tempered pottery fragment 1cm

10-20 cm
10 quahog shell fragments 8.4g
1 granite FCR fragment 1cm, 1g
1 quartz secondary shatter 2.5cm
1 redware vessel fragment glaze missing

20-30 cm
1 quahog shell fragment .2g

1 granite FCR fragment 10.1g, 4.2cm

30-40 cm

1 quahog shell fragment .3g

D-5

0-10 cm

1 railroad cinder .1g

1 purple tan rhyolite secondary flake 1cm

10-20 cm

1 grey rhyolite secondary flake 2.7cm

30-40 cm

2 graphite fragment 4.7g, 3.3cm, .5cm

1 granite FCR 66.2g 5.5 cm

6 heavy grit-tempered pottery fragments 1 rim

2 grey rhyolite secondary flakes 1.5cm

1 clear quartz secondary flake 1.3cm

D-6

20-30 cm

1 green grey very fine grained quartzite secondary flake 1.5cm

D-7

10-20cm

1 undecorated pearlware vessel body frag

Transect E

E-1

0-10 cm

1 quahog shell fragment .2g

1 whelk shell columnella 1.2g

10-20 cm

3 granite FCR 61.7g, 3.7, 4.5, 4.4cm

1 unidentified shell fragment .1g

1 dark maroon purple rhyolite secondary flake 2cm

20-30 cm

1 whelk shell columnella 1g

2 granite FCR fragments 265.5g 6, 7.2cm

E-2

0-10 cm

1 white quartz secondary flake 1.8cm

1 steatite bowl rim shard .375" thick 3.5cm long

10-20 cm

2 quartzite FCR fragments 44.4g 3.5, 3.7cm

1 granite FCR fragment 4.3g 2cm

20-30 cm

1 graphite fragment 1.3g, 1.3cm
1 charcoal fragment .1g1 white quartz secondary shatter 1cm
1 grit-tempered pottery fragment with exterior paddle marks 1.8cm
1 rhyolite FCR fragment 187.7g 8.3cm
1 white quartz FCR fragment 73.3g 6.2cm

E-3

20-30 cm

1 possible quahog shell fragment .2g
1 very dark grey rhyolite secondary flake 1.3cm

30-40 cm

1 quahog shell fragment .2g

E-4

10-20 cm

1 graphite fragment with brown cortex .4g 1.1cm
1 unidentified shell fragment .1g
1 black Hornfels secondary decortification flake 1.45cm
1 dark grey rhyolite secondary flake 2.3cm

20-30 cm

1 graphite fragment .1g with brown cortex .7cm
1 quartz secondary flake .8cm
1 grey rhyolite secondary flake 1cm

30-40 cm

1 grit-tempered pottery fragment .5cm

E-5

20-30 cm

1 white quartz trim flake .6cm

30-40 cm

2 quahog shell fragments 1.7g
1 grey rhyolite secondary flake 2cm

E-6

20-30 cm

1 possible quahog shell fragment .1g
1 coal fragment 1cm .6g
1 green grey rhyolite secondary cd 1.7cm

30-40 cm

1 charcoal fragment <.1g
1 copper or brass scrap. cut triangular shaped 2.2 x 1cm

E-7

10-20 cm

1 graphite fragment 1.5g 2cm

30-40 cm

3 quahog shell fragments 1.2g
1 steatite bowl body fragment .32" thick 1.7cm
1 dark maroon purple rhyolite secondary flake 2.6cm

E-8
0-10 cm
1 dark grey and grey banded rhyolite secondary flake 1.2cm
20-30 cm
1 grey rhyolite trim flake .5cm

Transect F

F-1
0-10 cm
2 charcoal fragments .1g
1 quartz secondary flake 1g
1 very dark grey rhyolite secondary flake 1cm
10-20 cm
4 fragments FCR 15.7g
1 shell fragment unidentified .1g
20-30 cm
1 quartzite FCR 108.3g 6 cm
3 granite FCR 110.8g 1, 4.5, 5.1cm
2 unidentified shell fragments .3g
1 whelk shell columnella 1.2g
1 charcoal fragment <.1g
1 white quartz decortification shatter 1.5cm
1 steatite body fragment 1.1cm
1 dark maroon rhyolite secondary flake 1.5cm
1 grey green rhyolite decortification flake 1.3cm
30-40 cm
1 granite FCR fragment 23.2g

F-2
0-10 cm
3 quahog shell fragments .6g
1 quartz secondary flake 1cm
1 quartz secondary flake 1.7cm
1 quartz Levanna 3 cm long, 2 cm high, tip broken off, .5cm thick
10-20 cm
2 granite FCR 45.2g 1.5, 4.6cm
1 grey chert? secondary flake 1cm
1 charcoal .1g
1 green grey rhyolite secondary flake 1cm
2 quartz secondary flakes .5, .7cm
20-30 cm

1 whelk columnella 1.1g
1 grey green rhyolite cd 1cm
1 shell-tempered pottery frag

F-3
0-10 cm
1 quahog shell fragment .2g
10-20 cm
2 quahog shell fragments 3g

F-4
30-40 cm
1 quahog shell fragment .1g

F-5
0-10 cm
3 fragments clear modern vessel glass body frags

F-7
10-20 cm
2 quahog shell fragments .8g
1 grey rhyolite trim flake .7cm
20-30 cm
1 quahog shell fragment 2.8g
30-40 cm
3 quahog shell fragments 1g
1 whelk shell fragment .1g
2 unidentified shell fragments .3g

Transect G

G-1
0-10 cm
1 quahog shell fragment 1g
1 quartz secondary flake 1cm
1 mottled purple pink rhyolite secondary flake 1cm
1 very dark grey quartzite secondary flake .8cm
1 green chert secondary flake utilized on one edge, rounded 1.5cm
10-20 cm
3 whelk frags, 1 columnella 3.3g
4 quahog fragments 1.5g 1 hinge
2 unidentified shell fragments .3g
1 quartz shatter fragment 1cm
1 mottled purple and pink rhyolite trim flake .7cm
20-30 cm

1 unidentified shell fragment .2g
1 quartz shatter .5cm
1 quartz secondary flake 1cm
1 grey with very dark grey spots rhyolite secondary flake 2.1cm

30-40 cm

1 granite FCR 162.9g 7.2 cm
1 tan quartzite secondary flake 1.3cm

G-2

0-10 cm

- 1 charcoal fragment .1g
- 1 whelk columnella 2.3g
- 1 quahog shell fragment 1.9g
- 1 quartz secondary flake 2cm
- 1 quartz secondary shatter 1.5cm
- 1 dark grey rhyolite trim flake 1cm
- 1 grey green quartzite secondary flake 1.2cm
- 1 maroon brown rhyolite secondary flake 1.1cm

10-20 cm

- 1 possible quahog shell fragment .1g
- 1 dark grey possible mudstone secondary flake 1 cm
- 1 dark grey rhyolite trim flake .5cm
- 1 quartz decortification shatter 1cm

20-30 cm

- 1 piece granite FCR 7.5g
- 2 shell f rags unidentified .1g
- 1 grey green rhyolite secondary cd 1.3cm
- 1 purple rhyolite decortification cd 1.5cm
- 1 grey quartzite secondary cd 1 cm
- 1 black rhyolite trim flake 1.1cm
- 1 quartz secondary shatter 3.5cm
- 1 shell-tempered pottery interior fragment
- 1 grit-tempered pottery body frag

30-40 cm

- 5 shell-tempered pottery fragments
- 4 graphite fragments 1.2g 1, 1.2, 1.3, 1.4cm
- 3 black rhyolite secondary flakes 1, 1.5, 1.5cm
- 1 green grey rhyolite secondary shatter 1.6cm
- 1 very dark grey rhyolite secondary flake 1.6cm
- 1 granite FCR .9 cm
- 1 calcined medium mammal longbone frag

G-3

0-10 cm

- 4 charcoal fragments .5g
- 1 possible oyster shell fragment <.1g

10-20 cm

- 1 quartz secondary shatter 4cm
- 1 white quartz secondary flake .6cm
- 1 green grey rhyolite trim flake 1cm

G-4

0-10 cm
  1 clear modern vessel glass body fragment
10-20 cm
  1 quartz secondary flake/ blade struck from core 3.2cm long
  1 quartz secondary flake 1.5cm
  1 quartz secondary shatter 1cm
20-30 cm
  1 granite FCR 23.8g 5 cm
  2 fragments grit-tempered pottery rim shard
  2 fragments shell-tempered pottery
  1 charcoal fragment .1g
  1 quartz secondary flake 1.2cm
  1 purple grey rhyolite decortification flake 2.7cm
  1 green grey rhyolite secondary flake 1.7cm

Transect H
H-1
10-20 cm
  1 very rusted nail 5.5cm long no head
  1 graphite fragment .5cm .2g
  1 black possible rhyolite secondary flake 1cm no phenocrysts visible
  1 dark maroon rhyolite secondary flake 1.5cm
  1 light grey purple rhyolite secondary flake
  1 grit-tempered pottery fragment paddle marked exterior black possible paddle marked interior 1cm thick
  20-30 cm
    2 quahog shell fragments 2.4g
    1 graphite fragment .7g 1.5cm
    1 granite FCR 2.5 cm 4.4g
    1 very dark grey rhyolite secondary flake .7cm
    1 quartz shatter with cortex 3cm no crushing evident
    1 possible quartz FCR 1.5 cm 3.5g
    1 possible quartz flake .6cm
H-2
0-10 cm
  1 quahog shell fragment .5g
  1 graphite fragment .9g 1.4cm
  1 iron square nut 2cm
  1 quartz decortification flake 3cm
  1 tan siltstone secondary flake 1.3cm
  1 grey rhyolite secondary flake 1.4cm
10-20 cm
  5 quahog shell fragments 7.6g

1 grey quartzite secondary flake 1.5cm
1 green grey rhyolite secondary flake 1cm
1 dark purple grey rhyolite secondary flake 1.6cm
1 dark grey rhyolite secondary flake 1.2cm

20-30 cm

7 quahog shell fragments 4.9g
1 grit-tempered pottery fragment 1.1cm
1 very dark grey rhyolite secondary flake 1cm

30-40 cm

1 quahog shell fragment 2.6g
1 white quartz decortifcation flake 1.8cm
1 grey possible chert decortification flake 2.4cm
1 grey green quartzite secondary flake 1cm

H-3

0-10 cm

1 quahog shell fragment .2g

10-20 cm

1 charcoal fragment .1g

20-30 cm

1 quahog shell fragment .4g
1 graphite fragments 1.3g 1, 1.5cm
1 calcined flatbone fragment 1g
1 grey rhyolite secondary flake 4cm
1 dark grey purple very fine grained rhyolite secondary flake 1cm
1 dark grey rhyolite secondary flake 1.2cm

30-40 cm

1 shell-tempered pottery fragment 1
1 very dark grey rhyolite secondary flake 1.3cm

H-4

0-10 cm

7 charcoal fragments .5g
1 granite FCR fragment 3.4g 2.3cm
1 redware fragment with brown glaze
1 unidentified shell fragment .1g
5 grit-tempered pottery frags
1 shell-tempered pottery frag

H-5

0-10 cm

1 white quartz secondary flake 1.4cm

10-20 cm

2 quahog shell fragments .5g
1 shell-tempered pottery frag

20-30 cm
2 quahog shell fragments 3.9g
1 unidentified shell fragment .1g
30-40 cm
1 grey quartzite secondary flake 2cm
H-6
0-10 cm
3 granite FCR fragments 204g 3, 6, 8.3cm
1 calcined medium mammal bone fragment .1g
10-20 cm
1 (3 frags) calcined medium mammal flatbone fragment .1g

Transect I
I-1
0-10 cm
2 charcoal fragments .1g
4 quahog shell fragments 5.5g 1 hinge
10-20 cm
6 quahog shell fragments 5.8g
1 oyster shell fragment .2g
4 grey rhyolite secondary flakes .5, .5, .6, 1.5cm
1 granite FCR fragment 36.8g 4cm
I-2
10-20 cm
1 quahog shell fragment .2g
1 granite FCR 2.4g 2 cm
1 weathered light purple rhyolite trim flake .7cm
1 quartz trim flake .8cm
1 light grey quartzite secondary flake 1.5cm
20-30 cm
1 dark grey rhyolite secondary flake .7cm
30-40 cm
1 charcoal fragment .2g
2 graphite fragments .9g 1, 1.7g
1 dark green machine made bottle glass fragment body
1 quartz secondary shatter 1.4cm vein quartz
1 white quartz secondary flake 1.4cm
1 quartz secondary shatter 2.7cm vein quartz?
1 quartz secondary shatter 5.3cm vein quartz?
I-3
0-10 cm
8 charcoal fragments 8.5g recent
4 scallop shell fragments 1.4g recent

10-20 cm
- 3 charcoal fragments 1.3g
- 1 graphite fragment .3g 1cm
- 1 scallop shell fragment .1g
- 1 white quartz secondary flake .8cm
- 1 dark grey rhyolite secondary flake 2.7cm

20-30 cm
- 2 scallop shell fragments .4g

I-4

10-20 cm
- 1 brown machine made vessel glass body frag
- 1 dark purple grey rhyolite trim flake 1cm
- 1 unidentified shell fragment .1g

Transect J

J-1

0-10 cm
- 1 quartz Levanna 1 corner broken 1.8 x 2cm .4cm thick
- 2 quahog shell fragments , 1 hinge 1.8g
- 1 quartz biface fragment possibly Levanna corner 1.5cm long .5cm thick

10-20 cm
- 2 quahog shell fragments 1 hinge 1.1g
- 1 possible ground stone tool or pestle fragment 2.7cm rounded

J-2

0-10 cm
- 1 quartz secondary flake 1.5cm

10-20 cm
- 1 graphite fragment .4g 1.3cm
- 1 white crypto crystalline secondary flake with grey veins 1.55cm
- 1 grey rhyolite trim flake 1cm
- 1 light grey rhyolite secondary flake 1.4cm

20-30 cm
- 1 very dark grey chert drill tip 1.1cm

J-3

10-20 cm
- 1 quahog shell fragment 2.5g
- 3 dark grey rhyolite secondary flakes .5, 1, 1.4cm

J-4

0-10 cm
- 2 asphalt roof shingle fragments .4g
- 1 iron wire nail 4cm
- 1 graphite fragment 3.7g 2.3cm

10-20 cm

1 quartz secondary shatter 1cm
1 grey rhyolite secondary flake 1cm

20-30 cm

2 quahog shell fragments 3.3g

Excavation Units

EU 1

0-10 cm

NE

13 machine made solarized alcohol bottle glass fragments "WAR.." on one fragment (WARRANTED)

NW

1 quahog shell fragment .8g
1 graphite fragment .2g 1cm
1 grey brown rhyolite secondary flake 2.2cm
1 dark maroon purple rhyolite secondary flake 2.4cm

SW

1 quahog shell fragment hinge .8g
1 very dark grey rhyolite secondary flake 1.6cm

10-20 cm

NE

20 quahog shell fragments 10.2g
1 whelk columnella .6g
4 charcoal fragments .4g
1 graphite fragment .6g 1.8cm
2 granite FCR fragments 10.2g 2.4cm
1 aqua flat glass fragment probable window glass
3 machine made solarized alcohol bottle glass frags
1 shell-tempered pottery frag
1 white quartz decortification flake 2.7cm
1 white/ clear quartz secondary flake 1cm
1 tan mudstone decortification flake 3.5cm
1 grey argillite decortification flake 1.8cm
1 dark grey rhyolite secondary flake 1.5cm
1 very light grey rhyolite secondary flake 1.2cm

NW

11 quahog shell fragments 11.4g
1 whelk columnella .7g
1 granite FCR 450g 7 cm
2 white quartz shatter fragments 1.7, 1.8cm
1 smoky quartz core 5x5.8cm
1 black rhyolite secondary flake 1.2cm
1 blue willow pattern decorated whiteware fragment
1 grit-tempered pottery fragment

SE

5 granite FCR fragments 1.5, 1.5 ,3, 4.2, 5.8cm
1 grit-tempered pottery fragment
12 quahog shell fragments 1 hinge 15.6g

1 oyster shell fragment .2g
1 whelk columnella .7g
1 graphite fragment .3g 1.3cm
1 grey rhyolite secondary flake 1cm
1 light grey rhyolite secondary flake .9cm
SW
8 quahog shell fragments 13.2g
1 unidentified shell fragment .1g
2 charcoal fragment .2g
1 grey normanskill chert secondary flake .7cm
2 very dark grey rhyolite secondary flakes 1, 1.1cm
1 dark grey rhyolite secondary flake 1cm
1 clear quartz secondary flake .8cm
1 black normanskill chert secondary flake 1.3cm
1 shell-tempered pottery frag
30cmbs
2 granite FCR fragments 16.4g 1.9, 2.8cm
1 grey argillite secondary flake 1.3cm
4 charcoal fragments .2g
30cmbs Feature 1 NE west half
1 grey chert Orient Fishtail point unfinished 3.3cm long 1.4cm wide body, 1.2cm wide base,
.7cm thick body
20-30 cm
NE
6 charcoal fragments .5g
5 graphite fragments 2.1g 1, 1.4, 1.4, 1.6, 1.2cm
9 quahog shell fragments 8g
1 calcined mammal longbone fragment .1g
1 granite FCR fragment 334.1g 8.2cm
1 sandstone FCR fragment 210.5g 6.3cm
1 dark grey Normanskill chert secondary flake 2.1cm
1 white quartz biface fragment 1.4cm
1 white quartz secondary flake 1cm
2 very dark grey rhyolite secondary flakes 1, 1.1cm
1 grey rhyolite secondary flake 1.1cm
3 shell-tempered pottery frags
NW
1 granite FCR fragment 76.3g 5.8cm
2 quahog shell fragments 1.6g
2 whelk columnella fragments .7g
1 graphite fragment .1g .9cm
1 grit-tempered pottery fragment

SE
7 granite FCR fragments 188.8g 1.5, 1.8, 1.2, 2, 2.3, 5.3, 5.3cm
6 charcoal fragments .5g
1 rust fragment
4 graphite fragments 8.2g 1.6, 2.1, 2.2, 2.4cm
1 grey rhyolite secondary shatter 1.9cm
1 grey rhyolite secondary flake 1.1cm
1 white quartz secondary shatter 1.1cm blocky
1 white quartz decortification shatter 2.1cm
1 shell-tempered pottery fragment
SW
5 quahog shell fragments 6.2g
1 white quartz secondary shatter 2.1cm
1 grey green argillite secondary flake 2.4cm
30-35 cm Feature 1 east half
NE
2 granite FCR fragments 18.3g 2.4, 2.8cm
2 graphite fragments 2.3g 1.3, 3.1cm
2 charcoal fragments .3g
4 calcined mammal bone fragments .1g
2 grey clear quartz secondary flakes 1, 1.4cm
1 dark grey rhyolite secondary flake 1.3cm
1 very dark grey rhyolite secondary shatter 2.3cm
1 grit-tempered pottery frag
Soil Sample 30-35 cm Feature 1 east half
NE
52 charcoal fragments .9g
1 FCR fragment granite .8g 1,5cm
2 graphite fragments .1g .7, .8cm
1 clear quartz secondary flake .5cm
1 black cert trim flake .5cm
28 grit-tempered pottery frags
30-35 cm Feature 1 west half
NE
1 graphite fragment 3.2g 2.8cm
4 charcoal fragments .7g
35cmbd Feature 1 East half
NE
1 (9frags) grit-tempered pottery low fired
35-40 cm Feature 1 East half
NE
2 charcoal fragments .2g
Soil Sample NE E ½

65 charcoal fragments 1g
20 grit-tempered pottery frags
1 graphite fragment .2g 1.4cm
2 calcined mammal flatbone fragments .1g
1 very dark purple rhyolite secondary flake 1.7cm
1 clear quartz secondary flakes .7, 1cm
SE
1 dark purple grey rhyolite Small Stemmed point point complete 4.3 cm long, 1.8cm wide body, 1.5cm wide base .9cm thick
35-40 cm Feature 1 West half
NE
2 graphite fragments .5g 1, 1.4cm
1 very dark grey rhyolite secondary flake 1.4cm
2 grit-tempered pottery fragments
1 calcined mammal flatbone fragment .1g
40-45 cm Feature 1 East half
SE
1 granite FCR 83.9g 5 cm
1 graphite fragment .2g 1cm
4 charcoal fragments .4g
3 white/ clear quartz secondary flakes 1.2, 1.5, 2cm
NE Soil Sample
18 charcoal fragments .4g
3 granite FCR fragments 16.5g 1.2, 1, 3.5cm
1 grey chert secondary flake 1.1cm
1 graphite fragment .1g 1.2cm
2 white quartz secondary flakes .5, .7cm
1 clear quartz secondary flake .7cm
3 calcined mammal bone fragments .1g
NE
1 white/ clear quartz cobble, 2 flakes removed 12.2 x 7cm
40-45 cm Feature 1 West half
SE
1 white quartz shatter 1.2cm
45-50 cm Feature 1 East half
NE
1 white quartz secondary flake 1.1cm
Soil Sample 45-50 cm Feature 1 East half
4 charcoal fragments .1g
1 calcined mammal flatbone fragment .1g
7 grit-tempered pottery frags
1 white quartz secondary flake .7cm
45-50cm Feature 1 West half
NE

1 granite FCR 113.4g 7.7 cm
1 granite possibly fire affected cobble 11cm 600g

Excavation Units
EU 1E
0-10 cm
1 cupreous wire frag
2 sandstone FCR 22.5g 1.5, 3.4cm
3 granite FCR fragments 2.9g 1.3, 1.5, 1.6cm
1 grit-tempered pottery rag
3 shell-tempered pottery frags
4 quahog shell fragments 4.7g
15 recent charcoal fragments 1.5g
1 clear machine made bottle glass frag
1 grey rhyolite secondary flake 1cm
10-20 cm
4 granite FCR fragments 195.3g 2.5, 3.8, 5.3, 8cm
1 sandstone FCR fragment 10.4g 3.5cm
21 quahog shell fragments 1 hinge 16.8g
1 aqua flat glass fragment probably window glass
5 redware fragments glaze missing
2 shell-tempered pottery frags
1 white quartz core 4.6x3cm blocky
1 white quartz shatter fragment 2.3cm
2 white quartz secondary flakes .9, 1.6cm
3 grey rhyolite secondary flakes .9, 1.3, 2cm
1 grey green rhyolite secondary flake 1.4cm
1 purple grey rhyolite secondary flake 1cm
20-30 cm
17 quahog shell fragments 23.5g
1 whelk columnella fragment .5g
4 grit-tempered pottery frags
5 granite FCR fragments 424.6g .5, 1.4, 4.1, 4.8, 7, 7.5cm
1 quartzite FCR fragment 69.1g 3.5cm
2 charcoal fragments .1g
1 graphite fragment .5g 1.8cm
1 very dark grey rhyolite secondary flake 1.7cm
Soil Sample 30-35cm Feature 5
13 charcoal fragments .3g
2 graphite fragments .4g .6, .7cm
2 grit-tempered pottery frags
Soil Sample 30-35cm Feature 5 Pottery Concentration
86 grit-tempered pottery frags
30-35cm Feature 6

1 purple grey rhyolite secondary flake 2.9cm
6 grit-tempered pottery frags

Excavation Units
EU 1N
0-10 cm
11 solarized machine made bottle glass fragments
1 graphite fragment .5g 1.7cm
1 grey green argillite secondary flake 1.7cm
10-20 cm
6 granite FCR fragments 55.4g 1.2, 1.5, 1.8, 2.3, 3, 4cm
10 quahog shell fragments 1 hinge 4.2g
2 graphite fragments .6g 1, 1.4cm
2 flat aqua glass fragments possible window glass
2 white quartz shatter fragments 1, 1.7cm
2 white quartz secondary flakes .8, 1cm
6 charcoal fragments .4g
1 shell-tempered pottery frag
1 grey green argillite secondary flake 1cm
1 dark maroon purple rhyolite secondary flake 1.3cm
1 dark maroon purple secondary shatter 1cm
1 light purple grey rhyolite trim flake .8cm
1 grey green rhyolite secondary flake 1.2cm
1 white/ clear quartz Levanna mostly complete 3.8cm long 2.5cm wide ears broken off .8cm thick
20-30 cm
2 granite FCR 84.4g 3, 5.5cm
4 quahog shell fragments 2.4g
4 charcoal fragments .3g
1 white quartz shatter fragment 1.3cm
1 graphite fragment .4g 1.9cm
1 grey rhyolite secondary flake 2.2cm
1 dark grey rhyolite secondary flake 2.2cm
2 shell-tempered pottery frags
30-40cm
1 granite FCR fragment 3.8g 2.6cm
1 quahog shell fragment .2g
30-40cm Feature 4
18 charcoal fragments 1.4g
1 grit-tempered pottery frag

Excavation Units
EU 2
0-10 cm
NE

9 olive green machine made bottle glass frags
2 clear machine made bottle glass frags
1 oyster shell fragment .8g
41 railroad cinder 7.2g
NW
5 machine made clear bottle glass fragments "forbids.../this bo../" embossed on front
33 railroad cinder 4g
SE
20 railroad cinder 3.4g
2 quahog shell fragments .3g
1 oyster shell fragment .1g
SW
10 railroad cinder 2.3g
1 brown machine made bottle glass body frag
1 machine cut nail 8.2cm
4 quahog shell fragments 1.7g
2 quartz secondary flakes 1.1, 2.1cm
10-20 cm
NE
1 clear machine made liquor bottle glass fragments houlders neck
8 railroad cinder .8g
3 quahog shell fragments .9g
1 white quartz secondary shatter 1.9cm
1 grit-tempered pottery fragment
NW
3 railroad cinder .5g
10 quahog shell fragments 5.2g
1 oyster shell fragment .1g
1 dark maroon purple rhyolite secondary flake .8cm
3 dark grey rhyolite secondary flakes 1, 1.8, 2cm
1 grey quartzite decortification flake 1.5cm
1 tan grey fine grained quartzite secondary flake 1.3cm
1 white quartz secondary shatter 1.7cm
1 white quartz secondary flake 1.1cm
1 white/ clear quartz decortification shatter 2cm
1 white/ clear quartz secondary shatter 1.1cm
3 white/ clear quartz secondary flakes .8, 1.2, 2.5cm
2 shell-tempered pottery frags
SE
7 quahog shell fragments 9.5g
28 oyster shell fragments 2.5g
9 railroad cinder .9g
1 burned medium mammal bone fragment .3g
6 white/ clear quartz secondary flakes .7, .8, 1, 1.5, 1.7cm

3 dark maroon purple rhyolite secondary flakes 1, 1.1, 1.2cm
2 grey rhyolite secondary flakes 1.5, 1.5cm
SW
1 grey quartzite Lagoon missing tip 4.8cm long, 2.5cm at shoulders 1.2cm wide base .7cm thick
1 grey rhyolite core 5.1x 3.1x 3.1cm
3 quahog shell fragments 3.3g
1 oyster shell fragment .1g
2 railroad cinder .1g
1 white quartz secondary flake .8cm
3 white/ clear quartz secondary flakes .8, 1.5, 1.5cm
2 dark maroon purple rhyolite secondary flake 1.1, 1.2cm
1 tan quartzite secondary flake 1.1cm
1 grit-tempered pottery frag
20-30 cm
NE
1 white quartz Squibnocket Triangle missing ears 1.7 cm long 1.5 cm wide .5cm thick
44 oyster shell fragments 5 left in hinges 1 right out hinge 23.6g
2 quahog shell fragments .4g
3 railroad cinder .4g
1 white quartz shatter fragment 1.5cm
1 white quartz decortification shatter 1.5cm
1 white/ clear quartz secondary flake 1cm
1 maroon tan Saugus Jasper secondary flake 1.2cm
1 grey rhyolite secondary flake 1.1cm
2 black rhyolite secondary flakes 1.4, 1.5, 1.6cm
Soil Sample 20-30cm Feature 8
NE
232 oyster shell fragments 31 in hinges 22 out hinges 184.3g
1 soft shell clam fragment .2g
52 charcoal fragments .7g
3 railroad cinder .1g
6 land snails <.1g
10 unburned small fish vertebra <.1g
3 burned black small fish vertebra
9 small fish scales (herring?)
21 small fish cranial fragments (all small fish .1g)
2 larger fish cranial fragments <.1g
1 possible burned seed
SE
28 oyster shell fragments 1 hinge 6.7g
5 quahog shell fragments 1 hinge 7.7g
2 railroad cinder .2g
1 calcined mammal longbone fragment .1g
1 graphite fragment .3g 1.1cm

1 granite FCR fragment 2g 2.5cm
1 clear/ tan very fine grained quartzite secondary flake 1.1cm
1 grey rhyolite secondary flake 1.3cm
1 very dark grey rhyolite secondary flake 2.3cm
SW
6 oyster shell fragments 1 left in hinge 1.8g
11 quahog shell fragments 8.2g
1 granite FCR fragment 16.4g 3.1cm
1 railroad cinder .1g
1 grit-tempered pottery frag
1 white quartz shatter 3.5cm
2 white quartz secondary flakes 2.2, 2.4cm
1 white/ clear quartz decortification/ secondary shatter 3.2cm
1 white/ clear quartz secondary shatter 1.8cm
4 black rhyolite secondary flakes 1.4, 1.2, 1.2, 2.1cm
30-35cm Feature 8 East half
8 oyster shell fragments 1.5g
1 charcoal fragment .1g
Soil Sample 30-35cm Feature 8 East half
22 oyster shell fragments 1 out hinge 11.4g
4 forest snails <.1g
2 railroad cinder <.1g
3 unburned small fish vertebrae <.1g
3 burned black small fish vertebrae <.1g
1 calcined small fish fin ray <.1g
1 small fish cranial fragment <.1g
2 mammal flatbone fragments <.1g
1 calcined mammal longbone fragment <.1g
1 calcined turtle carapace fragment <.1g
2 carbonized seed fragments <.1g
3 clear quartz secondary flakes .4, 6, .8cm
1 shell-tempered pottery frag
2 grit-tempered pottery frags
100+ charcoal fragments .9g
Soil Sample 35-40 cm Feature 8 East half
8 oyster shell fragments 4.8g
1 quahog shell fragment 1.8g
56 charcoal fragments .6g
1 granite FCR 22.7g 4.3 cm
1 clear quartz secondary flake .7cm
1 grit-tempered pottery frag
2 calcined Turtle carapace fragments <.1g
2 calcined mammal fragments <.1g
1 fish cranial fragment <.1g

35-40 cm Feature 8 East half
1 burned mammal bone fragment 1g possibly cranial
1 burned turtle plastron fragment .1g
5 charcoal fragments .2g
7 quahog shell fragments 1.4g
1 oyster shell fragment .6g
35-40cm Feature 8 west half
7 charcoal fragments .1g
Soil sample 40-45cm Feature 8 west half
1 quahog shell fragment .8g
1 railroad cinder .1g
15 charcoal fragments .2g
40-45cm Feature 8 west half
1 oyster shell fragment .3g
Soil Sample 45-50cm Feature 8 West half
29 charcoal fragments .2g
1 possible hazel nut shell fragment <.1g
1 possible carbonized seed <.1g
1 medium mammal flatbone fragment .1g
16 railroad cinder .2g
45-50cm Feature 8 West half
1 graphite fragment .6g 1.3cm
1 charcoal fragment .1g
50-55cm Feature 8 west half
1 charcoal fragment <.1g

Excavation Units

EU 3

0-10 cm

NE

11 railroad cinder 2.6g
2 quahog shell fragments .5g 1 hinge

NW

1 iron railroad spike 13.7cm
13 railroad cinder 1.5g
2 graphite fragments 1.4g 1.2, 1.5cm

SE

10 railroad cinder 7.6g
1 quahog shell fragment .5g
1 white/ clear quartz secondary flake 1.2cm

SW

36 railroad cinder 7g
1 slag fragment 24.3g
1 brown machine made vessel glass fragment body
1 medium mammal longbone fragment .2g
5 railroad cinder .8g
1 tan quartzite decortification flake 4.9cm
1 grey quartzite decortification shatter 3.5cm
1 grey quartzite secondary flake .8cm
1 black Hornfels secondary flake .8cm
1 tan grey rhyolite secondary flake 1.1cm
1 green grey rhyolite secondary flake 2.1cm
1 very dark grey rhyolite secondary flake 1cm
1 very dark grey rhyolite secondary flake 2cm
1 grey rhyolite decortification shatter with flake scars 4.9cm
1 clear tan vein quartz shatter 2.5cm
1 blocky white/ clear quartz shatter 2.3cm
1 white/ clear quartz decortification flake 1.4cm
1 clear quartz secondary shatter 1.2cm
1 white quartz secondary flake 1.5cm
2 quahog shell fragments .5g
1 white quartz shatter .7cm

10-20 cm

NE

40 quahog shell fragments (3 hinges) 35.7g
1 whelk shell fragment .4g
3 soft shell clam fragments .3g
2 graphite fragments 4.7g 2.1, 2.2cm
1 grit-tempered pottery fragment
3 granite FCR 455.2g 3.1, 5.5, 10.3cm

1 burned mammal longbone fragment .2g

NW
92 quahog shell fragments 10 hinges 175.7g
7 oyster shell fragments 2.8g
9 soft shell clam fragments 1g
1 whelk columnella .3g
14 railroad cinder 1.9g
4 graphite fragments 7.6g .8, 1.1, 1.1, 3cm
2 black Hornfels secondary flakes .9, 1.2cm
1 white/ clear quartz secondary flake 1.3cm
1 purple grey rhyolite secondary flake 1.2cm
1 grey rhyolite secondary flake .9
1 dark grey rhyolite secondary flake 4.2cm
1 dark purple grey rhyolite decortification shatter 4.2cm
2 dark purple grey rhyolite secondary flakes 1.1, 1.4cm
1 grit-tempered pottery fragment
1 small mammal scapula burned .2g
1 small mammal mandible burned .5g
SW
68 quahog shell fragments 9 hinges 125.1g
2 whelk columnella 2.2g
13 soft shell clam fragments 1 umbo 1 chondrophore 2.7g
89 oyster shell fragments 4 out 3 in hinges 26.3g
1 grey quartzite decortification shatter 3.4cm
1 granite FCR 1.4g 1.5 cm
5 railroad cinders .8g
4 graphite fragments 1.7g 1, 1.1, 1.8, 2cm
2 white/ clear quartz decortification shatter 5.2, 1.7cm
2 white/ clear quartz secondary shatter 1.2, 1.3cm
3 white/ clear quartz secondary flakes 1.1, 1.1, 1.2cm
1 grey quartzite secondary shatter 1.6cm
2 black Hornfels secondary flake .7, 1.2cm
1 black chert secondary flake 1cm
1 grey green quartzite secondary flake 1.3cm
1 red brown rhyolite secondary flake 1.1cm
1 grey green chert secondary flake 1.9cm
2 dark grey rhyolite trim flakes .8, 1.1cm
1 purple grey rhyolite secondary flake 1.7cm
7 dark purple grey rhyolite secondary flakes .6, 1, 1, 1.7, 1.7, 1.2, 1.5cm
3 grit-tempered pottery frags
1 shell-tempered pottery frag
SE
7 whelk shell fragments 9.4g

9 quahog shell fragments 6.6g
2 oyster shell fragments 2 out hinges .8g
7 railroad cinder .9g
1 white/ clear quartz biface 5.6cm long
3 white quartz secondary shatter 1.1, 1.3, 1.4cm
4 white quartz secondary flakes .9, 1.2, 1.3, 1.3cm
1 very dark grey rhyolite secondary flake 2.1cm
3 dark grey rhyolite secondary flakes .8, 1, 1.6cm
20-30 cm
NE
1 whelk shell fragment 1g
23 oyster shell fragments 2 out hinges 7.3g
34 quahog shell fragments 4 hinges 24.5g
4 graphite fragments 11.9g 1.4, 1.5, 2.5, 2.8cm
1 flattened lead bullet-.22 cal 1.9g
1 tan grey quartzite decortification shatter 2.7cm
1 calcined small mammal cranial fragment .1g
2 grit-tempered pottery frags
6 granite FCR fragments 182.3g 1.8, 2.7, 3.3, 3.5, 4.2, 6cm
4 white/ clear quartz secondary shatter 1.1, 1.7, 2.2, 3.5cm
3 white/ clear quartz secondary flakes .8, 1.3, 1.9cm
1 green grey quartzite trim flake 1cm
1 light purple grey rhyolite secondary flake 1.3cm
1 purple grey rhyolite secondary flake 2cm
3 very dark grey rhyolite secondary flakes 1.1, .9, 1.3cm
1 black Hornfels secondary flake 1.2cm
NW
1 whelk shell fragment .2g
14 soft shell clam fragments 2 chondrophores 3.2g
45 oyster shell fragments 3 in hinges 11.2g
115 quahog shell fragments 13 hinges 154.4g
1 graphite fragment .3g 1cm
4 railroad cinder 1g
1 granite FCR 5.1g 3.4 cm
1 light tan rhyolite secondary flake 1.2cm
1 grey rhyolite secondary flake 3.7cm
2 very dark grey rhyolite secondary flakes 1.1, 1.2cm
1 white/ clear quartz decortification shatter 4.3cm
4 clear white quartz secondary shatter 1.5, 1.7, 1.3, 2.2cm
2 white/ clear quartz secondary flakes .9, 2cm
1 grit-tempered pottery frag
1 fish vertebra
SE
3 whelk frags, 1 whorl 3.4g

16 quahog shell fragments 1 hinge 8.3g
1 calcined mammal bone fragment .2g
2 white quartz secondary shatter 1.2, 4.1cm
5 clear quartz secondary shatter .8, .9, 1.1, 1.2, 1.2cm
4 white quartz secondary flakes .5, .9, 1.5, 2.6cm
1 clear quartz secondary flake 1cm
1 dark maroon rhyolite secondary flake 3.4cm
1 tan rhyolite secondary flake .9cm
2 purple grey rhyolite secondary flakes 1.1, 1.2cm
2 very dark grey rhyolite secondary flakes 1.7, 2.2cm
20-25cm Feature 9
SW
125 quahog shell fragments 15 hinges 273.8g
19 soft shell clam fragments 1 umbo 3.8g
109 oyster shell fragments 1 out hinge 38.7g
1 burned soft shell clam fragment .1g
2 grit-tempered pottery frags
3 granite FCR fragments 51.2g 2.2, 2.9, 3.7cm
1 railroad cinder .1g
2 medium mammal bone fragments .4g
2 calcined medium mammal bone fragments .4g
2 charcoal fragments <.1g
Soil Sample 20-25cm Feature 9
SW
1 boat shell (Crepidula fornicata) <.1g
4 whelk frags, 2 collumnella 1.2g
13 soft shell clam fragments 1 chondrophore 1.6g
71 quahog shell fragments 6 hinges 76.6g
65 oyster shell fragments 1 in hinge 23.1g
1 graphite fragment .3g 1cm
1 grey green chert possible Orient Fishtail base fragment 1.2cm long
3 railroad cinder .1g
1 forest snail
1 possible burned seed fragment <.1g
1 turtle shell carapace fragment .1g
1 small fish vertebra <.1g
2 bird longbone fragments <.1g
3 mammal flatbone fragments .1g
1 possible shell-tempered pottery fragment
13 charcoal fragments .2g
Soil Sample 25-30 Feature 9
SW
31 quahog hinges 386.2g
191 quahog shell fragments 360.1g

68 soft shell clam fragments 3 chondrophore 4 umbos 18.6g
1 boat shell Crepidula fornicata .1g
5 whelk shell fragments 4 columnella 7.3g
21 oyster in hinges 141.4g
19 oyster out hinges 36.8g
918 oyster shell fragments 296.3g
1 oyster shell fragment with ribbed mussel impressions on surface
7 burned oyster shell fragments .2g
4 ribbed mussel fragments .2g
8 turtle carapace fragments .7g
1 small mammal longbone possible humerus <.1g
16 mammal longbone fragments .4g
4 calcined mammal longbone fragments .2g
2 forest snails <.1g
26 small fish vertebrae .3g
4 herring scales
1 tautog tooth <.1g
2 medium fish cranial fragments .1g
8 small fish cranial fragments <.1g
2 graphite fragments <.1g .5cm
3 granite FCR fragments 112.9g 4.1, 5.2, 4.6cm
8 grit-tempered pottery frags
17 railroad cinder .4g
1 clear quartz secondary flake .5cm
3 white quartz shatter .7, .8, 1.2cm
1 dark purple grey rhyolite secondary flake 1.5cm
56 charcoal fragments .8g
25-30 Feature 9
SW
266 quahog shell fragments 36 hinges 371.8g
18 soft shell clam fragments 3 umbo 1 chondrophore 4.2g
2 burned soft shell clam fragments .2g
1 whelk columnella .3g
1 mud nassa .2g
144 oyster shell fragments 2 out 2 in hinges 47.4g
2 grit-tempered pottery frags
1 turtle shell fragment .5g
2 calcined mammal longbone fragments .4g
1 granite FCR fragment 6.7g 2.5g
1 railroad cinder .2g
1 charcoal fragment .1g
2 white quartz secondary shatter 2, 2.4cm
2 white/ clear quartz secondary shatter 1.5, 1.8cm
1 dark maroon rhyolite secondary flake 1.6cm

1 grey rhyolite secondary flake 4cm
6 very dark grey rhyolite secondary flakes 1.3, 1.2, 1.6, 1.4, 2.4, 3cm
NW
61 quahog shell fragments 6 hinges 107.1g
2 whelk shell fragments .7g
5 soft shell clam fragments .5g
1 burned oyster shell fragment .2g
37 oyster shell fragments 6g
1 grit-tempered pottery frag
1 quartz FCR fragment 5.3g 2.2cm
1 very dark grey rhyolite secondary flake 1.3cm
NE
15 quahog shell fragments 1 hinge 7.1g
6 oyster shell fragments 1.1g
Soil Sample 30-35cm Feature 9
SW
1 possible whelk shell fragment <.1g
9 quahog shell fragments 2 hinges 16.9g
6 soft shell clam fragments 1.4g
139 oyster shell fragments 3 in hinges 2 out hinges 58.7g
2 railroad cinder <.1g
2 charcoal fragments <.1g
3 small fish vertebra .1g
1 small fish cranial frag
2 mammal flatbone fragments burned grey <.1g
1 forest snail shell
Soil Sample 35-40cm Feature 9
SW
8 quahog shell fragments 1 hinge 25.7g
1 whelk shell fragment .1g
4 soft shell clam fragments 2 chondrophores 2.3g
137 oyster shell fragments 1 out hinge 7 in hinges 51.6g
1 boat shell Crepidula fornicata <.1g
4 ribbed mussel shell fragments .1g
5 charcoal fragments <.1g
3 forest snails
3 railroad cinder .1g
2 small fish vertebra .1g
1 mammal flatbone fragment .1g
1 small mammal incisor .1g
1 small mammal sacral vertebra <.1g
1 small mammal flatbone fragment <.1g
30-40cm
NE

28 quahog shell fragments 1 hinge 15.6g
1 whelk columnella .5g
3 oyster shell fragments 1g
1 grey quartzite decortification shatter 1.6cm
4 railroad cinder .5g
1 graphite fragment .2g .8cm
3 grit-tempered pottery frags
30-35cm Feature 9
SW
10 quahog shell fragments 5.3g
18 oyster shell fragments 5.4g
1 granite FCR fragment 86.9g 5.6cm
1 graphite fragment 4.3g 2.8cm
1 Hornfels secondary shatter 1.5cm
1 grey green rhyolite secondary flake 1.4cm
12 white/ clear quartz secondary shatter 4cm
2 grit-tempered pottery frag

Excavation Units
EU 4
0-10 cm
NW
1 white quartz Squibnocket Triangle L: 1.3cm W: 1.6cm T: .35cm
1 granite FCR 44.3g 6.8 cm
5 railroad slag fragments 2.3g
1 graphite fragment 1.7g 2cm
1 white quartz shatter fragment 1cm
1 almost clear quartz secondary flake 1.35cm
1 very dark grey rhyolite secondary flake 1.2cm

SE
4 railroad slag 45.6g
1 brown machine made vessel glass probable bottle recent body frag
SW
2 railroad slag 93.9g
10-20 cm
NW
5 white vein quartz shatter blocky 2.3, 2.7, 3.4, 5.5, 6.1cm
5 white vein quartz secondary flakes .8, 1, 1.3, 1.5, 1.9cm
2 grey/ clear quartz shatter 1, 1.4cm
3 white/ clear quartz secondary flakes .7, 1, 1.5cm
1 grey rhyolite secondary flake 1.9cm
1 very dark grey rhyolite secondary flake 1.1cm
1 black rhyolite secondary flake 1.2cm

2 graphite fragments .5g, 1.1, 1.3cm
8 quahog shell fragments 7.5g 1 hinge
1 shell-tempered pottery fragment .5cm thick
SW
1 granite FCR 174.1g 6 cm
11 quahog shell fragments 6.5cm
3 graphite fragments .7g 1.3, 1, 14cm
1 grit-tempered pottery fragment
1 tan/ white fine grained quartzite secondary flake 2cm
1 white quartz shatter .8cm
1 clear quartz shatter 1.5cm
2 white quartz secondary flakes .8cm
1 clear quartz secondary flake 1.1cm
1 burned grey rhyolite secondary flake (?) with spalling 1.3cm
1 weathered purple grey rhyolite secondary flake 1.6cm
1 grey rhyolite secondary flake 1.2cm
1 grey quartzite secondary flake 1.7cm
1 black rhyolite secondary shatter 1.6cm
2 dark grey rhyolite secondary flakes 3.2, 1.4cm
SE
54 quahog shell fragments 1 hinge 35.2g
4 whelk collumnella fragments 3.8g
3 oyster shell fragments 1 in hinge .3g
2 calcined mammal longbone fragments .1g
1 calcined turtle shell carapace fragment .1g
1 calcined possible sea robin cranial fragment .1g
4 railroad cinder .3g
1 mudstone FCR fragment 3 cm 5.6g
4 graphite fragments 1.5g 1, 1, 1.2, 2cm
1 black Hornfels secondary flake 2.3cm
1 green grey rhyolite secondary flake 1.1cm
1 dark grey chert blade- tip and midsection probable Orient Fishtail
1 dark maroon Saugus jasper shatter secondary 3.5cm
1 very dark grey rhyolite secondary flake 1cm
1 dark brown purple rhyolite secondary flake 2.1cm
1 very dark grey quartzite secondary flake 1cm
1 very dark purple grey rhyolite secondary flake 1cm
5 white/ clear quartz secondary shatter 1, 1, 1.5, 1.4, 2cm
1 smoky quartz secondary shatter 2cm
1 white quartz secondary flake 1.7cm
2 white/ clear quartz secondary flakes 1.1, 1.2cm
1 light tan quartzite secondary shatter 1.7cm
1 grey quartzite secondary flake 1cm
20-30 cm

NW

3 charcoal fragments .1g
1 graphite fragment .2g .5cm
6 grey/ clear vein quartz possibly natural shatter very grainy 1.1, 1.1, 1.6, 2.2, 2.6, 3.2cm
1 white/ clear quartz shatter blocky 1.7cm
1 black rhyolite secondary flake 1.1cm
8 quahog shell fragments 1 hinge 8.6g
1 granite FCR fragment 4.7g 2cm
1 quartzite FCR fragment 66g 4.2cm
1 rhyolite FCR fragment 158g 8.8cm

SE

31 quahog shell fragments 2 hinges 21.2g
1 whelk columnella .4g
2 granite FCR fragments 240.3g 5.6, 6.3cm
2 graphite fragments 1.6g 1.4, 2.1cm
8 heavy grit-tempered pottery fragments 1 rim
1 white/ clear quartz secondary flake 1cm
4 very dark grey rhyolite secondary flakes .8, 1.2, 1.2, 1.3cm

SW

3 granite FCR fragments 188.1g 2.5, 4.5, 7.7cm
1 sandstone FCR 138.2g 5.8 cm
2 graphite fragments 1.1g 1.1, 1.6cm
7 quartz shatter fragments 1 with cortex 1.9, 1.7, 1.5, 1.1, 2.2, 1.8, 2.7cm
1 white quartz secondary flake 1cm
9 quahog shell fragments 8.7g
1 whelk columnella 1.2g
4 charcoal fragments .3g
4 medium mammal calcined longbone fragments .4g
1 grey rhyolite secondary shatter 1.4cm
2 grey rhyolite trim flakes 1, 1.1cm
1 very dark grey rhyolite secondary flake 1cm
1 black rhyolite secondary flake 1.1cm
1 grey quartzite decortification flake 2.7cm

25-30cm Feature 9

NW

28 quahog shell fragments 2 hinges 74.5g
120 oyster shell fragments 1 hinge 40.4g
1 whelk columnella 1g
2 calcined mammal longbone fragments .3g

SE

13 quahog shell fragments 1 hinge 12.2g
1 quartz FCR 5.3g 2 cm
2 granite FCR fragments 15.3g 2.4, 3.3cm
1 very dark grey rhyolite secondary flake 2cm

30-40 cm

NW

6 charcoal fragments .6g

5 oyster shell fragments .8g

SW

10 charcoal fragments 1g

2 quahog shell fragments .9g

1 grey rhyolite secondary flake

1 quartz secondary flake 1.7cm

Lithic Measurement Raw Data

Key:
Color: D= Dark Gy= Gray Bn= Brown Blk= Black Ppl= Purple T= Tan M= Maroon Vy= Very
Gn= Green L= Light Rd= Red C= Clear W= White
L x W is in centimeters
Thickness A/B refers to the thickness of the Bulb/ Flake thickness is in inches
Shape: D= divergent P= Parallel C= Convergent A= Amorphous
Scars refers to the number of flake scars on the surface of the flake
Orientation: Long= Longitudinal Lat= Lateral Perp= Perpendicular

Agawam Site Lithic Analysis **Rhyolite** Bulb/ Flake Attributes

Location	Color	L x W	Thick A/B	Shape	# Scars	Orient
A1-30	DGy	1.5x1.1c	.074/?	D	2	Long
Frag	DGy	1.3x1c	.044"			
Frag	DBnGy	1.5x1.5c	.098"	P?	3	Long
Frag	Tn	1x.6c	.048"			
A2-30	DPp	2.2x1.5c	.155/.14"	D	3	Long
A3-30 frag	LPp	1.2x.7c	.11"	D		
	GnGy	.7x1.3c	.07/.05	D	0	
B2-30 frag	DPpGy	1.5x.7c	.085"			
B3-40	Blk	1.2x1.7c	.09/ .65"	D	4	lat
B3-50	GnGy	1.05x1c	.082/.036"	D	3	Perp
C3-20	PplGy	.8x1.2c	.08/.065"	D	2	lat
C3-30	Ppl	1x.75c	.08/.05"	P	1	lat
C4-20	GyPpl	1/3x2.3c	.2/.085"	D	3	perp
C4-30	Gy	1.8x1.6c	.145/.15"	A	5	lat
C5-30	GyDkGy band	1.2x1.3c	.09/.035"	D	4	lat
frag	GnGy	.8x.9c	.09"			
D2-10 frag	DkGy	1.3x1c	.065"	A	2	long
D2-30	GyBn	1.1x.7c	.07/.06"	C	2	long
D3-10	DkGy	1.2x1.7c	.18/.08"	P	3	long
D3-20	Gy	2.2x1.5c	.22/.135"	C	2	long
D3-30	MPpl	1.2x1.5c	.115/.115"	D	2	long
frag	DkGy	1.6x2.1c	.12"	P	2	long
D4-10 frag	DkGy	1.9x1.2c	.14"	A	2	long
D5-10	PplTn	1x1.2c	.16/.05"	A	3	lat

D5-20	Gy	1.8x2.6c	.175/.25"	D	3	long
D5-40	Gy	1.3x1.3c	.13/.085"	P	2	long
frag	Gy	1x1.8c	.11"			
E1-20	DkMPpl	1.9x2.1c	.12/.085"	D	3	long
E3-30 frag	VyDkGy	.9x1.3c	.07"			
E4-20 frag	DkGy	1.5x2.2c	.12"	P		
E4-30 frag	Gy	1x.8c	.175"			
E5-40	Gy	1.8x1.9c	.28/.09"	P	2	long
E6-30	GnGy	2.2x1.9c	.245/.13"	P	2	long
E7-40	DkMPpl	2.4x1.9c	.19/.11	A	2	long
E8-10 frag	DkGy Gy	1.3x1.8c	.15"	A	2	long
E8-30 frag	Gy	.7x.7c	.035"			
F1-10	VyDkGy	1.1x.9c	.11/.065"	P	2	long
F1-30	DkM	1.5x1.3c	.105/.1"	P	2	long
	GyGn	1.2x1c	.12/.06"	P	2	long
F2-20 frag	GnGy	1.8x1.1c	.06"			
F2-30	GnGy	1.05x1.1c	.08/.08"	D	2	long
F7-20	Gy	.08x.08"	.065/.04"	D	1	lat
G1-10	PplPk	1.1x.07c	.1/.065"	P	2	long
G1-20	PplPk	.6x.9c	.11/.045"	C	1	long
G1-30	GyDkGy	2.7x2.5c	.25/.15"	P	5	long
G2-10	DkGy	.6x.9c	.7/.45"	D	1	?
	MBn	.7x1c	.4/.4"	D	2	long
G2-20 frag	DkGy	.5x.7c	.55"	P	1	long?
G2-30	GyGn	1.2x1.7c	.15/.21"	D	2	long
	Blk	1.1x.9c	.07/.05"	D	3	long
G2-40	Blk	1.6x.9c	.15/.04"	P	2	long
	VDkGy	1.8x.9c	.08/.06"	P	4	long
frag	Blk	1.5x.6c	.055"			
G3-20	GnGy	.7x1c	.065/.04"	D	2	long/lat
G4-30	PplGy	2.6x2.3c	.2/.18"	P	1	long
frag	GnGy	1.8x1.2c	.1"			
H1-20	Blk	1.2x1.7c	.17/.03"	A	1	lat
	DkM	.8x1.5c	.11/.105"	D	3	long
	LGyPpl	1x1.2c	.12/.075"	C	1	long
H1-30	VDkGy	.7x1.3c	.07/.065"	D	1	long

H2-10	Gy	1.5x.8c	.075/.075"	P	2	long
H2-30	VDkGy	1.2x.9c	.065/.085"	P	2	long
H2-40	Gy	1.2x1.5c	.25 bulb	D	2	long
	GnGy	.7x1c	.09/.055"	D	1	long
	DkPplGy	1.8x1c	.13/.06"	D	1	long
	DkGy	1x1.1c	.095/.065"	D	3	long
H3-30	Gy					
	DkGyPpl	1x1.2c	.085/.095"	P	2	long
	DkGy Gn	3x2.9c	.18/.1"	P	4	long
H3-40	VDkGy	1.3x.7c	.09/ .03"	P	2	long
I1-20 frag	Gy	1x.8c	.05"	C	2	Lat
	Gy	.9x.8c	.06/.015"	D	1	long
	Gy	.8x.7c	.1/.08"	P	2	long
	Gy	1.7x.8c	.11/.12"	P	2	long
I2-20 frag	LtPpl	.8x.7c	.055"			
I2-30	DkGy	1.1x.9c	.06/.025"	D	1	long
I3-20	DkGy	2.6x1.6c	.17/.085"	P	3	2long/lat
I4-20	DkPplGy	1.2x.8c	.07/.04"	P	3	long
J2-20	Gy	1x.7c	.055/ .025"	P	1	long
frag	LtGy	1.5x1.1c	.07"	P	2	long
J3-20 frag	DkGy	.7x1c	.105"	D	1	long
frag	DkGy	1.5x.7c	.095"	P	2	long
frag	DkGy	.6x1c	.065"	P	3	long
J4-20	Gy	1x1c	.12/.08"	P	2	long
1-10-NW frag	GyBn	2.4x1.9c	.16"		2	long
	DkMPpl	2.2x1.8c	.11/.07"	D	3	long
1-10-SW	VyDkGy	1.7x1.6c	.11/.055"	P	2	long
1-20-NE frag	DkGy	1.2x1.5c	.11"			
frag	VLtGy	1.2x1c	.065"			
1-20-SE	LtGy	.9x.8c	.1/.06"	P	1	lat
	Gy	.9x1c	.095/.06"	P	2	long
1-20-SW	VyDkGy	1x1.2c	.11/.06"	P	1	long
	VyDkGy	1x.7c	.045/.04"	P	1	long
	DkGy	.7x1c	.08/.035"	C	1	long
1-30-NE	VyDkGy	.7x.7c	.075/.045"	D	1	long
	VyDkGy	1.1x.7c	.065/.015"	P	1	long

	Gy	.9x1.1c	.065/.05"	D	2	lat
1-30-SE	Grey	.9x1.1c	.035/.03"	D	1	long
1-40-1-W	VyDkGy	1.1x1.3c	.065/.05"	D	2	long
1-40-1-E frag	VyDkPpl	.6x1.8c	.075"			
1E-10	Gy	.7x1.1c	.08/.065"	D	2	long
1E-20 frag	Gy	.7x.9c	.05"			
frag	Gy	1x1.4c	.08"			
	Gy	1.2x2c	.13/.14"	D	3	long
frag	GyGn	.6x1.4c	.065"			
	PplGy	1x.9c	.09/.05"	P	3	long
1E-30	VyDkGy	1.5x2c	.135/.085"	P	2	lat
1E-35-6	PplGy	2.6x2.9c	.255/.16"	P	2	long
1N-20	DkMPpl	.5x1c	.13/.045"	P	2	long
frag	DkMPpl	1.3x1.3c	.085"			
	LtPplGy	1x.8c	.075/.045"	D	1	long
	GyGn	1.1x1.2c	.145/.055"	P	2	long
1N-30	Gy	2.1x1.3c	.095/.1"	P	3	long
frag	DkGy	2.2x1.4c	.17"	P	3	long
2-20-NW	DkMPpl	.7x1c	.055/.03"	D	1	long
	DkGy	1.1x2c	.1/.08"	D	3	lat
	DkGy	.8x.9c	.045/.05"	D	2	long
	DkGy	1.2x1.6c	.065/.08"	D	3	lat
2-20-SE frag	DkMPpl	1x1c	.11"			
	DkMPpl	.9x1.5c	.135/.1"	D	3	lat
	DkMPpl	1.2x1.6c	.15/.06"	D	2	long
frag	Gy	1x1.5c	.1"			
frag	Gy	.8x1.1c	.11"			
2-20-SW	DkMPpl	.9x1.2c	.065/.035"	D	3	long
frag	DkMPpl	1.1x1.1c	.14"			
2-30-NE frag	Gy	.7x1.5c	.08"			
frag	Blk	1.5x1.4c	.135"			
frag	Blk	1.5x1.2c	.085"			
2-30-SE	VyDkGy	2.4x1.4c	.08/.12"	D	2	long
	Gy	1.2x1.3c	.13/.055"	D	1	long
2-30-SW	Blk	2.1x1.8c	.09/.12"	D	2	long
	Blk	1.1x1c	.1/.04"	D	2	long
	Blk	1.3x.9c	.11/.035"	P	2	long

	Blk	.9x1.2c	.045/.02"	D	1	long
3-10-SW frag	TnGy	1.1x.8c	.05"			
frag	GnGy	2x1.4c	.09"	P	2	long
	VyDkGy	.8x.7c	.045/.02"	D	2	long
	VyDkGy	1.8x1.4	.115/.06"	D	2	lat
3-20-NW frag	PplGy	1x1.2c	.075"	P	2	Perp
frag	Gy	1x1c	.045"			
3-30-9-SW	DkGy	4.1x4.6c	.335/.1"	D	5	perp
	DkPpl	.9x1.4c	.075/.09"	D	2	lat
frag	DkPpl	1.3x1.2c	.065"			
3-20-SW frag	RdBn	1.6x.9c	.1"			
frag	DkGy	1.2x.7c	.06"			
frag	DkGy	1x.6c	.09"			
frag	PplGy	1.2x.7c	.06"			
frag	PplGy	.7x1.1c	.07"			
frag	PplGy	.7x1.5c	.13"			
frag	PplGy	.6x.7c	.055"			
frag	PplGy	1.2x1.7c	.135"			
frag	PplGy	1x1c	.065"			
	PplGy	1.1x1.1c	.09/.045"	D	2	long
	PplGy	1.2x1.2c	.14/.045"	P	3	lat
3-20-SE	VyDkGy	1.5x2c	.15/.185"	P	3	long
	DkGy	1.4x1.7c	.17/.16"	P	2	lat
frag	DkGy	.8x.7c	.065"			
frag	DkGy	.7x.8c	.05"			
3-30-NE	LtPplGy	.7x1.3c	.07/.075"	D	1	lat
frag	PplGy	1.3x2	.255"			
frag	VyDkGy	1.4x1.1c	.125"			
frag	VyDkGy	1x1.2c	.09"			
frag	VyDkGy	.9x1.1c	.09"			
3-30-NW frag	VyDkGy	1.3x1.1c	.145"	P	2	long
3-30-NW	LTn	1.1x1.4c	.16/.12"	P	3	long
	Gy	3.3x3.4c	.43/.135"	D	3	long
	VyDkGy	.8x1c	.06/.05"	D	1	long
frag	VyDkGy	1x.7c	.05"			
3-30-SE	DkMrn	3.3x1.8c	.175/.065"	P	2	long
	Tn	.9x.9c	.065/.035"	D	1	long

	PplGy	1.2x1.3c	.1/.065"	D	2	long
	PplGy	.6x1.1c	.09/.045"	P	2	long
frag	VyDkGy	1.4x1.1c	.12"			
frag	VyDkGy	2.2x.8c	.085"			
3-30-9-SW	DkPpl	1.1x1.3c	.05/.055"	D	1	long
3-30-9-SW frag	DkM	2x1.6c	.16"			
	VyDkGy	3.2x2c	.215/.095"	D	5	1long 4 lat
	VyDkGy	1.5x1.2c	.13/.1"	D	2	long
frag	VyDkGy	1.3x1.2c	.075"			
frag	VyDkGy	1.2x1c	.06"			
frag	VyDkGy	2.4x1.6c	.16"			
frag	VyDkGy	1.4x1.1c	.065"			
3-35-9-SW	GyGn	1.2x1.4c	.065/.035"	D	2	long

Agawam Site Lithic Analysis **Rhyolite** Striking Platform Attributes

Location	Width	Thickness	Angle	Facets	% cortex
A1-30	.197"	.063"	45		
Frag					
Frag					
Frag					
A2-30	.341"	.14"	70		
A3-30 frag					
	.215"	.06"	62		
B2-30 frag					
B3-40	.35"	.103"	40		
B3-50	.275"	.9"	45		
C3-20	.345"	.085"	65		
C3-30	.18"	.05"	55		
C4-20	.265"	.16"	45		
C4-30	.36"	.11"	90		
C5-30	.26"	.09"	60		
frag					
D2-10 frag					
D2-30	.17"	.07"	45		
D3-10	.54"	.17"	45		
D3-20	.435"	.135"	45	1	50%
D3-30	.34"	.08"	90		

frag					
D4-10 frag					
D5-10	.32"	.08"	45		
D5-20	.5"	.18"	55		
D5-40	.33"	.115"	70		
frag					
E1-20	.31"	.09"	85		
E3-30 frag					
E4-20 frag					
E4-30 frag					
E5-40	.68"	.29"	60		
E6-30	.76"	.25"	65		
E7-40	.5"	.185"	70		
E8-10 frag					
E8-30 frag					
F1-10	.3"	.065"	60		
F1-30	.32"	.1"	70		
	.34"	.135"	45		
F2-20 frag					
F2-30	.14"	.07"	65		
F7-20	.13"	.05"	60		
G1-10	.21"	.11"	45		
G1-20	.39"	.105"	60		
G1-30	.385"	.115"	60		
G2-10	.25"	.65"	90		
	.17"	.3"	90		
G2-20 frag					
G2-30	.57"	.155"	45		
	.12"	.05"	50		
G2-40	.39"	.21"	45		
	.17"	.055"	60		
frag					
G3-20	.17"	.055"	45		
G4-30	.73"	.3"	60	1	25%
frag					
H1-20	.62"	.175"	70		
	.325"	.11"	**70**		

	.445"	.125"	65		
H1-30	.285"	.9"	75		
H2-10	.16"	.075"	90		
H2-20					
H2-30	.235"	.07"	65		
H2-40	.31"	.1"	80		
	.235"	.09"	90		
	.235"	.125"	60		
	.28"	.11"	85		
H3-30					
	.31"	.085"	55		
	.5"	.18"	70		
H3-40	.27"	.095"	70		
I1-20 frag					
	.29"	.065"	55		
	.21"	.1"	65		
	.12"	.09"	90		
I2-20 frag					
I2-30	.18"	.08"	40		
I3-20	.395"	.19"	65		
I4-20	.25"	.075"	60		
J2-20	.2"	.08"	45		
frag					
J3-20 frag					
frag					
frag					
J4-20	.32"	.105"	65		
1-10-NW frag					
	.25"	.075"	60		
1-10-SW	.48"	.12"	80	1 plat	100%
1-20-NE frag					
frag					
1-20-SE	.165"	.095"	50		
	.27"	.095"	80		
1-20-SW	.38"	.115"	60		
	.155"	.04"	75		
	.37"	.11"	55		

1-30-NE	.235"	.08"	50		
	.17"	.065"	60		
	.16"	.06"	60		
1-30-SE	.195"	.05"	75		
1-40-1-W	.165"	.07"	45		
1-40-1-E frag					
1E-10	.285"	.07"	60		
1E-20 frag					
frag					
	.545"	.13"	80		
frag					
	.225"	.08"	80		
1E-30	.47"	.09"	75		
1E-35-6	.84"	.255"	75	1	30%
1N-20	.37"	.13"	90		
frag					
	.19"	.095"	70		
	.38"	.155"	85		
1N-30	.245"	.09"	75		
frag					
2-20-NW	.24"	.065"	45		
	.32"	.1"	45		
	.16"	.05"	80		
	.27"	.06"	60		
2-20-SE frag					
	.255"	.09"	85		
	.36"	.15"	50		
frag					
frag					
2-20-SW	.255"	.065"	55		
frag					
2-30-NE frag					
frag					
frag					
2-30-SE	.2"	.08"	70		
	.18"	.14"	75		
2-30-SW	.215"	.075"	80		

	.225"	.105"	80		
	.235"	.115"	65	1 plat	100%
	.235"	.045"	70		
3-10-SW frag					
frag					
	.105"	.045"	70		
	.215"	.095"	60		
3-20-NW frag					
frag					
3-30-9-SW	.985"	.265"	70		
	.205"	.075"	50		
frag					
3-20-SW frag					
frag					
frag					
frag					
frag					
frag					
frag					
frag					
frag					
	.38"	.1"	75		
	.405"	.135"	45		
3-20-SE	.36"	.155"	85		
	.455"	.18"	60		
frag					
frag					
3-30-NE	.315"	.09"	40		
frag					
frag					
frag					
frag					
3-30-NW frag					
3-30-NW	.42"	.175"	75		
	.345"	.345"	60		
	.185"	.055"	65		

frag					
3-30-SE	.36"	.135"	60		
	.165"	.085"	45		
	.29"	.105"	50		
	.2"	.095"	45		
frag					
frag					
3-30-9-SW	.15"	.05"	75		
3-30-9-SW frag					
	.415"	.2"	60		
	.145"	.075"	70		
frag					
frag					
frag					
frag					
3-40-NE					
3-35-9-SW	.175"	.07"	50		

Rhyolite

D1-10 very dark grey rhyolite shatter
- L x W: 1.2x1.4cm
- Thickness: .395"
- Cortex: on one face
- Shape: roughly pyramidal

D3-40 dark grey rhyolite shatter
- L x W: 1.6x.6cm
- Thickness: .2"
- Cortex: none
- Shape: roughly triangular

D4-10 dark grey rhyolite shatter
- L x W: 1x1.1cm
- Thickness: .14"
- Cortex: one surface small amount
- Shape: roughly square

G2-30 purple rhyolite decortification shatter
- L x W: 1.5x1cm
- Thickness: .15"
- Cortex: 1/3 or surface
- Shape: roughly triangular pyramidal

G2-40 Black rhyolite shatter
- L x W: 1x.6cm

Thickness: .19"
Cortex: none
Shape: roughly triangular pyramidal

EU1-30-SE
1 grey rhyolite secondary shatter
L: 1.9cm
W: 1.3cm
T:.5cm
Cortex: none
Shape: roughly rectangular tabular

EU1-35-1-NE
1 very dark grey rhyolite secondary shatter
L: 2.4cm
W: 1.5cm
T: 1.1cm
Cortex: none
Shape: roughly triangular blocky

EU3-10-SW grey rhyolite decortification shatter with flake scars
L: 4.9cm
W:4.3cm
T:1.9cm
Cortex:1 face cobble curved
Shape: roughly triangular
flake scar number: 2
flake scar size 3.4x2.2cm, 2.5x2.5cm
flake scar angle: 80

EU3-20-NW 1 dark purple grey rhyolite decortification shatter
L: 4.2cm
W:4.5cm
T:2.1cm
Cortex:1 face cobble curved
Shape: roughly triangular
flake scar number: 3
flake scar size 1.7x2.9, 1.3x1.2, 4x4.7cm
flake scar angle: 65, 60, 90
split beach/ outwash cobble split longitudinally with bipolar percussion

Agawam Site Lithic Analysis **Quartz** Bulb/ Flake Attributes

Location	Color	L x W	Thick A/B	Shape	# Scars	Orient
B3-30	W	1.3x.9c	.12/.1"	D	1	Long
B3-40	C/W	.9x.7c	.045"	P	3	Long
B3-40	W	3.8x3.2c	.277/ .2"	P	2	Long
B5-30	W	1.8x1.7c	.19/.15"	D	2	long
B6-20	W/C	3.7x2.5c	.51/ .5"	P	3	long
C5-40	W/C	1.9x.95c	.23/.1"	P	2	long
D1-40	W	.8x1c	.17/.05"	P	2	lat
D2-30	W/C	1.4x.8c	.16/.09"	P	2	long
D3-50	W	2.5x4.1c	.35/.36"	D	2	Lat
D5-40	W/C	.8x1.3c	.15/.06"	D	2	lat
E2-10	W/C	1.5x1.2c	.135/.125"	P	2	long
E4-30 frag	W/C	.9x.7c	.085"			
E5-30	W/C	.7x.9c	.085/.08"	P	2	long
F1-10	W/C	1.1x1.2c	.08/.055"	P	3	lat
F2-10	W/C	1.6x1.8c	.22/.13"	P	2	long
	W/C	1.1x.7c	.085/.05"	C	2	long
F2-20	W/C	1x1.3c	.11/.13"	D	3	lat
	W/C	1x1c	.06/.06"	P	2	long
G1-10	W/C	.9x1.2c	.15/.75"	P	2	long
G1-30	W/C	.7x1c	.1/.035"	D	2	lat
G2-10	W/C	1.9x2c	.25/.15"	D	2	lat
G3-20 frag	W/C	.7x.6c	.105"		2	
G4-20	W/C	3.2x1.7c	.37/.25"	P	2	long
G4-30 frag	W/C	1.2x1c	.13"	P	3	lat
H2-10	W/C	1.6x2.8c	.17/.125"	P	2	lat
H2-40	W/C	1.6x1.5c	.18/.045"	D	1	long
H5-10	W/C	1.2x1.6c	.11/.125"	D	2	lat
I2-20	W/C	.7x.8c	.075/.035"	P	1	long
I2-40	W/C	1.2x.7c	.105/.095"	P	1	long
I3-20 frag	W/C	.9x.8c	.05"	P	1	
J2-10	W/C	1.4x1.2c	.155/ .065"	P	2	long
1-20-NE	W/C	2.7x2.1c	.325/.105"	C	1	long
	W/C	1x.9c	.075/.035"	P	2	long
1-20-SE						

1-20-SW frag	W/C	.8x.9c	.07"			
1-30-NE	W/C	.7/1c	.065/.045	D	1	lat
1-35-1-NE	C	1x1cm	.1/.05"	D	2	long
	C	1.5x1c	.11/.075"	D	1	long
1-35-1-E	C	.5x.6c	.07/.03"	D		
1-40-1-E frag	C	.05x1cm	.045"			
frag	C	.5x.4c	.055"			
1-45-1-NE frag	C	.7x.4c	.045"			
frag	C	.7x.6c	.08"			
frag	W	.5x.3c	.045"			
1-45-1-E	W/C	2x1.6c	.19/.115"	P	2	long
1-45-1-E	W/C	1.6x1.4c	.19/.115"	D	3	lat
1-45-1-E	W/C	1.3x.9c	.1/.09"	P	3	long
1-50-1-NE	W	.8x1.1c	.15/.065"	C	1	lat
1-50-1-E	W	.6x.7c	.06/.05"	D	2	long
1E-20	W	1.2x1.4c	.11/.04"	C	1	lat
	W/C	.9x1c	.17/.065"	C	1	lat
1N-20 frag	W/C	.9x1c	.05"			
	W/C	.6..8c	.13/.07"	D	2	long
2-10-SW frag	W/C	1.5x1.9c	.15"	D		
frag	W/C	.9x1c	.09"	P	2	long
2-20-NE						
2-20-NW	W	1x.8c	.155/.09"	P	2	long
	W/C	.7x.8c	.17/.15"	D	1	lat
	W/C	1.1x1c	.11/.08"	D	1	long
	W/C	2.6x2.9c	.3/.205"	D	3	lat
2-20-SE	W/C	1.8x1.5c	.13/.11"	D	3	long
	W/C	1x1c	.065/.04"	D	1	lat
frag	W/C	1x1.4c	.1"			
frag	W/C	.7x.8c	.07"			
frag	W/C	.8x.7c	.065"			
2-20-SW	W	.9x.9c	.09/.075	D	2	lat
	W/C	1.5x1.6c	.15/.1c	D	2	lat/ long
frag	W/C	1x1.7c	.125"			
2-30-NE	W/C	.,8x1c	.13/.055"	D	1	lat
2-30-SW frag	W	2.4x1.9c	.32"			
	W/C	2.5x3.3c	.58/.195"	C	2	long

2-35-8-E frag	C	.4x.3c	.02"			
frag	C	.6x.4c	.055"			
frag	C	.7x.6c	.12"			
2-40-8-E frag	W/C	.6x.7c	.02"			
3-10-SE	W/C	1.6x1.2c	.25/.07"	P	1	lat
3-10-SW	W/C	1.3x1.5c	.22/.07"	P	2	long
	W	1.4x.9c	.175/.1"	P	1	long
3-20-NW frag	W/C	1.2x.8c	.115"			
3-20-SW	W/C	1.1x1.2c	.125/.04"	P	2	long
frag	W/C	.7x1c	.11"			
frag	W/C	1.1x.6c	.085"			
3-20-SE	W	.7x1c	.1/.05"	D	2	lat
	W	.7x1c	.085/.04"	D	3	lat
frag	W	.8x.7c	.095"			
frag	W	1.2x.7c	.075"			
3-30-NE	W/C	1.9x1c	.13/.085"	D	0	NA
frag	W/C	1.3x.8c	.115"			
frag	W/C	.9x.7c	.035"			
3-30-NW frag	W/C	.7x.9c	.075"			
frag	W/C	1.5x.5c	.165"			
3-30-SE	W	2.4x2.7c	.21/.135"	D	5	3long, 2 lat
frag	W	1.5x1c	.125"			
frag	W	1x.8c	.15"			
frag	W	.7x.7c	.125"			
frag	C	.7x.7c	.09"			
3-30-9-SW frag	C	.6x.5c	.055"			

Agawam Site Lithic Analysis **Quartz** Striking Platform Attributes

Location	Width	Thick	Angle	Facets	% Cortex
B3-30	.265"	.12"	45		
B3-40					
B3-40	.82"	.22"	80		
B5-30	.365"	.185"	45		
B6-20	.865"	.41"	90		

C5-40	.305"	.19"	80		
D1-40	.325"	.15"	45		
D2-30	.325"	.17"	65		
D3-50	.67"	.3"	90		
D5-40	.375"	.13"	50		
E2-10	.5"	.12"	60		
E4-30 frag					
E5-30	.18"	.08"	80		
F1-10	.35"	.075"	60		
F2-10	.72"	.23"	60		
	.3"	.075"	45		
F2-20	.33"	.12"	55		
	.3"	.075"	65		
G1-10	.33"	.145"	70		
G1-30	.21"	.09"	70		
G2-10	.25"	.21"	50		
G3-20 frag					
G4-20	.64"	.34"	70		
G4-30 frag					
H2-10	.395"	.11"	85		
H2-40	.375"	.185"	60	1	30%
H5-10	.31"	.1"	50		
I2-20	.21"	.075"	85		
I2-40	.155"	.08"	50		
I3-20 frag					
J2-10	.405"	.17"	50		
1-20-NE	.79"	.335"	65	1 plat	100%
	.18"	.06"	65		
1-20-SE					
1-20-SW frag					
1-30-NE	.185"	.065"	65		
1-35-1-NE	.19"	.065"	65		
	.18"	.095"	65		
1-35-1-E	.19"	.065"	70		
1-40-1-E frag					
frag					
1-45-1-NE frag					

frag					
frag					
1-45-1-E	.515"	.195"	65		
1-45-1-E	.365"	.195"	70		
1-45-1-E	.23"	.075"	65		
1-50-1-NE	.45"	.125"	60		
1-50-1-E	.145"	.045"	50		
1E-20	.55"	.165"	50		
	.405"	.18"	90		
1N-20 frag					
	.22"	.115"	75		
2-10-SW frag					
frag					
2-20-NE					
2-20-NW	.25"	.135"	60		
	.145"	.07"	60		
	.3"	.12"	60		
	.595"	.315"	70		
2-20-SE	.28"	.1"	45		
	.17"	.06"	50		
frag					
frag					
frag					
2-20-SW	. 22/.225"	.095/ . 075"	60		
	.295"	.15"	60		
frag					
2-30-NE	.285"	.145"	50		
2-30-SW frag					
	.72"	.42"	90		
2-35-8-E frag					
frag					
frag					
2-40-8-E frag					
3-10-SE	.46"	.265"	60		
3-10-SW	.41"	.23"	70	1	100%
	.31"	.17"	65		

3-20-NW frag					
3-20-SW	.375"	.115"	70		
frag					
frag					
3-20-SE	.3"	.1"	45		
	.35"	.105"	50		
frag					
frag					
3-30-NE	.235"	.12"	60		
frag					
frag					
3-30-NW frag					
frag					
3-30-SE	.305"	.15"	50		
frag					
frag					
frag					
frag					

Quartz

A4-20 white quartz shatter
L x W: 2.7 x 2.4cm
Thickness: .45" thick
Cortex: cortex with some pitting on 1 side
Shape: triangular blocky

B2-20 white quartz decortification shatter
L x W: 2.25 x 1cm
Thickness: .4" thick
Cortex: cortex with some pitting on 1 side
Shape: square blocky with tapering lateral edge

B4-20 white quartz shatter
L x W: 1.4x1cm
Thickness: .21"
Cortex: None
Shape: rectangular

B4-30 white quartz shatter
LxW:1.7x1.1cm
Thickness: ..33"
Cortex: None
Shape: roughly rectangular

B5-20 white quartz shatter
L x W: 1.5x1.15cm

Thickness: .21"
Cortex: None
Shape: triangular

B5-20 smokey quartz shatter
L x W: .9x.95cm
Thickness: .195"
Cortex: None
Shape: roughly square, 1 crystal plane present

B5-30 white quartz shatter
LxW:1.5x1.4cm
Thickness: .215"
Cortex: None
Shape: roughly triangular

B6-10 white quartz shatter
L x W: 1.7x1.3cm
Thickness: ..425"
Cortex: None
Shape: roughly triangular

C1-30 white quartz decortification shatter
L x W: 1.2x1cm
Thickness: .185"
Cortex: curved 1 surface 100% on that surface
Shape: roughly triangular

C5-30 clear quartz shatter very grainy
L x W: 1.8x.7cm
Thickness: .175"
Cortex: None
Shape: roughly triangular

C5-30 clear quartz shatter very grainy
L x W: 1.7x.7cm
Thickness: .115"
Cortex: None
Shape: roughly triangular

C5-30 clear quartz shatter very grainy
L x W: 1.2x1.4cm
Thickness: .18"
Cortex: None
Shape: roughly rectangular

C5-40 clear quartz shatter
L x W: 1.2x.6cm
Thickness: .13"
Cortex: None
Shape: roughly triangular

D2-40 White/ clear quartz shatter
L x W: 1.5x1.6cm
Thickness: .54"

Cortex: None
Shape: roughly rectangular/ pyramidal

D4-10 white clear quartz shatter
L x W: 1.8x1.3cm
Thickness: .31"
Cortex: on one surface curved cobble
Shape: roughly triangular

D4-20 white quartz shatter
L x W: 2.5x1.2cm
Thickness: .25"
Cortex: none
Shape: roughly triangular

E2-30 white quartz shatter
L x W: .8x.9cm
Thickness: .15"
Cortex: none
Shape: roughly triangular

F1-30 white quartz shatter
L x W: 1.5x1.3cm
Thickness: .27"
Cortex: none
Shape: roughly triangular

G1-20 clear quartz shatter
L x W: 1.2x.7cm
Thickness: .21"
Cortex: none
Shape: roughly rectangular

G1-30 white clear quartz shatter
L x W: .7x.7cm
Thickness: .19"
Cortex: none
Shape: roughly triangular

G2-10 white clear quartz shatter
L x W: 1.3x.8cm
Thickness: .175"
Cortex: none
Shape: roughly rectangular

G2-20 white clear quartz shatter
L x W: 1.5x1.1cm
Thickness: .255"
Cortex: 1 surface curved
Shape: roughly triangular

G2-30 white clear quartz shatter
L x W: 3.8x2cm
Thickness: .48"
Cortex: none

Shape: roughly triangular
G4-20 white clear quartz shatter
L x W: 1.1x.9cm
Thickness: .19"
Cortex: none
Shape: roughly triangular pyramidal
G4-20 clear quartz shatter
L x W: .9x.85cm
Thickness: .12"
Cortex: none
Shape: roughly triangular flat
H1-30 White clear quartz decortification shatter
L x W: 3.7x2cm
Thickness: .675"
Cortex: on exterior rounded surface ¼ of a small cobble
Shape: roughly rectangular
H1-30 white clear quartz shatter
L x W: .7x.7cm
Thickness: .065"
Cortex: none
Shape: roughly rectangular
I2-40 white clear quartz shatter
L x W: 5.1x3.4cm
Thickness: .62"
Cortex: none
Shape: roughly rectangular blocky
flake scars on edges
I2-40 white clear quartz shatter
L x W: 2.7x1.3cm
Thickness: .365"
Cortex: none
Shape: roughly rectangular blocky
J4-20 white clear quartz shatter
L x W: 1.2x.4cm
Thickness: .29"
Cortex: none
Shape: roughly rectangular blocky
EU1-20-NW
1 white/ clear quartz shatter
L:1.7cm
W: 1.1cm
T:.5cm
Cortex: none
Shape: roughly triangular blocky
EU1-20-NW
1 white/ clear quartz shatter

L:1.7cm
W: 1.3cm
T:..9cm
Cortex: none
Shape: roughly rectangular blocky
EU1-30-SE
1 white/ clear quartz shatter
L: 2.3cm
W: 1.6cm
T:1.1cm
Cortex: 1 rounded surface
Shape: roughly triangular blocky
EU1-30-SE
1 white/ clear quartz shatter
L: 1.1cm
W: .7cm
T:..6m
Cortex: none
Shape: roughly rectangular blocky
EU1-30-SW
1 white/ clear quartz shatter
L:2cm
W: 1.4cm
T:..7m
Cortex: none
Shape: roughly triangular blocky
EU1-45-1-SE soil sample
1 white/ clear quartz shatter
L:1.1cm
W: 1.3cm
T:.9cm
Cortex: none
Shape: roughly triangular blocky
EU1E-20 white clear quartz shatter
L:2.1cm
W: 1.5cm
T:.9cm
Cortex: none
Shape: roughly triangular blocky same quartz as core from this level
EU1N-30 white clear quartz shatter
L:1.2cm
W: .8cm
T:.5cm
Cortex: none
Shape: roughly triangular blocky
EU2-20-SW 1 white/ clear quartz secondary shatter

L:1.9cm
W: .9cm
T: .6cm
Cortex: none
Shape: roughly triangular blocky
EU2-20-NW 1 white quartz secondary shatter
L:1.7cm
W: .4cm
T: .3cm
Cortex: none
Shape: roughly triangular blocky
EU2-20-NW 1 white/ clear quartz decortification shatter
L:2.2cm
W: 1.1cm
T: .6cm
Cortex: 1 face
Shape: roughly triangular blocky
EU2-20-NW 1 white/ clear quartz secondary shatter
L:1.1cm
W: .6cm
T: .5cm
Cortex: none
Shape: roughly triangular blocky
EU2-30-NE 1 white quartz secondary shatter
L:1.5cm
W: 1.4cm
T: .9cm
Cortex: none
Shape: roughly rectangular blocky
EU2-30-NE 1 white quartz decortification shatter
L:1.5cm
W: 1cm
T: .5cm
Cortex: 1 face 100% curved cobble frag
Shape: roughly triangular blocky
EU2-30-SW 1 white quartz shatter
L:2.2cm
W: 1.1cm
T: .7cm
Cortex: none
Shape: roughly rectangular blocky
EU2-30-SW 1 white/ red possibly burned quartz shatter
L:3cm
W: 3.4cm
T: 1.8cm
Cortex: none

Shape: roughly triangular blocky
EU2-30-SW 1 white/ clear quartz shatter
L:1.7cm
W: 1.4cm
T: .7cm
Cortex: 2 surfaces
Shape: roughly triangular blocky
EU3-10-SW 1 clear/ tan quartz shatter
L:1.7cm
W: 2.5cm
T: .8cm
Cortex: none
Shape: roughly triangular blocky
EU3-10-SW 1 white/ clear quartz shatter
L:2.3cm
W: 1.5cm
T: .1.4cm
Cortex: none
Shape: roughly rectangular blocky
EU3-10-SW 1 clear quartz shatter
L:1.1cm
W: .8cm
T: .5cm
Cortex: none
Shape: roughly rectangular blocky
EU3-10-SW 1 white quartz shatter
L:.7cm
W: 1cm
T: .4cm
Cortex: none
Shape: roughly rectangular blocky
EU3-20-SE 1 white quartz shatter
L:1cm
W: .7cm
T: .3cm
Cortex: none
Shape: roughly rectangular blocky
EU3-20-SE 1 white quartz shatter
L: 1.2cm
W: .7cm
T: .4cm
Cortex: none
Shape: roughly triangular blocky
EU3-20-SE 1 white quartz shatter
L:1.2cm
W: .7cm

T: .5cm
Cortex: none
Shape: roughly rectangular blocky
EU3-20-SW 1 white/ clear quartz shatter
L:1.8cm
W: 1.7cm
T: .7cm
Cortex: 1 face
Shape: roughly triangular blocky
EU3-20-SW 1 white/ clear quartz shatter
L:1.2cm
W: .7cm
T: .6cm
Cortex: none
Shape: roughly rectangular blocky
EU3-20-SW 1 white/ clear quartz shatter
L:1.2cm
W: .8cm
T: .5cm
Cortex: none
Shape: roughly rectangular blocky
EU3-20-SW 1 white/ clear quartz decortification shatter
L:5.1cm
W: 4.2cm
T: 1.9cm
Cortex: 1 rounded face ½ of cobble
Shape: roughly oval
EU3-30-NE 1 white/ clear quartz shatter
L:2cm
W: 1.2cm
T: 1cm
Cortex: none
Shape: roughly rectangular blocky
EU3-30-NE 1 white/ clear quartz shatter
L:1.7cm
W: 1cm
T: 1cm
Cortex: none
Shape: roughly rectangular blocky
EU3-30-NE 1 white/ clear quartz shatter
L:1.1cm
W: .8cm
T: .4cm
Cortex: none
Shape: roughly triangular blocky
EU3-30-NW 1 white/ clear quartz shatter

L:2.2cm
W: 1.5cm
T: 1cm
Cortex: none
Shape: roughly triangular blocky
EU3-30-NW 1 white/ clear quartz shatter
L:2cm
W: 1.7cm
T: .7cm
Cortex: none
Shape: roughly triangular blocky
EU3-30-NW 1 white/ clear quartz shatter
L:1.2cm
W: 1cm
T: .5cm
Cortex: none
Shape: roughly triangular blocky
EU3-30-NW 1 white/ clear quartz shatter
L:1.7cm
W: .7cm
T: .6cm
Cortex: none
Shape: roughly triangular blocky
EU3-30-NW 1 white/ clear quartz decortification shatter
L:4cm
W: 2.8cm
T: 2.2cm
Cortex: 1 rounded cobble face
Shape: roughly triangular blocky
EU3-30-SE 1 white quartz shatter
L:3.8cm
W:2.6cm
T: 1.3cm
Cortex: none
Shape: roughly triangular blocky
EU3-30-SE 1 white quartz shatter
L:1.4cm
W:1.3cm
T: 1cm
Cortex: none
Shape: roughly rectangular blocky
EU3-30-SE 1 clear quartz shatter
L:.8cm
W:.6cm
T: .4cm
Cortex: none

Shape: roughly rectangular blocky
EU3-30-SE 1 clear quartz shatter
L:1.1cm
W:.6cm
T: .5cm
Cortex: none
Shape: roughly triangular blocky
EU3-30-SE 1 clear quartz decortification shatter
L:1.1cm
W:1.2cm
T: .4cm
Cortex: 1 surface rounded cobble
Shape: roughly triangular blocky
EU3-30-SE 1 sear quartz decortification shatter
L:1.2cm
W:.9cm
T: .5cm
Cortex: 1 surface rounded cobble
Shape: roughly triangular blocky
EU3-30-SE 1 clear quartz shatter
L:.9cm
W:.8cm
T: .2cm
Cortex: none
Shape: roughly rectangular blocky
EU3-30-SW-9 1 white quartz shatter
L:1.1cm
W:.8cm
T: .3cm
Cortex: none
Shape: roughly rectangular blocky
EU3-30-SW-9 1 white quartz shatter
L:.8cm
W:.8cm
T: .5cm
Cortex: none
Shape: roughly rectangular blocky
EU3-30-SW-9 1 white quartz shatter
L:.5cm
W:.3cm
T: .1cm
Cortex: none
Shape: roughly rectangular blocky
EU3-30-SW-9 1 white quartz shatter
L:2.5cm
W:2.3cm

T: 1.8cm
Cortex: none
Shape: roughly triangular blocky

EU3-30-SW-9 1 white quartz shatter
L:2cm
W:1.2cm
T: .8cm
Cortex: none
Shape: roughly rectangular blocky

EU3-30-SW-9 1 clear quartz shatter
L:1.8cm
W:1.4cm
T: .8cm
Cortex: none
Shape: roughly triangular blocky

EU3-30-SW-9 1 clear quartz shatter
L:1.4cm
W:1.1cm
T: .7cm
Cortex: none
Shape: roughly triangular blocky

EU3-35-SW-9 1 clear quartz shatter
L:4.1cm
W:1.9cm
T: 1cm
Cortex: none
Shape: roughly rectangular tabular

Cores

EU1-20-NW
1 smokey quartz core
L: 5.8cm
W: 5cm
T: 4.9cm
Shape: rounded
Cortex: none
angle of flake scars: 45, 50

EU1-20-NW
1 white quartz cobble core
L: 11.7cm
W: 6.8cm
T: 4cm
Shape: rounded triangle
Cortex: 95%
angle of flake scars: 60
size of flake scar: 2.6x3.7cm

EU1E-20

L: 4.6cm
W: 3cm
T: 3cm
Shape: squared block (vein quartz?)
Cortex: none
angle of flake scars: ?
size of flake scar: ?

Agawam Site Lithic Analysis **Quartzite** Bulb/ Flake Attributes

Location	Color	L x W	Thick A/B	Shape	# Scars	Orient
A1-30 frag	Gy/Gn	2x1.2c	.115"	O	3	lat
frag	Gy/ Gn	.9x.8c	.045"			
B2-10	Tn	1x1c	.08/.085"	D	2	long
B3-30	Gn	1x.95c	.06"	P	?	
D6-30	GnGy	1.1x1.7c	.1/.05"	P	2	long
G1-10	VDkGy	1.2x1.1c	.07/.05"	P	2	Long/lat
G1-40	Tn	1x1.4c	.09/.085"	D	2	long
G2-30	Gy	1.2x1c	.1/.08"	D	0	
H2-40 frag	GyGn	1x1.05c	.09"	P	3	long
H5-40	Gy	2x1.6c	.1/.075"	P	3	long
I2-20 frag	LtGy	1.6x1c	.055"			
2-20-NW	Gy	1.6x.7c	.135/.075"	P	0	0
	TnGy	.7x1.4c	.095/.085"	D	1	long
2-20-SW	tn	.9x.9c	.06/.055"	D	1	long
2-30-SE	TnCl	1.5x1.2c	.06/.055"	D	2	long
2-309-NE	GnGy	.9x1.2c	.09/.045"	D	1	lat
3-10-SW frag	Tn	4.8x2.5c	.27"			
	Gy	.7x.7c	.09/.06"	D	3	lat
3-20-SW frag	Gy	1.5x1.5c	.155"	A	2	long
frag	Gy	1.5x1.5c	.155"	A	2	long
3-30-NE	GnGy	1x.8c	.065/.05"	D	3	long

Agawam Site Lithic Analysis **Quartzite** Striking Platform Attributes

Location	Width	Thick	Angle	Facets	% Cortex
A1-30 frag					
frag					
B2-10	.189"	.076"	45		
B3-30					
D6-30	.6"	.11"	60		
G1-10	.165"	.065"	45		
G1-40	.36"	.11"	60		
G2-30	.19"	.09"	90	1	50%
H2-20					
H2-40 frag					
H5-40	.245"	.085"	45		
I2-20 frag					

2-20-NW	.175"	.135"	90	1	100%
	.26"	.095"	60		
2-20-SW	.22"	.06"	45		
2-30-SE	.14"	.06"	55		
2-309-NE	.29"	.09"	50		
3-10-SW frag				2	100%
	.15"	.085"	55		
3-20-SW frag					
frag					
3-30-NE	.23"	.065"	50		

Quartzite

EU3-10-SW grey quartzite decortification shatter
- L: 3.5cm
- W: 3.3cm
- T: 1.3cm
- cortex: 1 face cobble

EU3-20-SW 1 grey quartzite decortification shatter
- L:3.3cm
- W: 2.9cm
- T: 2.8cm
- Cortex: 1 rounded cobble face
- Shape: roughly triangular blocky

EU3-30-NE 1 gy quartzite decortification shatter
- L:2.6cm
- W: 2.4cm
- T: 1.4cm
- Cortex: 1 face
- Shape: roughly rectangular blocky

EU3-40-NE 1 gy quartzite decortification shatter
- L:1.7cm
- W: 1.5cm
- T: .6cm
- Cortex: 1 face
- Shape: roughly triangular blocky

Agawam Site Lithic Analysis **Hornfels** Bulb/ Flake Attributes

Location	Color	L x W	Thick A/B	Shape	# Scars	Orient
C2-20	blk bn	2.8x2.6c	.215/.28"	D	2	long
C3-20	Blk	.85x.75c	.035/ .03"	D	2	long
E4-20	Blk	1.3x1.3c	.11/.035"	P	2	Long
1-20-NW	Blk	1x1.2c	.1/.045"	D	1	lat
3-10-SW frag	Blk	.8x.5c	.035"			
3-20-SW	Blk	1.2x1.1c	.065/.04"	D	2	long
frag	Blk	.7/x.9c	.06"	D	2	long
3-20-NW	Blk	1.2x.9c	.22/.17"	P	2	long
	Blk	1.1x1.3c	.065/.055"	D	2	long
3-30-NE	Blk	.8x1.3c	.075/.065"	D	1	long

Agawam Site Lithic Analysis **Hornfels** Striking Platform Attributes

Location	Width	Thick	Angle	Facets	% Cortex
C2-20	.43"	.15"	85	1	30%
C3-20	.12"	.03"	90		
E4-20	.34"	.115"	45		
1-20-NW	.44"	.11"	75		
3-10-SW frag					
3-20-SW	.14"	.07"	85		
frag					
3-20-NW	.315"	.155"	55		
	.19"	.06"	55		
3-30-NE	.345"	.045"	65		

C3-20 black Hornfels shatter
- L x W: 2.4x1.3cm
- Thickness: .365"
- Cortex: None
- Shape: roughly triangular

EU3-35-SW-9 black Hornfels shatter
- L x W: 1.5x1.5cm
- Thickness: .7cm
- Cortex: None
- Shape: roughly rectangular
- 3 parallel flakes off face running lengthwise .25, .32, .19" wide

Agawam Site Lithic Analysis **Chert** Bulb/ Flake Attributes

Location	Color	L x W	Thick A/ B	Shape	# Scars	Orient
C3-20	Gy	1.6x1.5c	.12/.085"	D	2	long
F2-20	Gy	1x.9"	. 055/.025"	D	2	long
G1-10 Frag	Gn	1.6x1.7c	.125"	P	5	lat
H2-40	Gy	1.3x2.3c	.12/.08"	D	2	lat
H3-30 frag	Gy	1.2x.7c	.85"	C	2	long
I2-30	C	1.3x1.3c	. 065/.035"	D	3	lat
J2-20	W	1.8x.8c	. 085/.065"	P	3	long
1-20-SW	Gy	.7x.8c	.13/.055"	C	1	lat
	Blk	.7x.1.3c	.11/.045"	D	3	long
1-30-NE	DkGy	2.1x1.6c	.135/.09"	P	5	1long 4 lat
	Gy	1x1.3c	.075/.03"	D	3	lat
1-45-1-NE	Gy	.7x.7c	.05/.03"	P	1	long
3-20-SW	Blk	1.1x.8c	.04/.035"	D	2	lat
	GyGn	1x1.8c	.095/.08"	D	4	lat

Agawam Site Lithic Analysis **Chert** Striking Platform Attributes

Location	Width	Thick	Angle	Facets	% Cortex
C3-20	.285"	.1"	60		
F2-20	.14"	.04"	55		
G1-10 Frag					
H2-40	.15/ .17"	.065/ .065"	75	1	95%
H3-30 frag					
I2-30	.18"	.05"	55		
J2-20	.16"	.09"	90		
1-20-SW	.34"	.13"	50		
	.51"	.15"	55		
1-30-NE	.335"	.135"	60		
	.255"	.055"	45		
1-45-1-NE	.24"	.05"	90		
3-20-SW	.205"	.05"	70		
	.36"	.1"	45		

Agawam Site Lithic Analysis **Argillite** Bulb/ Flake Attributes

Location	Color	L x W	Thick A/B	Shape	# Scars	Orient
B2-30	DPplBn	1.4x.8c	.1/.105"	P	3	Lat
G2-20 frag	DkGy	1.5x.7c	.09"	C	2	long
1-20-NE	Tn	2.3x3.4c	.36/.05"	A	0	NA
	Gy	1.8x1.2c	.075/.04"	D	0	NA
1-30-SW	Tn	2x2.4c	.115/.07"	D	1	long
1N-10 frag	GyGn	1x1.6c	.055"			
1N-20	GyGn	.7x.8c	.045/.025"	D	1	long

Agawam Site Lithic Analysis **Argillite** Striking Platform Attributes

Location	Width	Thick	Angle	Facets	% Cortex
B2-30	.27"	.085"	45		
G2-20 frag					
1-20-NE	.64"	.36"	60	1	100%
	.22"	.065"	80	1	100%
1-30					
1-30-SW	.375"	.105"	60		
1N-20	.15"	.05"	75		

Agawam Site Lithic Analysis **Saugus Jasper** Bulb/ Flake Attributes

Location	L x W	Thick A/B	Shape	# Scars	Orient
B2-30	2x1.45c	.095/.1"	D	2	?
B4-20	2.4x1.7c	.09/.08"	D	3	long
C2-20	2.2x1.3c	.07/.07"	P	4	long
2-30-NE frag	.8x1.2c	.065			

Agawam Site Lithic Analysis **Saugus Jasper** Striking Platform Attributes

Location	Width	Thick	Angle	Facets	% Cortex
B2-30	.22"	.086"	51		
B4-20	.24"	.085"	45		
C2-20	.16"	.07"	75		