

DETERMINATION OF PERIOD OF CULTURAL OCCUPATION AT THE HARRIET  
JOHNSON SITE (FS# 05-891)

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A SENIOR THESIS PREPARED IN PARTIAL FULFILLMENT OF THE  
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## **Abstract**

*This paper uses lithic analysis, floral analysis, and radiocarbon dating to determine the period of cultural occupation at the Harriet Johnson Site located in the Superior National Forest (SNF) of northeastern Minnesota and partially excavated in the summers of 2004 and 2005. Statistical analysis of the artifact assemblage currently on loan from the SNF and housed at the Mississippi Valley Archaeology Center indicated the range of local lithic raw materials present, tool types, and levels of cultural occupations. The working hypothesis is that this site has a Shield Archaic component as well as a possible Paleoindian component. Statistical analysis of the total lithics recovered using Microsoft Access has helped to provide a means to determine favored raw materials as well as cultural levels. Radiocarbon dating of the feature will also help to determine the occupation of this site. Cultural period may not be able to be determined from this assemblage, but analysis can point to the most probable occupation. Compiling this data into a site report will provide archaeologists in the area with a valuable resource. A description of a Shield Archaic occupation would help future researchers in the area further define this cultural complex.*

## **Introduction**

The Harriet Johnson Archaeological Site (FS# 05-891) is located on a peninsula approximately one-half mile northwest of Prairie Portage on Basswood Lake in the Boundary Waters Canoe Area Wilderness, which is managed by the Superior National Forest in northeastern Minnesota. This site is one-tenth of a mile from the Minnesota-Ontario boarder and faces Inlet Bay. Survey and evaluation of this site was conducted in compliance with the Forest Service Plan and CFR 800 of the National Historic Preservation Act in order to determine eligibility for nomination to the National Register of Historic Places. The Harriet Johnson Site was identified in a 2004 prescribed burn survey (Johnson 2005). This paper seeks to determine the period of occupation at this archaeological site as well as present an interpretation of its cultural significance. The lack of published works in this archaeological region results in a poor culture history of the area. This work will help to build a cultural history for the area, as well as address the issue of the theoretical Shield Archaic.

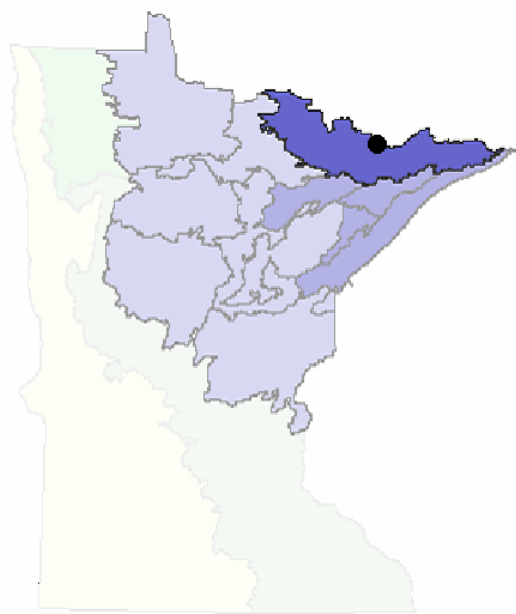


Figure 1- Highlighted Section of the Border Lakes Subsection. Black dot indicates Basswood Lake Locality. (MN DNR 2007)



Figure 2- Location of Harriet Johnson Site on Basswood Lake (Google Maps 2007).

## **Assemblage Summary**

Artifacts recovered from the site include two pieces of hammered copper, a Raddatz point, bifaces in various stages made from Knife Lake Siltstone, a possible hearth feature, and a preponderance of Knife Lake Siltstone lithic debitage. One complete small possible Jasper Taconite Raddatz-like point (see Appendix A- Figure 2) was recovered from a shovel test. Preliminary analysis of the artifact assemblage indicates that this site has an Archaic occupational component. The presence of a probable medial section of a lanceolate projectile point (Figure 22) indicates that this site may also have a Paleoindian component.

## **Environmental Setting**

The Harriet Johnson Site is located in the Border Lakes region as defined by the USGS. This region is typified by “glacially scoured granitic and basaltic bedrock knobs and lakes; spruce-fir forest, jack pine forest, (and) white pine-red pine forest,” (USDI 2006). This region has a cool continental climate with short warm summers and long winters. Average annual rainfall is twenty-eight inches per year. This region is considered to be transitional between the Great Lakes-St. Lawrence and boreal forest regions. This is suggested by the presence of white and red pine along with boreal forest type trees. Physically this area is covered with glacial drift, and bedrock exposures are quite common. Geology is typified by Precambrian-aged materials of bedrock, gneiss, and granite. Middle Proterozoic bedrock includes basalt, rhyolite, gabbro, diabase, granite, sandstone, and shale. The presence of fires in this area has expedited the exfoliation of

bedrock and granite (USDI 2006). Basswood Lake itself is located in the Hudson Bay watershed.

The Border Lake region fall just south of the border into the Hudsonian Biotic Proviencence, which is also referred to as the Spruce-Fir-Moose-Caribou-Biome (Mason 1981). This boreal forest region is typified by long severe winters and short warm summers. Soils are thin and extensive exposures of naked bedrock are typical as well as a network of rivers, bogs, and lakes (Mason 1981). The region south of the Hudsonian Biotic Proviencence is the Canadian Biotic Proviencence which ends just north of the Border Lakes region. The Canadian Biotic Proviencence has Lake Forest vegetation. This vegetation includes all the boreal forest trees mixed with cedar, white and red pine, Norway pine, alder, yellow birch, beech, elm, hemlock, aspen, basswood, and sugar maple (Mason 1981:59). Mason even defines this region as an ecotone between the larger Hudsonian Biotic Proviencence to the north and the Carolinian Biotic Proviencence to the south (Mason 1981).

### *Soils*

Soils in this region are acidic and are relatively gravelly and cobbly due to glacial till. Sandy loam is the most common type of soil texture in this region, but loamy sands also occur (USDI 2006).

### *Wildlife*

Basswood Lake supports populations of Black Crappie (*Pomoxis nigromaculatus*), Bluegill (*Lepomis macrochirus*), Burbot (*Lota lota*), Lake Whitefish (*Coregonus macrochirus*), Rock Bass (*Ambloplites rupestris*), Smallmouth Bass

*(Micropterus dolomieu)*, Tullibee (*Coregonus artedi*), Walleye (*Stizostedion vitreum*), White Sucker (*Catostomus commersoni*), and Yellow Perch (*Perca flavescens*). Of these fish, all are native save the smallmouth bass, which is an introduced species. All game animals, except woodland caribou, historically associated with this region are still present in the forested regions (Johnson 2005; Rook 2002; MN DNR 2005; Hatch and Schmidt 2004).

### *Vegetation*

Vegetation on Basswood Lake is typical of that of northern boreal forests, as well as those species associated with the Great Lakes. This area would be an ecotone between the northern boreal forests and the southern, more deciduous forests. Wild rice stands are found in the bays of Basswood Lake. Wild rice was exploited in historical times as well as prehistoric times as a food source (Johnson 2005).

A paleoecological study of Minnesota was conducted by Scott Anfinson and H.E. Wright Jr. in the late 1980s. In their subsection about the Holocene environmental history of Minnesota, they state that “post glacial environmental changes have left a strong stratigraphic record in Minnesota lake sediments, primarily because of the steep climatic gradients between the three major air masses (which) produced fairly distinct major ecotones (Anfinson and Wright 1990: 216). They note that coniferous forest prevails in the northeast (Anfinson and Wright 1990) which is where the Harriet Johnson Site is located. They also note that an eastward shift in the ecotones in areas and the extension of prairie into southwestern Wisconsin around 8,000-6,000 years ago is indicative of the Hypsithermal (Anfinson and Wright 1990). The Hypsithermal began gradually and ended even more gradually than it began. It is noted that the prairie border moved west,

followed by birch and hardwoods and by pines in the north (Anfinson and Wright 1990). Archaic tradition peoples focused on hunting but also emphasized seed, nut, tuber, and mollusk gathering as well as fishing (Anfinson and Wright 1990). “The Archaic to Woodland transition in Minnesota falls in the middle of the Bryson Sub-Atlantic episode,” (Anfinson and Wright 1990:221). However, “no major environmental shifts occur in the Midwest during the transition period,” (Anfinson and Wright 1990:221). The most significant and major period of climatic change in Minnesota was during the Paleoindian and early Archaic periods. The most significant changes took place around 12,000 to 10,000 years ago “as the spruce forest declined throughout the area, being replaced by pine in the north,” (Anfinson and Wright 1990:226).

## **Cultural Complexes**

### *Early Archaic*

James B. Stoltman (1997) dates the Early Archaic from 8000-4000 B.C. and the Middle Archaic from 6000 B.C. to 1500 B.C. The Middle Archaic is known to have large, side notched points, copper tools, and long distance trade. Raddatz points, a typical Archaic tradition point style, belong to this period (Theler and Boszhardt 2003). One such point was recovered in a shovel test at the Harriet Johnson Site. Stoltman also addresses the Old Copper Complex which existed around Lake Superior and exploited copper from Isle Royale and the Keweenaw Peninsula. Cold hammering of this copper was conducted, as well as heating and quenching in water. Artifacts of this complex were made for utilitarian purposes. The Archaic tradition hunters and gatherers focused on seasonal resources and hunted deer, elk, and/or bison. Mined copper and float copper

were also exploited in north-central Minnesota during this period (Theler and Boszhardt 2003).

The people of the Early Archaic culture tended to rely upon more local stone materials than the earlier late Paleoindians. They produced simple flakes as expedient tools, and while exotic stone does occur, it is less frequent and is from relatively close raw material source locations. Early Archaic sites are associated with ridges and lakeshores, with caribou being an important game animal. Sites of the Middle Archaic have produced side and corner notched points as well as bifaces, scrapers, and graters (Wright 1995).

### *Shield Archaic*

The Shield Archaic culture replaced the Paleo-Indian culture in the Boreal forest around 8,500 years ago. While the Archaic people probably continued to gather plants and hunt Woodland caribou and moose, they were also building dug-out canoes of pine, as fishing became the major subsistence activity (McNab and Avers 1994). Point styles include Plano, notched, and stemmed. Groundstone artifacts are not associated with this tradition. End scrapers and side scrapers are present as well as ovoid cores and bifaces. Some use of copper also exists. This was a hunting based culture with sites usually located at the narrows of lakes and rivers. Locally available raw materials were used. The Lake Head complex, which is part of the Shield Archaic tradition, extends into the Knife Lake area. Artifacts in this area were made primarily out of Knife Lake Siltstone, but some Jasper Taconite was also utilized. The Williams Narrows Site, a Shield Archaic occupation, included finds of Plano points, scrapers, choppers, and copper artifacts including socketed and conical points (Hohman-Caine and Goltz 1995). One of the

hammered copper artifacts from the Harriet Johnson Site appears as though it could be a socketed point.

The Shield Archaic was long lived and is known mainly from areas north of the Great Lakes (Mason 1981:133). Its territory however did encompass the entire north shores of Lake Superior and Huron. Sites occur from this area northward to the head waters and middle reaches of the rivers that flow into James and Hudson Bay (Mason 1981). The Shield Archaic is a cultural tradition that had “in place continuity over a cultural lifespan of thousands of years,” (Mason 1981:133).

The Early Shield Archaic culture dates from 8,000 to 4,000 B.C. (dates derived from technological characteristics and trends) and developed from the Late Eastern and Northern Plano culture (Wright 1995). Mason suggests that it may have begun around 5,000 to 6,000 B.C. rather than Wright’s 4,000 B.C. date (Mason 1981:136). This cultural group occupied the western portion of the Canadian Shield and produced side notched points, bifaces, scrapers, and lanceolate points. Preforms were brought back from the raw material source to the occupation site to finish (Wright 1995). Exotic materials of Gunflint formation cherts, also known as Animikie Silicates (Bakken 1995) have been found at Early Shield Archaic sites. Most of the known Shield Archaic sites were occupied many times (Mason 1981). Mason notes that it appears this tradition formed from a deteriorated Late-Paleoindian or Plano cultural pattern and makes special note that the tool assemblages lack ground and polished stone tools (Mason 1981:136).

Middle Shield culture sites developed out of a Plano tradition around 6,000 B.C. According to J. V. Wright, this culture slowly spread from west to east, arriving in the Hudson Bay Lowlands around 2,000 B.C. It involved an interconnected system through waterways which served as communication and travel routes. The artifacts from this

tradition are knives, scrapers, side-notched and lanceolate points, and in the areas close to Lake Superior, native copper (Wright 1995). Some native copper tools such as socketed spear points and knives, semi-lunar knives, awls, gaffs, and fishhooks appear at the sites, mostly on this culture's southern margin or around the Great Lakes (Mason 1981). Mason believes these tools were not produced locally but were obtained from more advanced neighboring culture (Mason 1981:137). Mason also identifies the major stone tool types of this culture as straight or concave based lanceolate points, corner-notched points, numerous end and side scrapers, flat ovoid bifaces, unifacially worked knives, and on occasion elongated unifacially worked knives. He notes also that at times these tools were occasionally knapped from regionally exotic flints (Mason 1981:137). Bone preservation in this area is minimal due to the high acidity of the soils. However the preponderance of projectile points and butchering tools "proclaim a major subsistence reliance on hunting," (Mason 1981:138). Mason also notes that Shield Archaic sites are commonly discovered at the narrows of lakes and rivers, which make a natural place for caribou crossings; caribou were "probably the single most important game animal in the diet of the Shield Archaic people," (Mason 1981:137). The structures associated with these sites are thought to have been semi-subterranean or flimsy tent-like structures which left little archaeological evidence (Wright 1995).

### *Harriet Johnson in a Cultural Setting*

Artifacts from the Harriet Johnson Site provide evidence of an Archaic occupation in the form of the possible medial section of a lanceolate point (may possibly be Late Paleoindian), a Raddatz-like point, bifaces, unifaces, and end scrapers, as well as the rolled copper point and the copper fragment . This site exhibits many of the traits of

an Archaic occupation as described by James Stoltman (Stoltman 1997). The site is located on a ridge above the lakeshore approximately a half mile from a narrow strip of land (now the Prairie Portage Dam) that separates Moose and Sucker Lakes from Inlet Bay of Basswood Lake. This location would have been an adequate area for a temporary occupation that was able to seasonally exploit caribou in the immediate vicinity. The lack of sufficient faunal remains leaves the question of subsistence to speculation only, however.

A large portion of the lithic raw material recovered was Knife Lake Siltstone, a local source. Due to the lack of cores at this site, but the high number of waste flakes and shatter, it has been suggested that performs were transported from the raw material source for final production at the site (Bill Clayton, personal communication 2006). The formal tools recovered strongly indicate that the Harriet Johnson Site belongs to the Archaic period.

Stoltman (1997) and Wright (1995) define the Archaic period in a very broad sense, as a general outline as to what one would expect to find in such an occupation during this period. I believe it is necessary to place the Harriet Johnson Site into a regional cultural tradition. This site may fit into the Shield Archaic Tradition. It is difficult to confidently place it in this tradition for various reasons, however. First, the Shield Archaic is a proposed cultural tradition, and more work in the Canadian Shield is required to prove or disprove this tradition. The location of the Harriet Johnson Site is tricky as well. It is located in the ecotone between the true boreal forest and the Great Lakes region vegetation. The lack of groundstone artifacts, the presence of the conical copper point (which has also been suggested to be a harpoon), side notched and lanceolate points, the lack of long term facilities, and poor bone preservation due to

acidic soils, are aspects in which the Harriet Johnson Site resembles other Shield Archaic sites. The reliance upon Knife Lake Siltstone as a primary lithic raw material indicates that this site could belong to the Lake Head Complex, which is part of the Shield Archaic tradition (Hohman-Caine and Goltz 1995).

## **Methods**

The Harriet Johnson Site was excavated using a modified system of the Wheeler box grid (Renfrew and Bahn 2000:108). Five one by one meter units were excavated near positive shovel test locations. These units were excavated in three centimeter levels using quadrants leaving ten centimeter baulks for control of vertical location. Artifacts were piece plotted when found in situ. Soil was screened by quadrant through a one-quarter inch mesh sieve. Artifacts were bagged by quadrant, level, and unit, and paperwork recording artifacts found, Munsell soil color, and soil disturbances was completed. Through the process of excavation, one possible hearth feature was located in Unit 5. It was suggested that artifacts from Unit 4 and Unit 3 were most likely not in original context due to the effects of slope wash.

Upon return to the laboratory, artifacts were washed by level and quadrant. Diagnostic artifacts were identified and non-cultural materials were discarded. Raw material was determined and count and weight of each material was recorded per level and quadrant. Accession numbers were assigned to artifacts and a master lot list was recorded. Detailed analysis of artifacts did not occur due to time and budget constraints of the facility. For this research arrangements were made to loan the artifacts to the Mississippi Valley Archaeology Center in order for detailed analysis to occur.

I sought to analyze the lithic materials at the site by first identifying the kinds of flakes, where these flakes were recovered, and which raw materials were prominent. I also sought to attribute diagnostic materials to a specific cultural complex. This data was then entered into Microsoft Access for data analysis. From this database the frequency of lithic raw materials in specific units can be determined. This database also allowed for the summation of the total numbers of each type of artifact found throughout the entire site according to type and raw material. Queries were run to determine the percentage of each raw material type per artifact category. The ratios of types of artifacts are also determined. Graphs of this data were constructed by exporting the data from the queries to Microsoft Excel. Through this data analysis, trends in the data can be discovered that will help to determine the occupation of this site.

In order to determine the amount of each raw material recovered at the site, a count of the number of each material was totaled from each unit. Weights were also totaled from the entire assemblage to provide a comparison between the two. Artifacts were then divided into tool categories. It was difficult to determine if Knife Lake Siltstone flakes were primary (first flakes removed from a core), secondary (flakes removed from a core with some cortex remaining), tertiary (small flakes from a core or tool with no cortex), or utilized due to the weathering of this material as well as its poor flaking qualities, so size and amount of cortex were used as factors in determining what category flakes belonged to. For utilized flakes, I identified them as best I could from the knowledge that I have about this material.

Floral analysis of the remains from the feature in Unit Five were floated at the Mississippi Valley Archaeology Center using screens with a mesh size of 40 with openings of .425mm for the light fraction and the heavy fraction was through 20 mesh

with .850 mm openings. These floated remains were divided into heavy and light fraction. The light fraction was sorted under a 6.25x to 40x microscope to separate floral from non-floral remains. Radiocarbon samples were also pulled from the light fraction. The two radiocarbon samples of charred wood from Feature A were sent to Brock University for carbon-14 dating. These dates helped to determine the validity of the possible feature.

Numerous bone fragments were recovered from an uncontrolled matrix in each unit. Determination of the cultural validity of these remains was determined by Jim Theler, a faunal specialist at the Mississippi Valley Archaeology Center. Photographs and illustrations of key artifacts were prepared by the author. This data was then compared to the Shield Archaic complex and the general archaic culture. As a result a cohesive site report was produced.

## Results

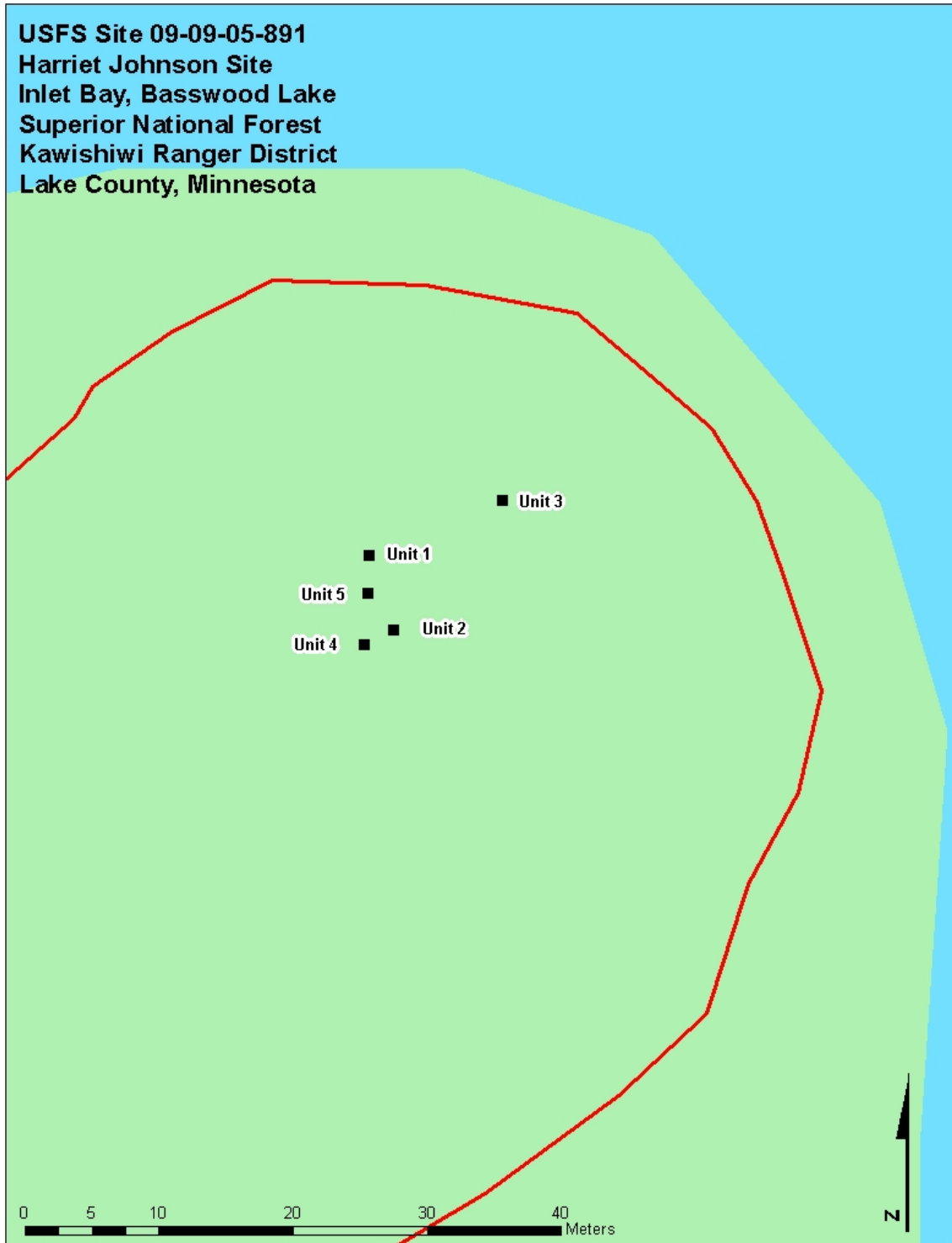


Figure 3-Site map of the Harriet Johnson Site (Courtesy Superior National Forest).

Please see Appendix E for special note

## *Unit 1*

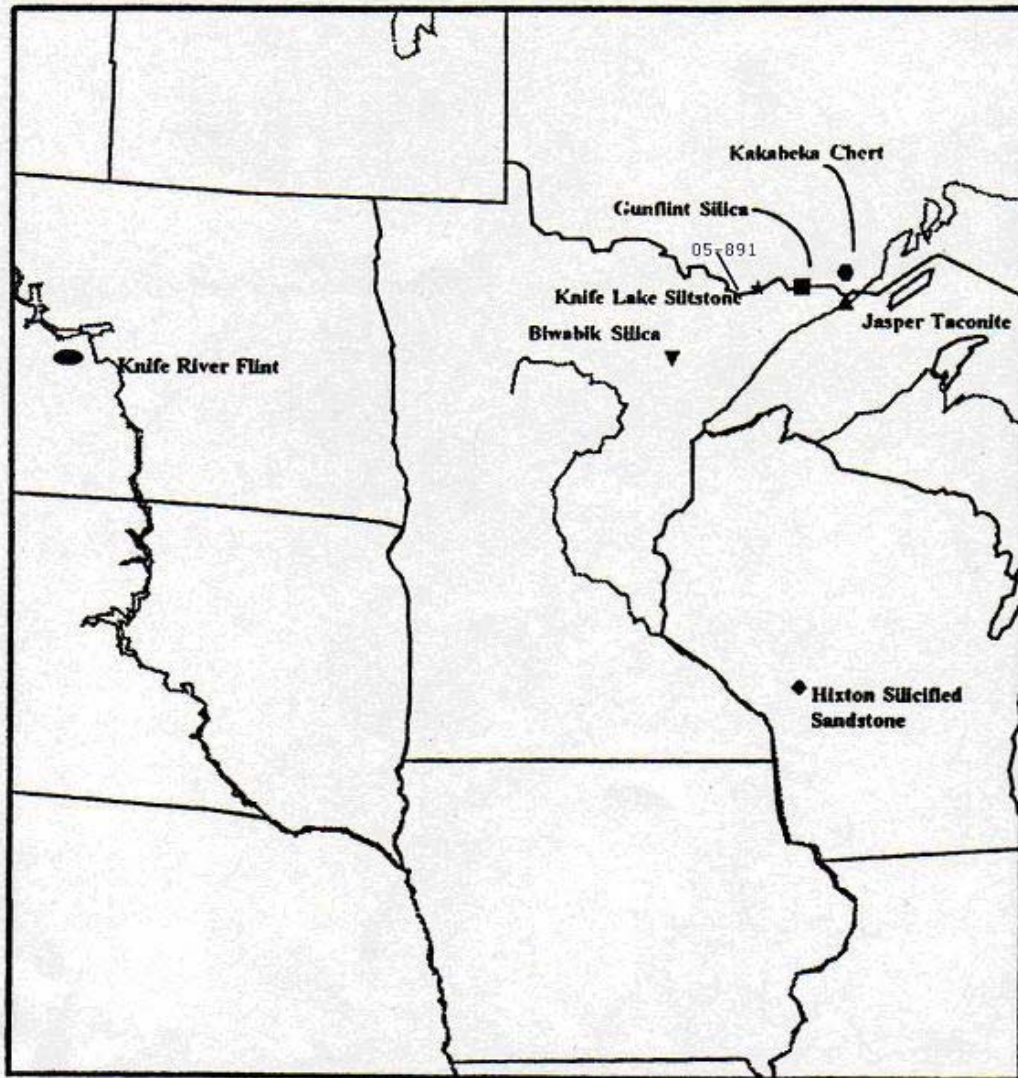
The totals of the raw materials recovered were totaled in Unit 1. This data is represented in Table 1.

Raw material or Temper code	Number of Artifacts
Agate	1
Bone	396
Copper	2
Gunflint Silica	31
Hudson Bay Lowland Chert	2
Jasper	1
Jasper Silica	3
Jasper Taconite	7
Knife Lake Siltstone	1312
Knife River Flint	2
Orthoquartzite	2
Quartz	43
Unknown	1

Table 1- Totals of Artifacts in Unit 1 per raw material type.

This table shows that the local Knife Lake Siltstone is by far the major raw material exploited. The Knife Lake Siltstone quarries are located on the Ontario side of Knife Lake, around eight miles from the location of the Harriet Johnson Site. Gunflint silica and Quartz are the next raw materials with high occurrences, but they are nowhere near the amount of Knife Lake Siltstone. Gunflint silica is a raw material local to the Boarder Lakes region. The main outcropping for this material is on the Canadian side of Gunflint Lake. This would explain why this raw material has a higher sum than the other semi-exotic and exotic materials. Quartz also occurs naturally in the glacial till. It is very difficult to determine if quartz is cultural due to the planes on which this material fractures.

## PRIMARY SAMPLE LOCATIONS



**Regional distribution of primary source locations for seven lithic materials studied.**

Figure 4- Map of Distribution of Lithic Raw Materials. Hudson Bay Lowland Chert is not included for the source is unknown (adapted from Lindenburg and Rapp 2000).

Figure 5, below, notes the number of artifact types that were recovered from Unit 1.

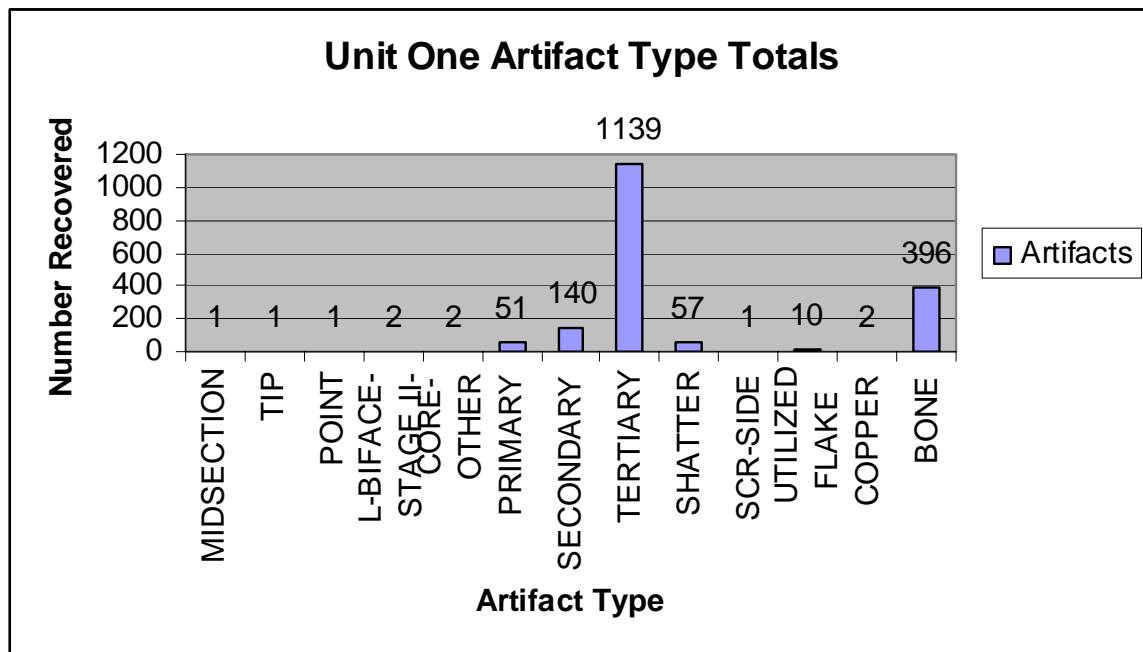


Figure 5- Artifact totals per type recovered from Unit 1.

According to the Figure 5 graph, the tertiary flakes are the prominent artifact recovered from this unit. There are also high numbers of primary and secondary flakes, as well as shatter. Though this numbers it can be suggested that flintknapping was ongoing in this location. There is also a large amount of bone, this bone was not found in a feature, but was calcined and determined by Jim Theler of the Mississippi Valley Archaeology Center to be archaeological.

The next graph, Figure 6, shows the distribution of the local raw material Knife Lake Siltstone throughout the levels excavated in Unit 1.

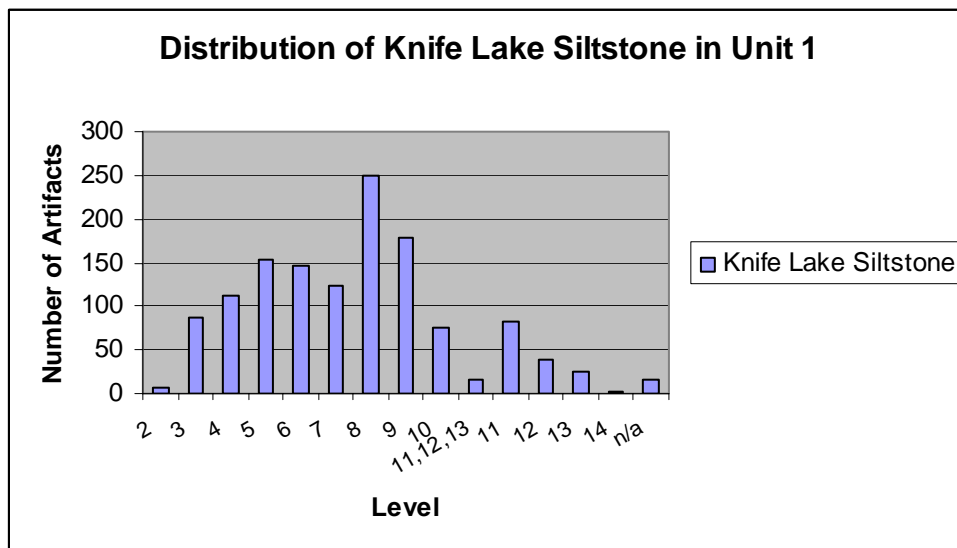


Figure 6- Vertical Distribution of Knife Lake Siltstone in Unit 1 (note that 11, 12, 13 level is the result of a soil pedestal underneath a rock being removed).

From this graph, it can be seen that the largest amount of lithic material was recovered from level 8 (24 cmbgs). Based upon the peaks in this graph one could argue for three periods of occupation. The first occupation would occur around level 5 (15 cmbgs), the second occupation around level 8, and the last and earliest occupation around level 11 (33 cmbgs).

Figure 7 depicts the distribution of lithic material by level, excluding Knife Lake Siltstone. This graph also can be interpreted as showing three periods of cultural occupation as well. As can be seen, gunflint silica and quartz are the most prominent raw material types after Knife Lake Siltstone.

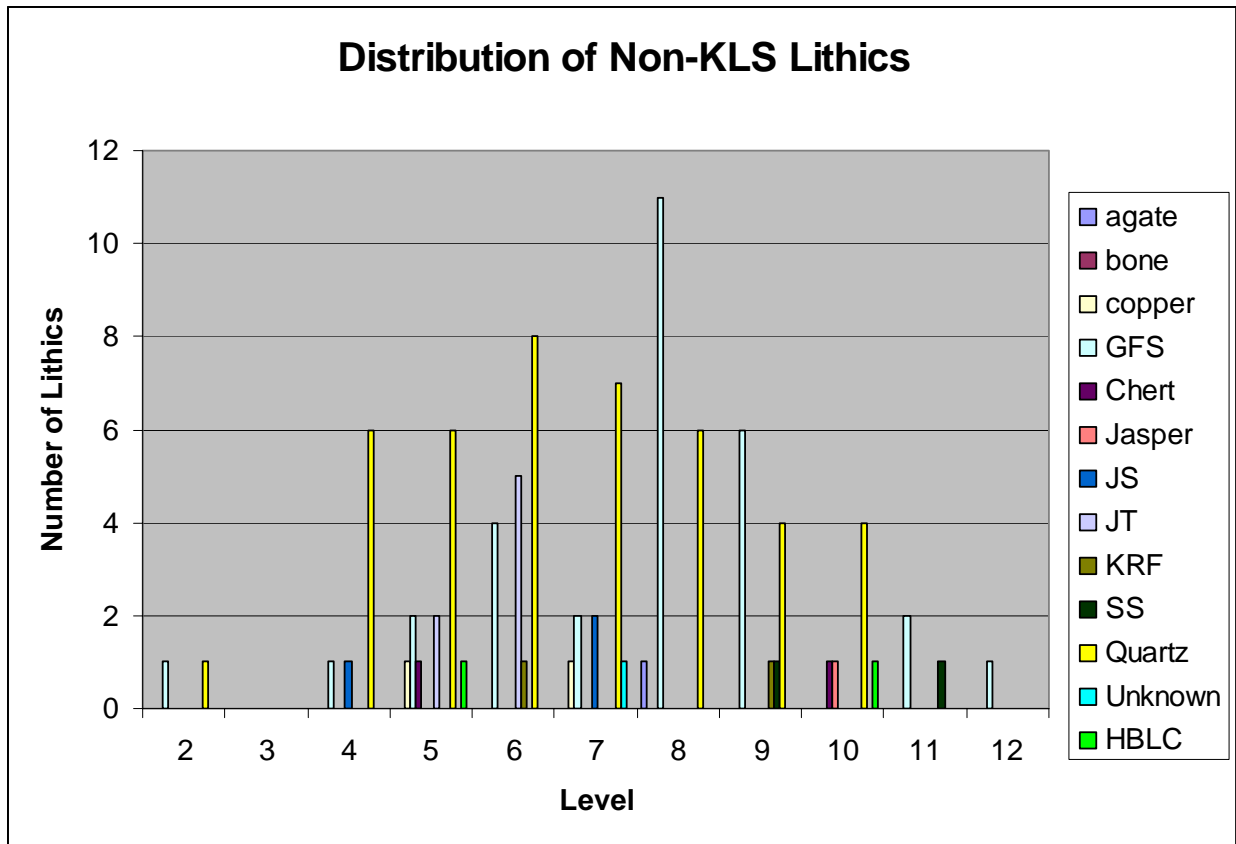


Figure 7- Distribution of lithic materials excluding Knife Lake Siltstone for Unit 1.

**Unit 2**

The following table, Table 2, shows the totals of raw materials from Unit 2. As in the case of Unit 1, the local lithic raw material of Knife Lake Siltstone comprises the majority of the artifacts recovered. The only other lithic material with a significant count is that of Gunflint Silica, another fairly local material. Small amounts of more exotic materials do occur, but nowhere near the numbers of the localized raw materials.

Raw material	Number of Artifacts
Bone	2
Gunflint Silica	104
Hudson Bay Lowland Chert	6
Jasper Silica	8
Jasper Taconite	6
Knife Lake Siltstone	974
Knife River Flint	1
Prairie Du Chien Chert	2
Quartz	41

Table 2- Artifact totals per raw material type in Unit 2.

The following graph, Figure 8, is a representation by vertical level of the distribution of Knife Lake Siltstone as recovered in Unit 2.

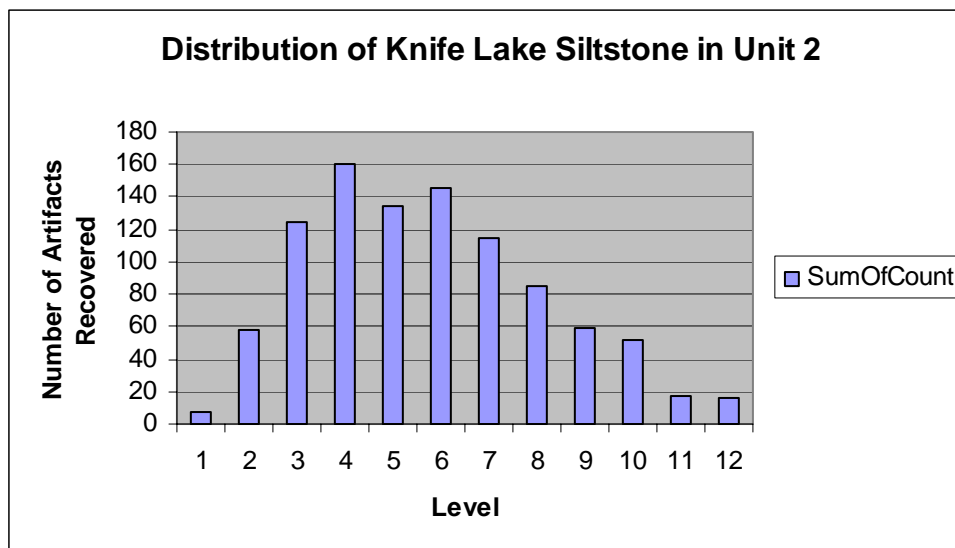


Figure 8- Vertical Distribution of Knife Lake Siltstone in Unit 2.

The distribution is similar to that of Unit 1. There are spikes in the occurrences of this raw material around level 4 (12 cmbgs), level 6 (18 cmbgs) and a gradual drop off after level six.

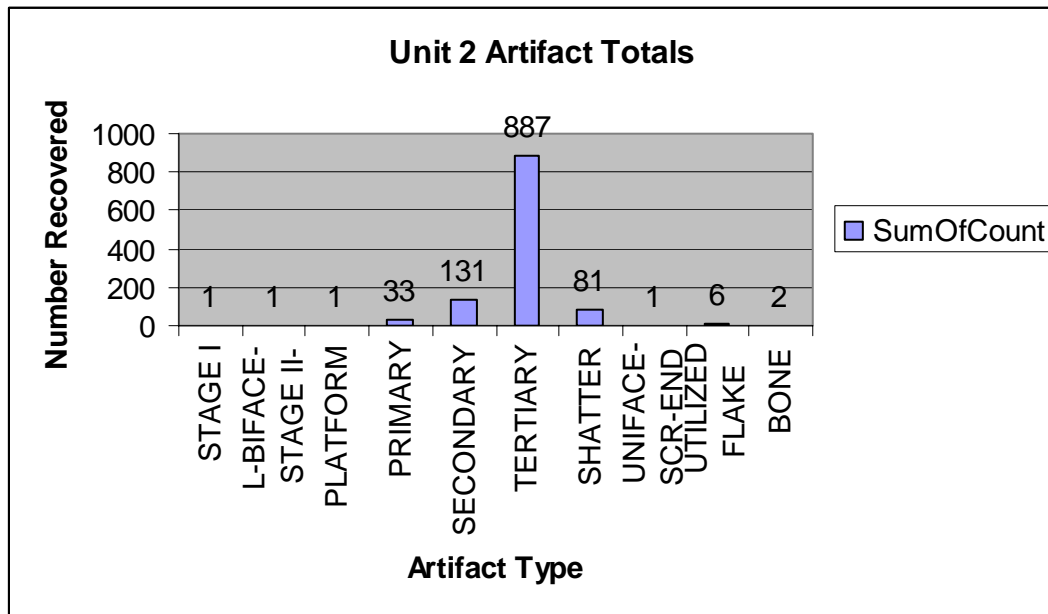


Figure 9- Unit 2 artifact totals per artifact category.

Figure 9 shows that the composition of the artifact assemblage from Unit 2 is comprised of tertiary flakes. This is followed by secondary flakes and shatter. There are few formal tools; those recovered are one stage one biface, a stage two biface, and an end scraper. A similar pattern can be found in the composition of artifact types in Unit 1.

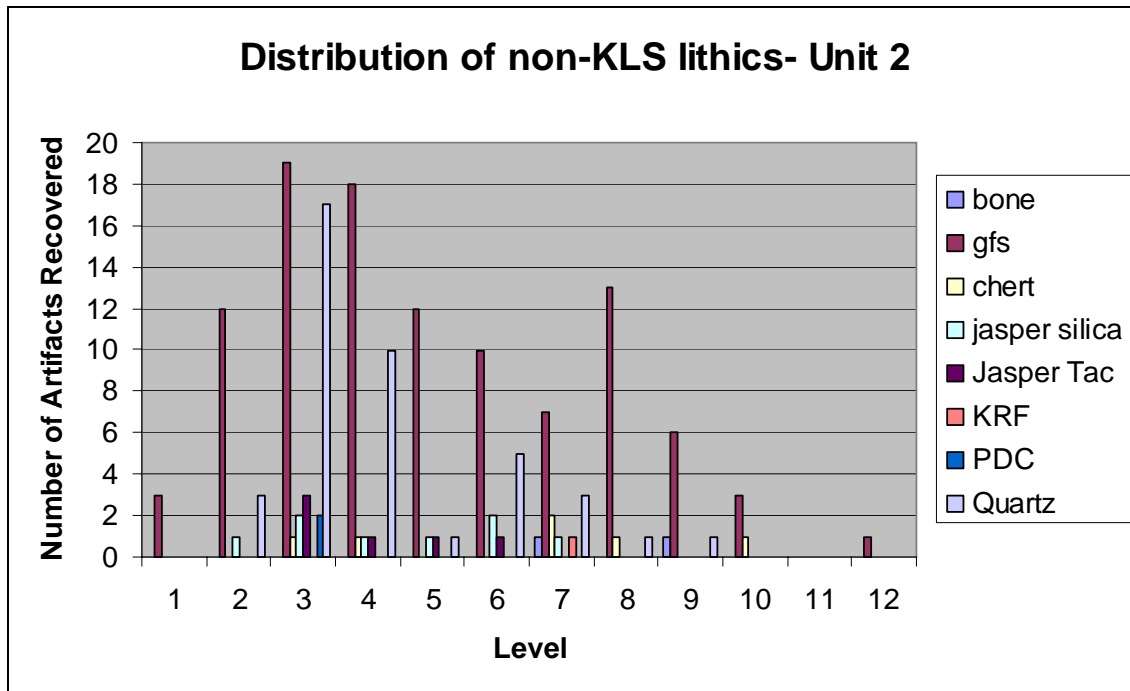


Figure 10-Vertical distribution of non-Knife Lake Siltstone lithics recovered from Unit 2.

The distribution of non-Knife Lake Siltstone artifacts recovered from Unit 2 provides a greater insight on the cultural levels present. The strongest indicator for the cultural levels from non-KLS lithic raw materials appears to be that of the local material of Gunflint Silica. This material spikes at the occupational zones of levels 3 and 4 (9-12 cmbgs). Another spike in GFS occurs at level 8 (24 cmbgs). These peak periods of GFS usage occur at similar levels as the peak production of KLS artifacts in Unit 2.

### *Unit 3*

Unit 3 was by far the least productive unit of the Phase II investigation. This area was littered with glacial till. Due to it being downhill on a lower terrace than the rest of the site, it can be argued that much of what was found is slope wash. Regardless, artifacts were located amidst the mixture of glacial till. The following chart depicts the number of each type of raw material recovered from this provenience.

Raw material	Number of Artifacts
Gunflint Silica	24
Jasper Silica	8
Knife Lake Siltstone	70
Knife River Flint	2

Table 3- Lithic raw material totals from Unit 3.

The following graph, Figure 11, depicts the number of each type of artifact found within Unit 3.

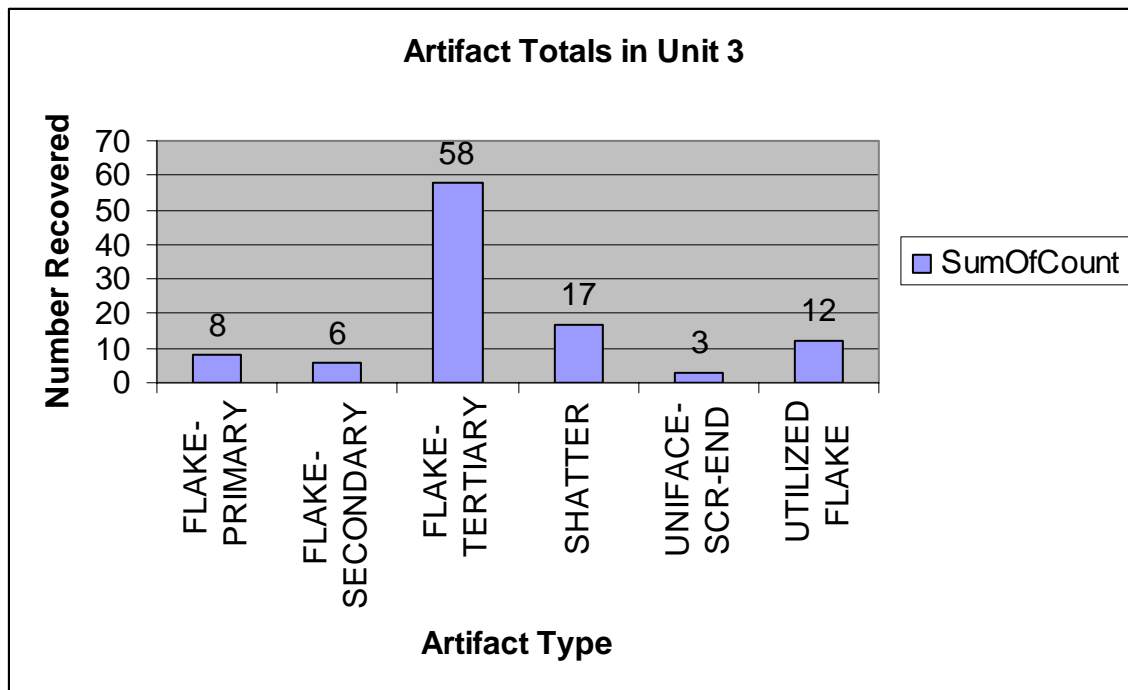


Figure 11- Total number of artifacts per type recovered from Unit 3.

Curiously, three end scrapers were located within this unit, as well as a large number of utilized flakes. The location of this unit in relation to the entire site is unique, and if the context of the unit was not questionable it could be argued that butchering and hide processing may have occurred on this lower terrace, away from the main occupational area. Due to the inconclusiveness of the validity of the context within this Unit, a strong argument for the previous statement cannot be made.

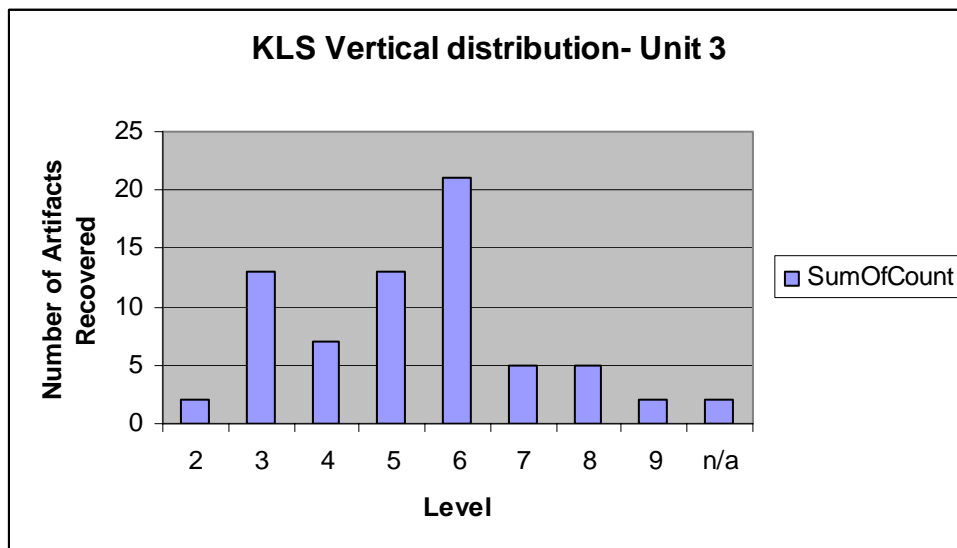


Figure 12- Vertical distribution of Knife Lake Siltstone in Unit 3.

Figure 12 shows the vertical distribution of the Knife Lake Siltstone artifacts recovered. Strangely enough, it shows the same pattern of cultural occupational zones as the previous two Units have indicated. This pattern can be seen as a validation of the integrity of the context of the unit. Thus, the previous conjecture about the lower terrace being a faunal processing site is not completely invalidated by this evidence. The fact that there is a strong pattern in cultural occupational zones strengthens the argument for three occupations at this site.

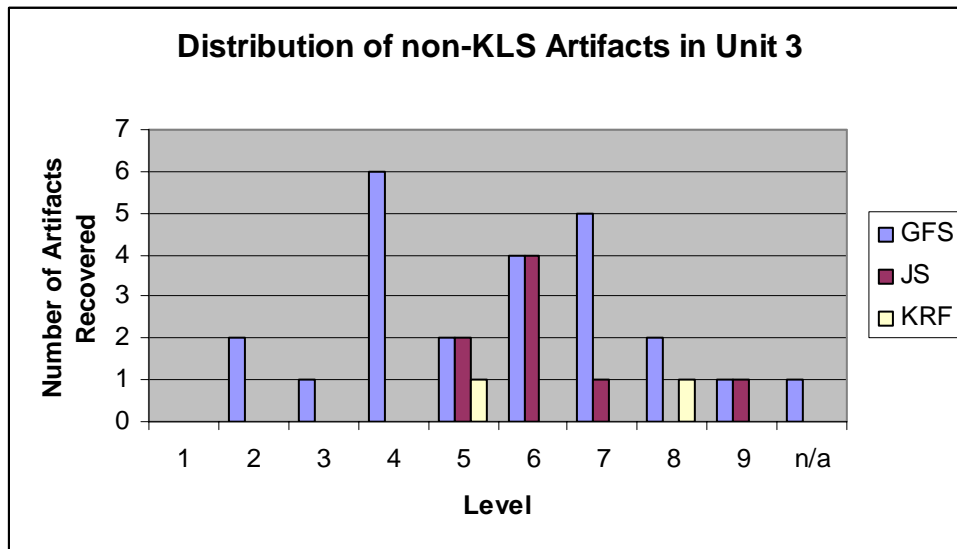


Figure 13- Distribution of non-KLS artifacts from Unit 3.

Figure 13 depicts the distribution of non-Knife Lake Siltstone artifacts in Unit 3. Again the recurrent pattern of peaks in raw material usage appears. The zone from level 5 to level 8 (15 cmbgs-24 cmbgs) appears to have the most variability in lithic raw materials. It is in this zone that the exotic material of Knife River Flint was recovered.

#### *Unit 4*

Table 4 shows the total number of each raw material recovered from Unit 4.

Raw material	Number of Artifacts
Bone	215
Buwabic Silica	3
Gunflint Silica	72
Hudson Bay Lowland Chert	1
Jasper Silica	3
Jasper Taconite	13
Knife Lake Siltstone	776
Knife River Flint	1
Orthoquartzite	1
Quartz	21

Table 4- Total number of artifacts recovered from Unit 4 by lithic raw material.

Unit 4 possesses a large amount of bone as did Unit 1. This unit also possesses some exotic raw materials, but in low numbers. The sheer volume of Knife Lake Siltstone indicates that this was the primary lithic raw material utilized in this provenience.

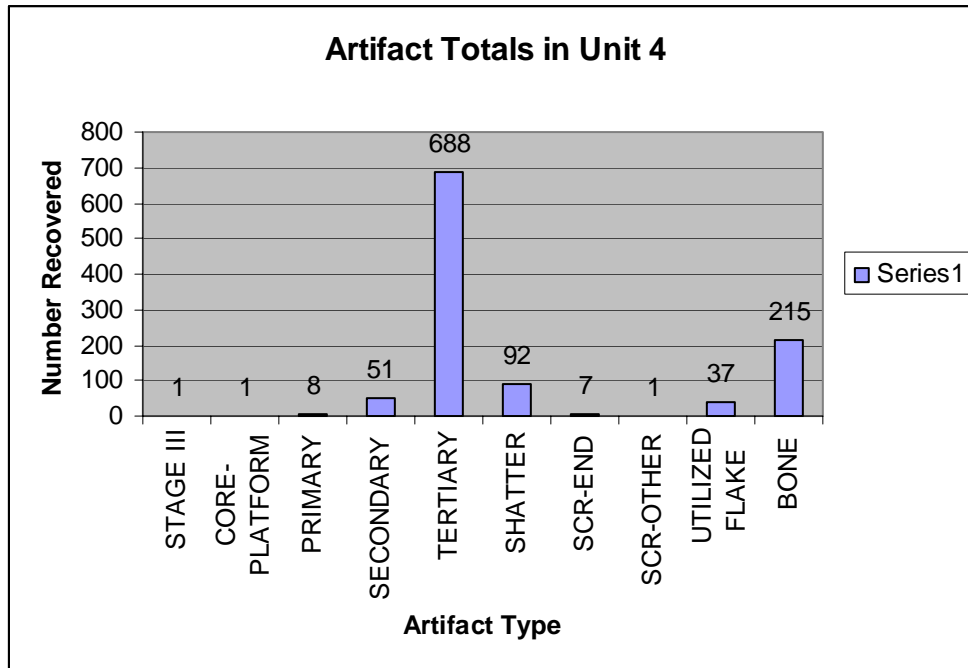


Figure 14- Artifact totals per type recovered from Unit 4.

Figure 14 denotes the number of each artifact type recovered in Unit 4. Tertiary flakes comprise most of the assemblage for this unit; however, there are a good number of scrapers as well as a stage III biface. There are also a large number of utilized flakes.

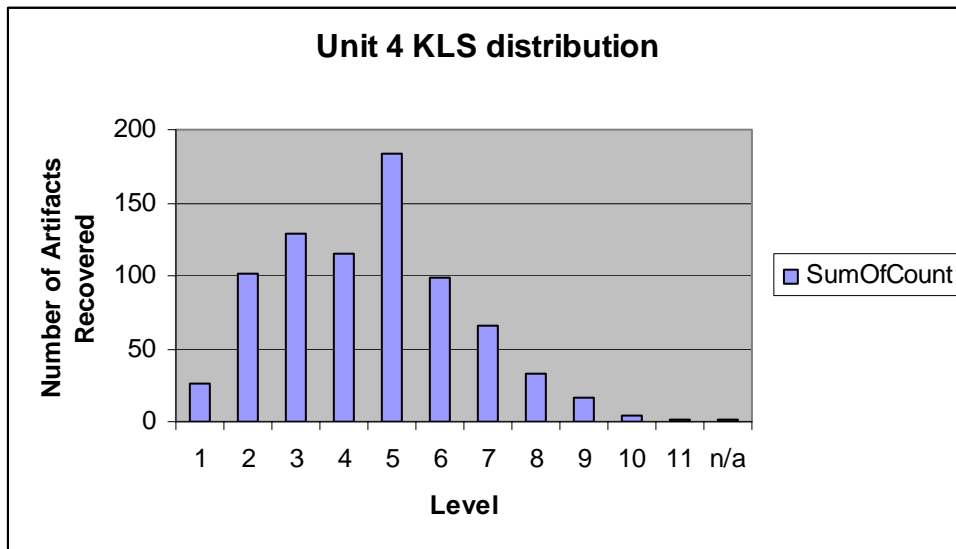


Figure 14- Vertical distribution of Knife Lake Siltstone from Unit 4.

Figure 14 depicts the distribution of Knife Lake Siltstone in Unit 4. It shares some of the aspects of the distributive patterns of the rest of the site. The occupational zones around level three (9 cmbgs) and level five (15 cmbgs) are apparent. The earlier occupational peak in lower levels is not apparent in this graph of distribution, however.

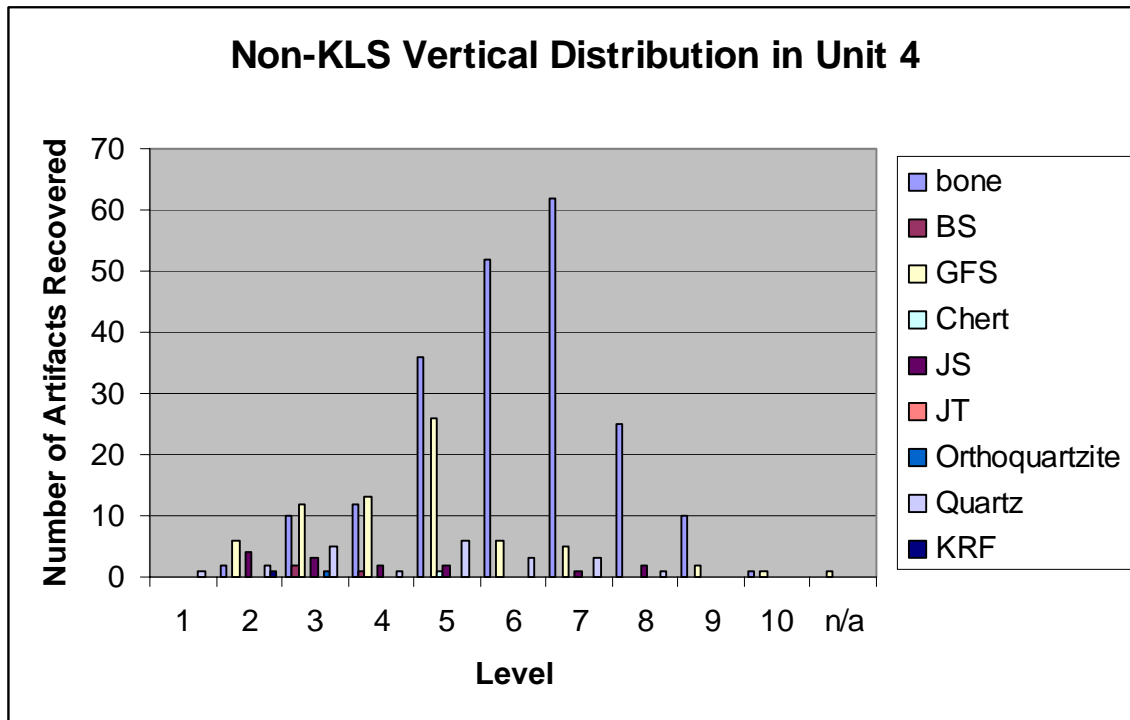


Figure 15- Distribution of non-Knife Lake Siltstone artifacts from Unit 4.

Figure 15 shows the distribution of non-Knife Lake Siltstone artifacts in Unit 4. There is a significant peak in Gunflint Silica use at the cultural occupation at level 5 (15 cmbgs). This correlates with the site-wide cultural occupation at this level. Bone peaks at level 7 (21 cmbgs) which could indicate a change in the use of this area of the site as time passed.

**Feature A**

Feature A was located in Unit 5, which was placed in the unexcavated corridor between Units 1 and 4. The semicircular feature was located on the boarder of the Northeastern quadrant of this unit. Excavations in a unit placed adjacent to this area would most likely unveil the remainder of this feature. Two distinct soil lenses were identified. A 3cm lens of ash grey soil that absorbed water quickly was located on the top

of a 6cm lens of soil lighter than the surrounding matrix. Soil from the eastern portion of the feature was bagged and later this soil was floated at the Mississippi Valley Archaeology Center. The feature not only contained lithic debitage, but floral remains were recovered from the light fraction. The validity of these floral materials remains in question for only one of the recovered remains was charred. Radiocarbon samples from were sent this provenience have been sent to the earth science department Brock University in St. Catharines, Ontario. The dates received from the radiocarbon dating show that this feature is a modern disturbance, most likely a fire built atop the ground fifty to one-hundred years ago. The presence of lithics in the feature can be explained by their proximity to a root, which most likely drew the flakes into this area.

The following table depicts the number and species of each of the recovered floral remains.

Species	Number of Fragments
<i>Rubus canadensis</i>	4
<i>Pinus sp.</i>	9
<i>Prunus pensylvanica</i>	6

Table 5- Floral remains recovered from Feature A.

Each of the species that floral remains were recovered from Feature A are native to the region. *Rubus canadensis* L. is commonly referred to as the smooth blackberry.

Below is a map of its growing areas in Minnesota (USDA: NRCS Plants Database 2007).

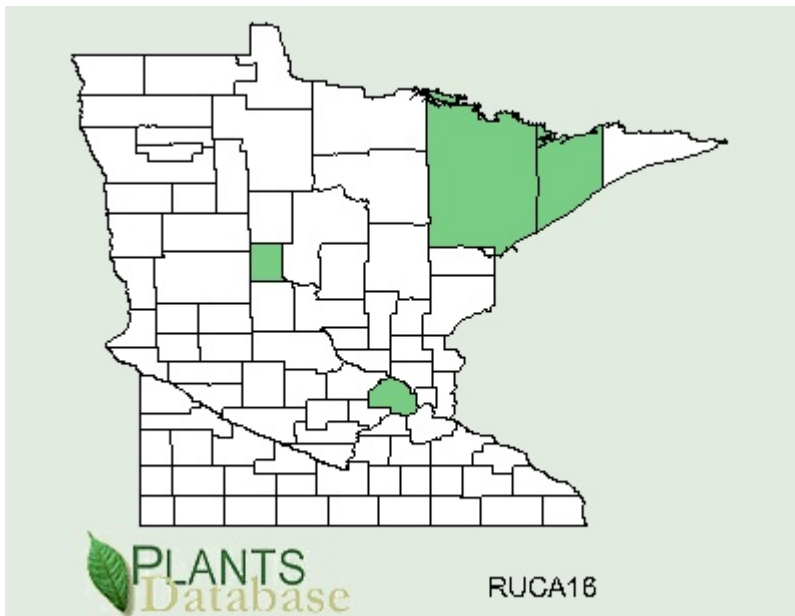


Figure 16- Growing areas of *Rubus canadensis* in Minnesota.

As depicted in Figure 16, *Rubus canadensis* L. is native to Lake County, where the Harriet Johnson Site is located. Most species of *Rubus* are native to the cool, temperate regions of the northern hemisphere (Forest Service 1974:738). The seed of *Rubus canadensis* L. are dispersed from July to September as the fruit ripens (Forest Service, 739).



Figure 17- *Rubus canadensis* seed (Forest Service 1974).

*Pinus*, the family of pine trees, is naturally native to the region for, as previously stated, this site location falls on the ecotone with the boreal forest. While the exact species of the *Pinus* seeds could not be identified, one can be almost certain that these seeds came from pines in the locality of the site.

The last type of floral remains recovered were from *Prunus pensylvanica*, commonly referred to as the pin cherry. This small tree or shrub is local to the site area (Forest Service, 659). The pin cherry produces fruit in June or July (Rook 2006). Below is a map of the distribution of this plant throughout Minnesota (USDA: NRCS Plants Database 2007).

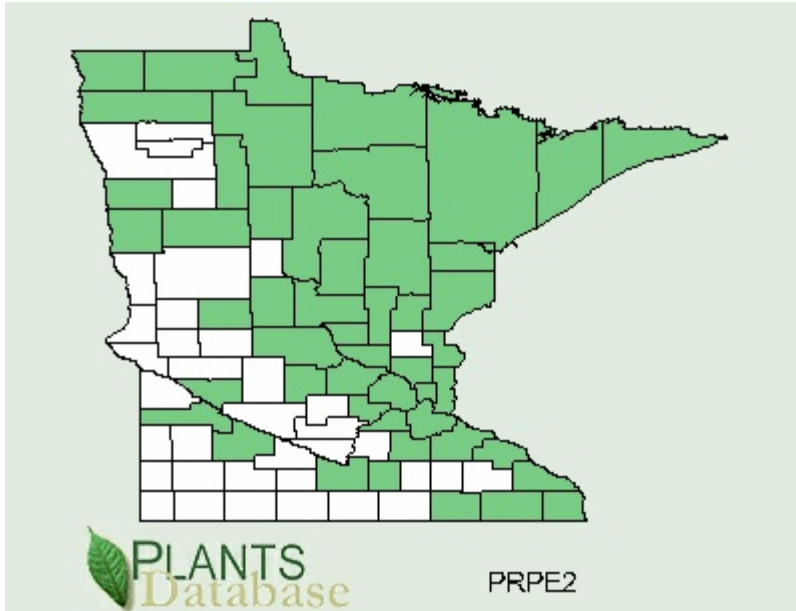


Figure 18- Growing areas of *Prunus pensylvanica* in Minnesota.

As can be seen in Figure 18, this plant is native to Lake County, where the Harriet Johnson Site is located. Below in Figure 19 is a photograph of a seed from this plant.

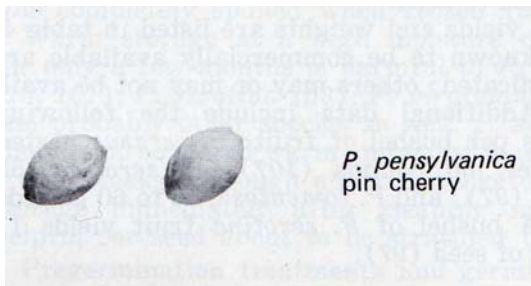


Figure 19- *Prunus pensylvanica* seed (Forest Service 1974).

Receiving the results of the radiocarbon testing, the archaeological validity of Feature A was evaluated and proven to be non-archaeological; therefore no suggestions regarding seasonality can be made from this floral data. If these floral types were exploited archaeologically the period of seasonal occupation would have been during summer to early fall (See Appendix D for more information about the radiocarbon dates).

### ***Faunal Remains***

The faunal remains of the Harriet Johnson Site were all recovered from the soil matrix of their respective units. These recovered remains were determined to be archaeological by Dr. James Theler, the faunal specialist at the Mississippi Valley Archaeology Center. All but one bone, which was determined to be a modern snake bone, were determined to be archaeological. These remains were calcined and burned, and such a condition could not occur from a forest fire due to the low ground surface temperatures such a fire would create (Jim Theler, personal communication). High temperatures from direct heating are necessary to develop such characteristics in these remains. Faunal remains can only survive in the aforementioned highly acidic soils of the boreal-forest conditions of the site location by being burned. These highly fragmented remains resulted in only basic taxons being identified for all but one remain which was able to be identified to a species. The turtle remains that were identified were determined to be from aquatic turtles due to the lack of terrestrial turtles in the area.

*Unit One Fauna*

Table 6, below, depicts the faunal remains that were recovered per level in Unit One.

level	turtle	bird	fish	turtle digit	catfish	amphibian	turtle vert	fish vert	mammal	unknown
6	5	1								3
7	41	2	1		1	1	1	1		22
8	69	5	1	2						89
9	49	4	1	2					1	48
10	27									12
11	2									
12	4	1		2						1
13	1									

Table 6- Faunal remains per level in Unit One

As can be seen in Table 6, there is a large concentration of turtle carapace and plastron fragments in this unit, specifically centered around levels 7 to 9 (21-27 cmbgs). Levels seven and eight also contain turtle digit bones, and level seven also contains a turtle vertebra. The Boundary Waters Canoe Area, where the Harriet Johnson Site is located within, contains three species of turtles: the Western Painted Turtle (*Chrysemys picta bellii*), the Wood Turtle (*Clemmys insculpa*), and the Common Snapping Turtle (*Chelydra serpentina*) (Rook 2004). Of these species, the only common species is Western Painted Turtle (Rook 2004). Adult painted turtles range from three and a half inches to seven inches in carapace length (LeClere 2002). This species occurs currently throughout the state of Minnesota (herpnet.net). Breeding occurs in May with the females laying eggs in June (LeClere 2002). This egg laying period would be the prime period of harvesting this species for consumption.

The other remains in this unit that could be identified to taxon are ambiguous as to which species they may belong to, except for one. A left anterior dentary fragment of a

catfish was recovered and identified from level 7 (21 cmbgs). This is the only positively identifiable bone fragment for species from the entire site's faunal collection.

A large number of elements were unidentifiable due to the intensive degree of fragmentation and lack of identifiable landmarks. The following figure, Figure 20, depicts the distribution of the taxon identifiable remains per level as recovered from Unit One.

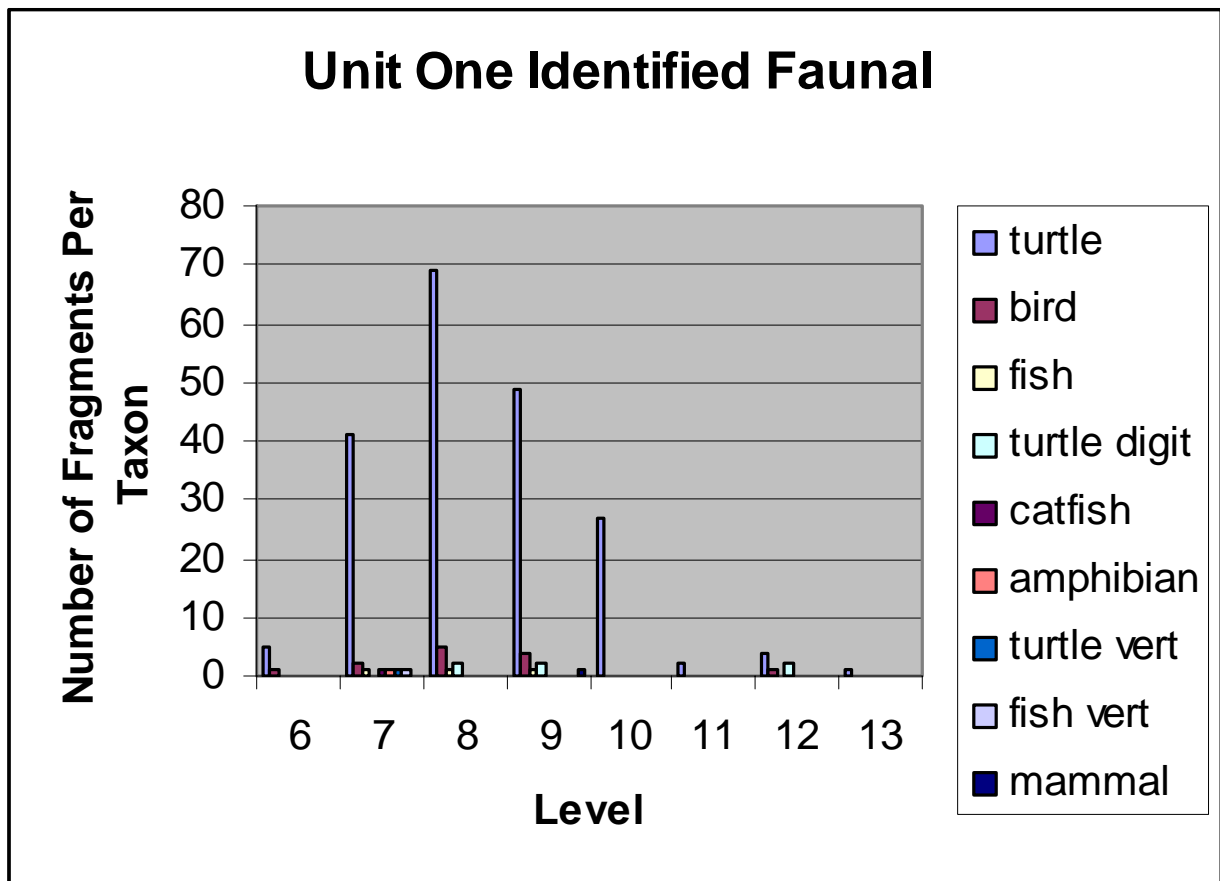


Figure 20- Distribution of identifiable faunal remains from Unit One.

### *Unit 2 Fauna*

Only two faunal fragments were recovered from Unit Two. Both were identified as mammalian. The following table, table 7, depicts the distribution per level of these two faunal fragments.

Unit 2		
7	1	mammal
8	0	
9	1	mammal

Table 7- Unit Two faunal remains per level.

Nothing can really be said about these two bone fragments except that this Unit is in close proximity to Unit Four and its diverse assemblage of faunal remains.

### *Unit 4 Fauna*

Unit Four is the second of the high producing Units for faunal remains. However the faunal assemblage from this unit is markedly different from Unit One. The following table, Table 8, shows this marked difference.

Unit 4					
level	Mammal	turtle	bird	modern	unknown
2	2				
3	3	2			3
4	10				2
5	18		1		21
6	18	1			35
7	8				54
8	8			1	5
9	2	1			7
10					5
11					1

Table 8- Total faunal remains per level from Unit 4.

As the above table shows, the faunal assemblage of this unit is largely mammalian bone fragments. The largest number of identifiable remains are centered around levels

four through six, but this is misleading. The largest number of faunal remains actually occurs around levels five through seven (15-21 cmbgs), when the number of fragments that are unidentifiable are taken into account. Also in this unit are a small number of turtle as well as one bird bone. One modern snake vertebra was recovered in Level 5, as well. The segregation of primary faunal remains is striking when this faunal assemblage is compared with Unit One. Right away it can be seen that while Unit One has a focus on aquatic faunal remains, Unit Four has a focus on terrestrial species.

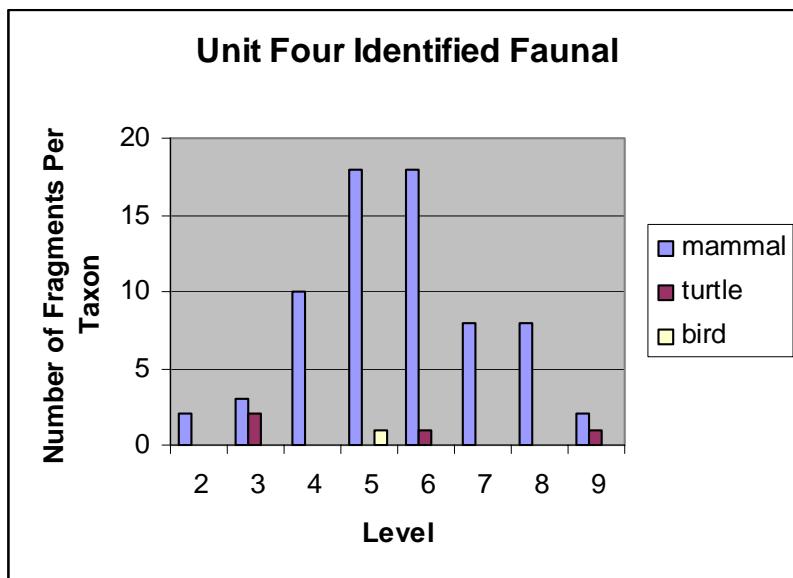


Figure 21- Distribution per level of taxon identifiable faunal remains in Unit 4.

## Discussion

The lithic distribution graphs indicate that Knife Lake Siltstone is the most prominent raw material type. This makes sense, for it was the raw material type closest to the site.

Through the use of data analysis I believe that there were three occupations at the Harriet Johnson Site. The earliest occupation included the exotic raw materials of Orthoquartzite, Hudson Bay Lowland Chert, and Knife River Flint. This occupation also included a find of the midsection of a Knife Lake Siltstone point. The fragment was lanceolate in form with parallel flaking scars. From its manufactured form it could be argued to be Paleoindian or Early Archaic.

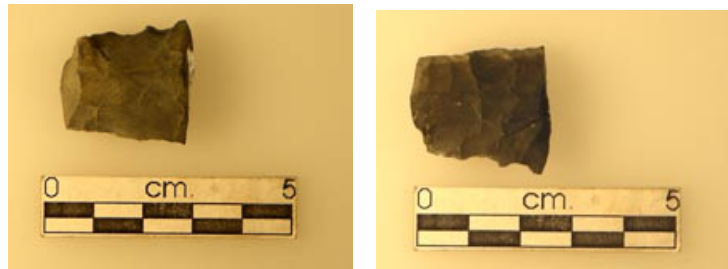


Figure 22- Medial section of point from Unit 1.

The middle occupation around level 8 contained mainly Knife Lake Siltstone flakes, along with a good amount of tertiary Gunflint Silica flakes. A point knapped out of Gunflint Silica was found with this occupational zone.



Figure 23- Gunflint Silica point fragment from Unit 1.

This point would explain the high number of Gunflint Silica flakes found in this area. The tertiary flakes would be from re-sharpening of this point. The number of exotic raw materials during this occupation is very low. Based upon the point style found in this level as well as the raw material distribution I would place this occupation around the Early Archaic.

The last occupation of this site is quite interesting. It is in this occupation that the copper artifacts were located. The larger copper fragment has been hammered into a conical shape, which could be argued to be a conical point.



Figure 24- Fragment of possible conical point from Unit 1.

This occupational zone did not produce points, but two stage-two bifaces and a uniface, all of Knife Lake Siltstone, were found in this occupational zone. This occupational zone also had exotic materials of Hudson Bay Lowland Chert and Knife River Flint in the occurrence of tertiary flakes.

Based upon the occurrence of exotic materials from the Canadian Shield, hammered copper, and ovoid bifaces, as well as the site location, this occupational zone best fits into the Middle Archaic period. The cultural complex this occupational zone best fits into is the Shield Archaic.

The faunal analysis of this site is especially important for it is only the fifth faunal assemblage to be analyzed in the Superior National Forest, and the first faunal assemblage from the local area around the site, if not the entire Boundary Waters Canoe Area Wilderness to be subject to such analysis. It is interesting that there is such a stark contrast between faunal remains between units one and four. It is also interesting and important to note the association of these faunal remains with the previously identified cultural levels of occupation. Unit 4 with its mammalian remains has a peak around levels five and six (15-18 cmbgs). This corresponds to the most recent occupation of this site. In contrast, Unit 1 with its faunal assemblage consisting primarily of aquatic remains has its peak at level 8 (24 cmbgs). This peak corresponds to the middle occupation of this site that has been suggested above to be a Shield Archaic occupation.

With Feature A not being archaeological it cannot be assumed that the floral remains are archaeological. The fructation periods for the floral seeds which were recovered in the feature begin in June and July and continue into early fall. This corresponds with the aforementioned period of painted turtle egg lying season which occurs around June; from this an assumption that these resources were exploited archaeologically can be argued.

From the identifiable archaeological remains this places the main occupational period of this site in a summer to early fall context. Only assumptions can be made about the mammalian and bird faunal remains, but one can argue that some of the mammalian remains are most likely from Woodland Caribou. The proximity of this site to a narrowing in the border between Sucker on the Moose chain of lakes and Basswood Lake places this site at a prime area for a fall caribou crossing. This site clearly exhibits many signs of being an archaic site, and even of the main occupation most likely belonging to the Shield Archaic culture.

## **Conclusions**

This site appears to have three major occupational zones. The middle occupation holds artifacts which are typical of the Shield Archaic as defined by J.V. Wright. The main area of occupation appears to be on the upper terrace of the site, most likely centered around Unit 5. Tool production is localized in the area around Unit One, but tool production occurred site wide. Faunal remains were localized in Units One and Four, with aquatic resources comprising the assemblage in Unit One, and terrestrial remains in Unit Four. The hearth feature has been confirmed to not be archaeological, even though it contained flakes, floral remains, and is located in the center of the occupational area. The substance remains focused on mammals, birds, turtle, and fish, with one confirmed catfish element, and possibly pin cherry and blackberries. Tools appear to have been sharpened and to have been broken in use rather than in production. Since this is a seasonal site, it can be implied that the tools made of the exotic and higher quality materials were taken with the inhabitants as they followed their seasonal round. Overall the integrity of this site is fairly decent only being compromised by the presence of a campfire feature from a much later time period. This site is also significant for its association with the Shield Archaic would help aid in the understanding of this regional culture.

## **Acknowledgements**

I would like to thank the United States Forest Service for their loan of the entire site assemblage of the Harriet Johnson Site for this project. I also thank them for allowing me to float Feature A and send in two Radiocarbon samples for C-14 dating.

I would also like to thank the Undergraduate Research department at the University of Wisconsin-La Crosse for awarding of a grant for the cost of the Radiocarbon dating and the flotation of Feature A.

I would like to extend a hearty thanks to my advisor throughout this process, Dr. Constance Arzigian. She has read through many a copy of this paper and provided valuable insight into how to approach this paper. I thank her for her time, the use of her journals, and for telling me about Microsoft Access and how it would greatly benefit my work.

I would also like to thank Bill Clayton of the United States Forest Service's Superior National Forest for his help in arranging the loan of the artifact assemblage, the use of primary resources from the SNF's library, and for his guidance and support throughout this process.

I would like to thank Jim Theler for his advice as well as his assistance in the faunal analysis of the bones from this site. I know that the faunal remains were not the best, but the analysis helped a lot.

I would also like to thank my parents, especially my mother Jane Lohman, for their continued support throughout this project. You were always there to listen to my complaints and problems as well as the successes of this project. You also let me borrow your digital camera to take better photos of the formal artifacts.

Lastly, I would like to thank my significant other, Tyler Butler, for his continued support of this project and my field of study. You were there to listen to me when this project got me down or caused headaches, but also were able to share in the joy of its successes and its completion.

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**Appendix A: Photographs and Illustrations of additional formal artifacts.**



Figure 1- Copper fragment from Unit 1.



Figure 2- Raddatz-like point from shovel test.



Figure 3- Possible Point fragment.



Figure 3- End scraper.



Figure 4- Biface fragment.



Figure 5- Side scraper.



Figure 6- Point fragment.



Figure 7- Utilized Flake.

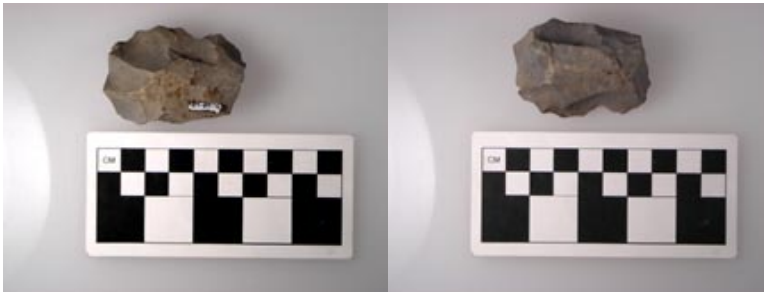
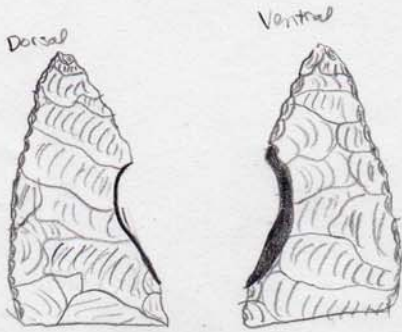


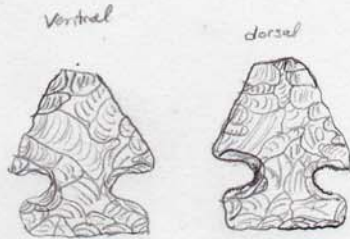
Figure 8- Stage One Biface.



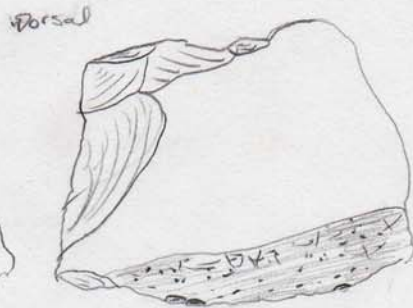
Figure 9- Biface Fragment.



East wall clean up  
Unit 1  
Lot 191



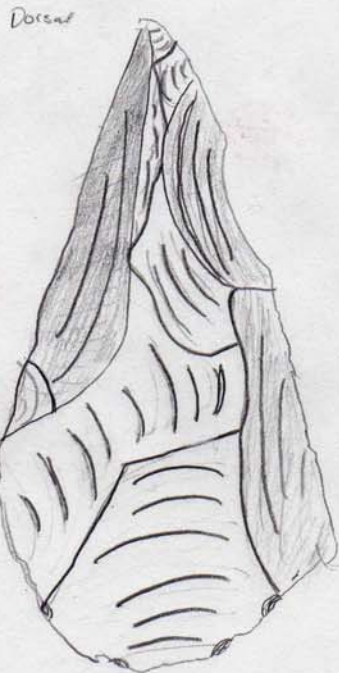
Jasper Tac  
Radditz Pt.  
Shovel test 4



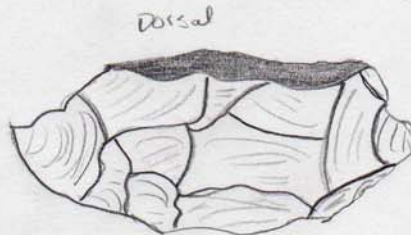
East wall clean up  
Unit 1  
Lot 191



Unit 1  
Level 10



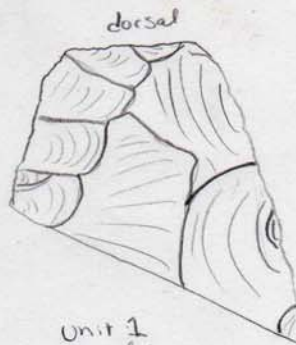
East wall clean up  
Unit 1  
Lot 191



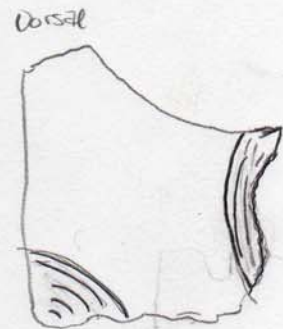
Unit 1  
Level 3



Unit 2  
Level 7



Unit 1  
Level 6



Unit 2  
Level 5

Dorsal



Dorsal



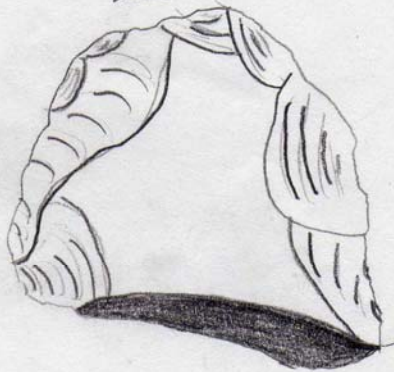
Ventral



Unit 1 Level 8  
NE quad  
GFS point

Unit 2  
Level 3  
on face

Dorsal



Ventral

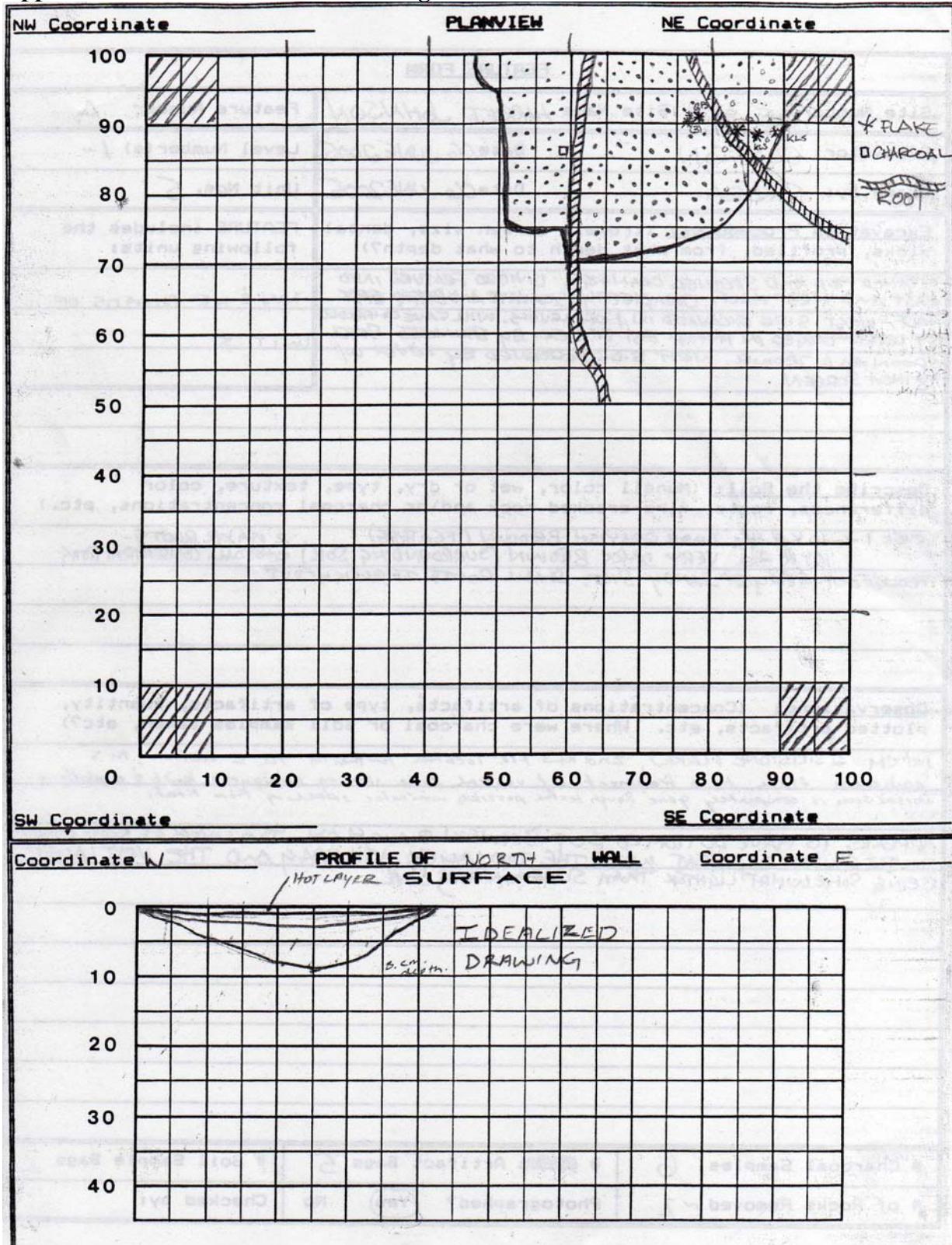


Unit 1  
Level 5

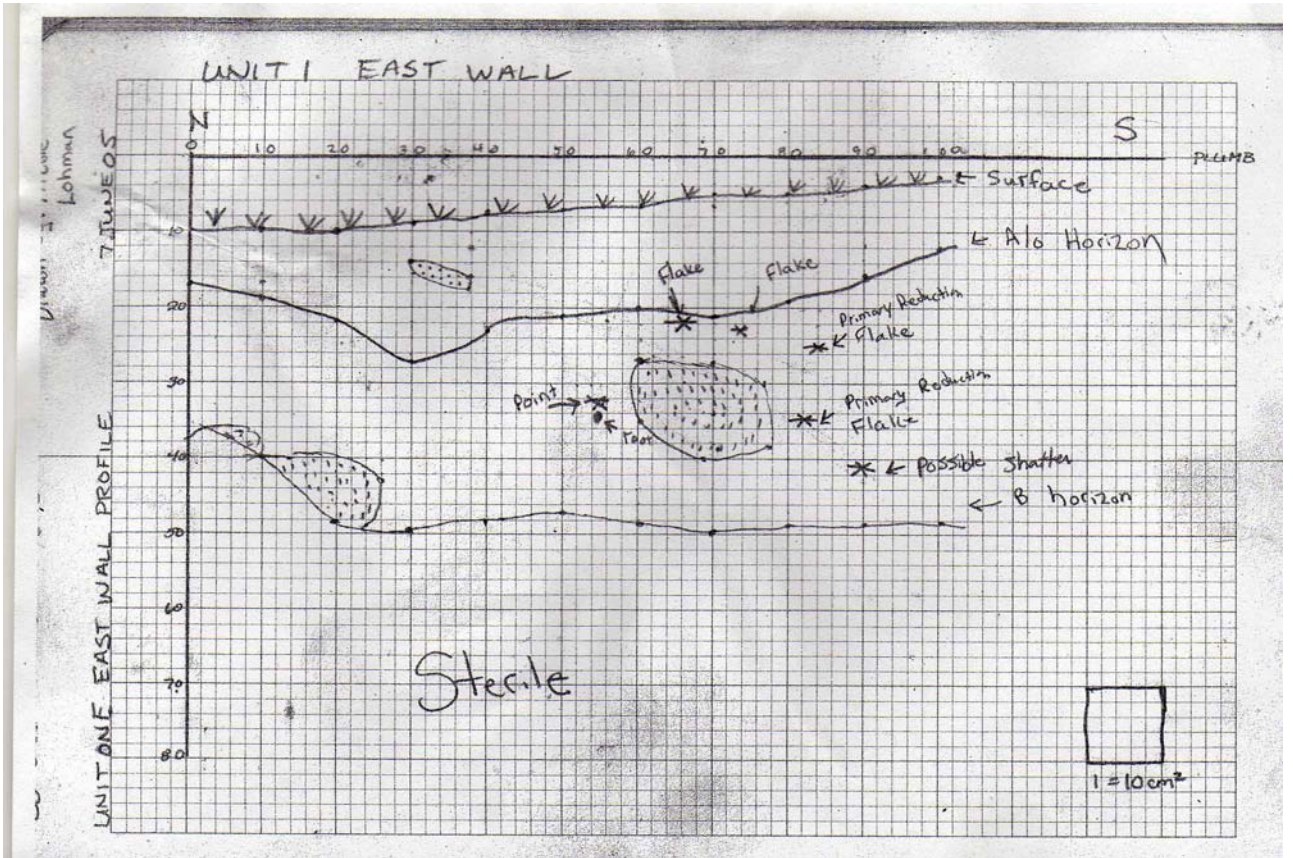


Unit 2  
Level 5

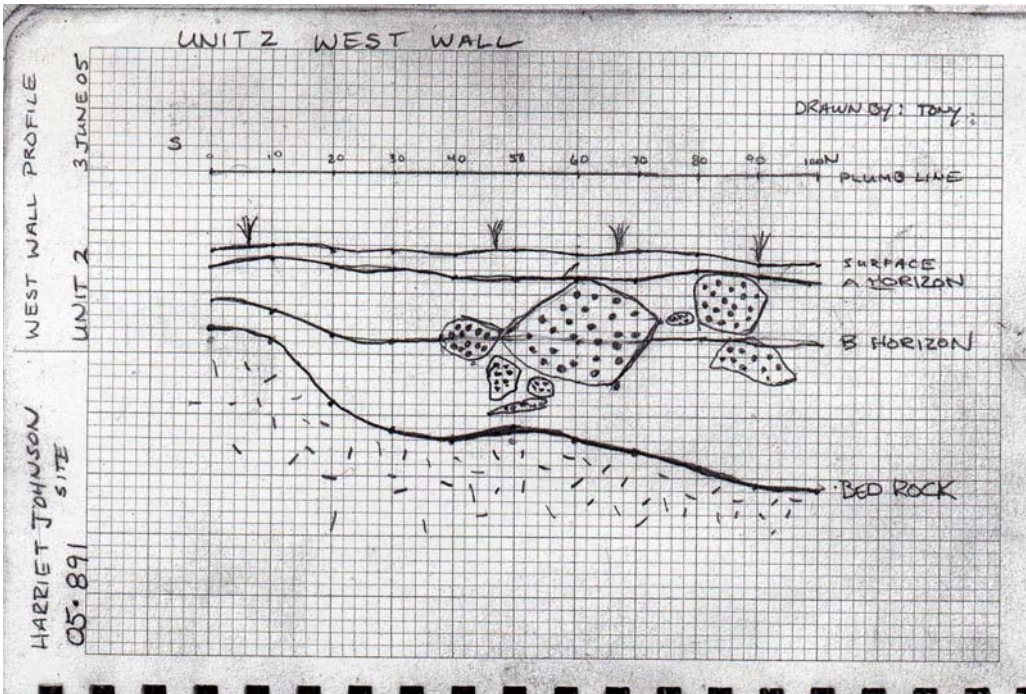
Appendix B: Unit Five Feature Drawing from Site Form



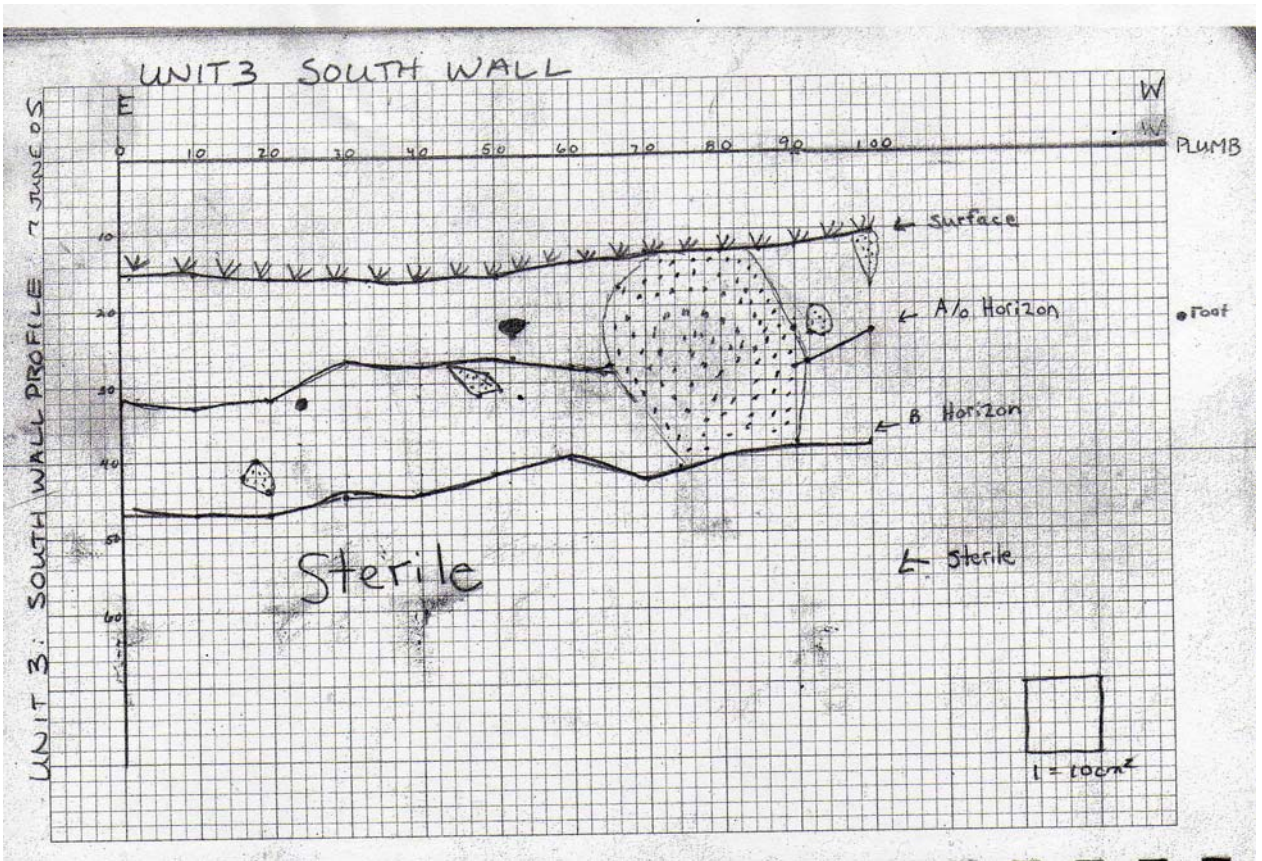
# Appendix C: Unit Profile Drawings



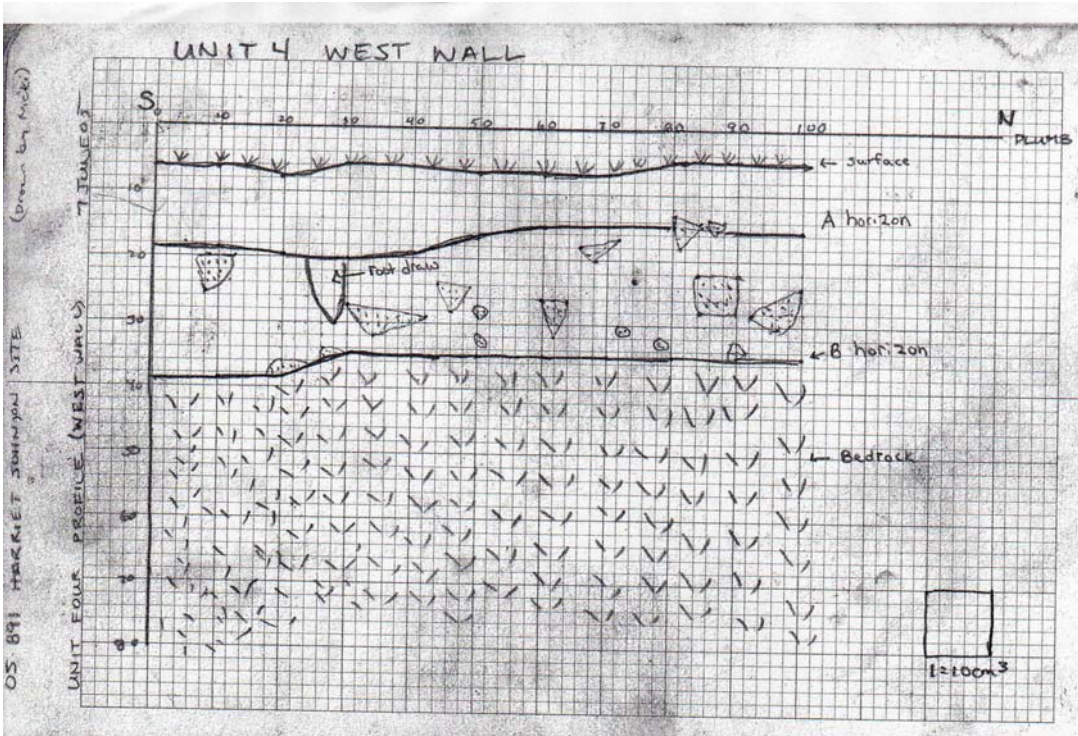
Unit 1 Profile



Unit 2 Profile



Unit 3 Profile



Unit 4 Profile

## Appendix D: Radiocarbon Dates

Two radiocarbon samples of charcoal from Feature A were sent to Brock University for Carbon-14 dating in January 2007. It was noted at the time that not all of the charcoal was completely burned all the way though. Constance Arzigian, the laboratory director at the Mississippi Valley Archaeology Center noted that she has seen this occur at times in the archaeological record (Constance Arzigian, personal communication). Uncalibrated dates were received April 2, 2007. Howard Mellville from the Department of Earth Sciences at Brock University provided the following uncalibrated dates.

BGS 2801 Site 05.891 Feature A West ½	166 +/- 50 yrs BP ~ abt. 1784 A.D.
BGS 2801 Feature A West side Level 2	357 +/- 70 yrs BP ~ abt. 1593 A.D.

Even with C12/13 calibration these dates would not even begin to approach archaic dates. As the feature form in Appendix B shows, this feature's ash lens was 3cm thick just under the sod layer. Soil heating occurred below this ash lens, but the lens and heated soil do not correspond to the cultural layers of occupation as defined in the previous report. As such this feature is in no way archaeological. One of the field crew in the summer of 2005 noticed that about 25 meters west from the excavation area were the remains of an old fishing or hunting shack. The Wilderness Act for the BWCA did not go into effect until around the 1970s so the campfire area may have been from a group of individuals before this time who were taking advantage of the area's natural resources.

Due to the time period indicated by these dates, it can also be argued that this is a fire built by one of the many groups of fur traders that transversed the Border Lakes route. In fact, a fur-trade site, Lenore's Point, has been identified and excavated less than a mile east from the Harriet Johnson Site. Lenore's Point yielded a fur pack seal as well as various other fur trade artifacts.

### **Appendix E: A Special Note about Figure 3**

Please note that this site map of the Harriet Johnson Site is not an original map from the time of the excavation. This map is only provided to give the reader a basic visual reference as to the layout of units upon the site area. Unfortunately all original GPS site maps as well as sketch maps of this site have been lost or misplaced due to a drastic and somewhat sudden turnover of employment at the Superior National Forest the year of this excavation. As a result the new employees have yet to locate the missing materials and have considered them lost for the time being. This map was created based upon secondary data and the memory of excavators at this site. It in no way should be considered a fully accurate site map.