

CHAPTER 7: PREVIOUS ARCHAEOLOGICAL RESEARCH

Of all the recorded pre-BOM occupation and use of the Camp Coldwater Locality, today only the spring, reservoir, Coldwater Creek, and a portion of a military railroad bed remain readily visible at the surface on the BOM property. Evidence of pre-European contact American Indian use of the Camp Coldwater Locality was found on Society land some 200 meters east of the BOM tract. While no American Indian artifacts were recovered during the current project there is a probability that some evidence of these earlier occupations may be present on the BOM tract, as well.

Prior to the current project, a single archaeological reconnaissance survey including sub-surface testing of the tract had been undertaken (Ollendorf 1996). That work consisted of surface reconnaissance of a single area of bare soil exposure, one excavation unit, and 26 shovel tests. The results of that research allow only limited interpretation since shovel tests were, with the exception of some auguring to greater depths, often excavated to depths that never penetrated the natural soils under fill placed over the site in the 1950s. Also, because those excavations were apparently conducted using arbitrary methods, it is not possible to determine if any of the recovered material culture was from in situ, undisturbed contexts.

The findings of Ollendorf's 1996 research resulted in a series of recommendations for each of the 10 areas researched during that testing operation (Figure 26). The recommendations and conclusions presented in this document sometimes differ from those of the Ollendorf report. Rather than restate the findings of that research, the reader is referred to that report to see specific management recommendations made at that time. Because they differ from the findings of the current work, a brief discussion of the differences and/or similarities of the finds and recommendations between the two surveys are presented in the relevant groupings developed below.

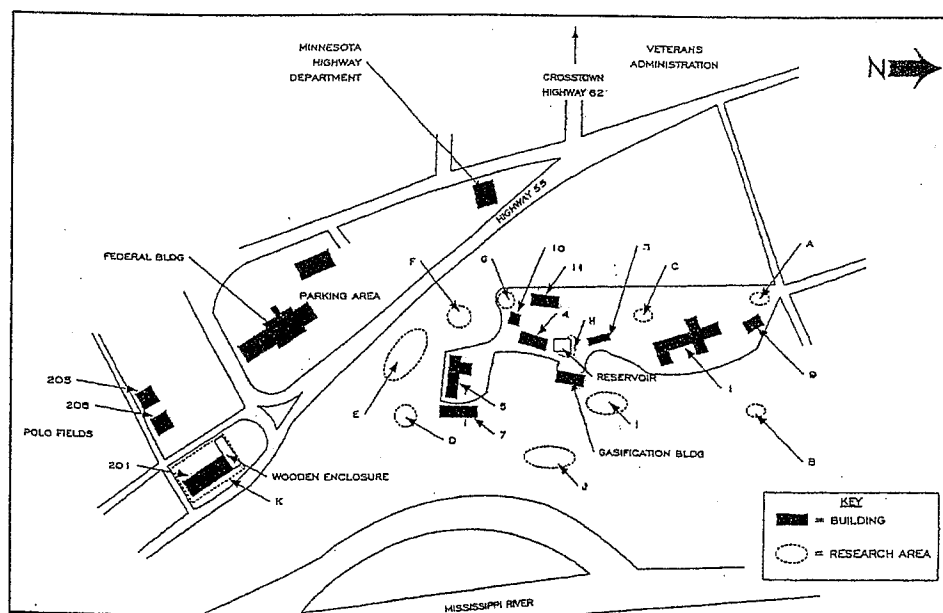


Figure 26 Braun Intertec 1996 testing areas (from Ollendorf 1996).

CHAPTER 8: FIELD METHODS

The current project was designed and implemented to identify buried cultural resources in advance of the proposed land transfer discussed in Chapter 1. Part of the research emphasis, in particular, was the identification of resources of the Camp Coldwater Locality that are a component of, and contribute to the significance of, the Fort Snelling National Historic Landmark. Resources that relate to earlier American Indian occupation and/or use of the area were also a focus of research. However, no material cultural assignable to an American Indian occupation was discovered.

Extensive historic documentation exists of the Fort Snelling area. A number of historic maps and plans dating back to the early 1820s contain data about the Coldwater Locality that relate to the period of significance of the NHL (Clouse 1996; Clouse and Steiner 1998). Some of these cartographic documents show resources that were once present on the BOM tract. Recent research in the vicinity of the NHL in association with a highway construction project has shed some additional, but contradictory, light on cultural resources in the vicinity of the BOM property (Halvorson et al. 1999; Berger 2000; White 2000). However, none of these investigations were conducted on the BOM tract. The work of Ollendorf was discussed in the previous section of the report.

The grading plan (Figure 24) recently found by the author provided important information to aid in the formulation of a testing program that permitted the location and subsequent documentation of undisturbed strata that contain archaeological deposits. However, this plan does not document conditions on the entire BOM property--essentially only the northern one-third of the tract; and unless verified by additional archaeological work should not be considered as an "as built" drawing. These plans showing a detailed representation of what was to be constructed on a portion of the property in the 1950s. Furthermore the plan does not provide information about more recent building construction such as buildings 4 through 11, new road construction, utility work, and other unspecified and more recent modifications to the BOM parcel. In addition, a considerable amount of the BOM property is covered with asphalt in one large and several small parking lots and roadways. As is evident in Figure 25, the current project tested areas beyond that shown on the grading plan (Figure 24).

A research design was written, submitted and approved by the NPS to provide direction for archaeological testing on the BOM property. The research design served as partial documentation for an application for an Archaeological Resource Protection Act (ARPA) permit that was issued for the research. In order to implement that design, standard MHS Archaeology Department field methodology protocol was employed in the excavations. This protocol consisted of the use of stratigraphic excavation methods within formal 0.5 x 0.5 meter or larger units carried to culturally sterile subsoil/bedrock when feasible. Because the entire project area is within a known site (21HE99) and within the Fort Snelling National Historic Landmark, all hand excavated testing was undertaken with formal units. All excavations were open to the public and a few visitors spent an incalculable number of hours watching the excavation process.

Remote sensing methods were initially considered as a potentially useful method to attempt to define building parameters. However, the abilities of Ground Penetrating Radar (GPR) and Electron Magnetometry (EM) have severe limitations in shallow bedrock settings. The use of geophysical exploration methods has previously been attempted at Fort Snelling. A previous attempt to use GPR at the site of the original stables produced severe problems with false negatives and false positives due to the use of construction materials built directly on, and out of the same material upon which they were founded. Discussions with GPR and EM specialists at the Federal Bureau of Investigation (V. Clifton, personal communication), GPR and EM manufacturers' representatives (J. McJunkin, personal communication), and recent research by the National Park Service (S. DeVore personal communication) all agree with the limited utility EM and GPR would have in the shallow bedrock-founded settings in the Fort Snelling area. The results were also highly likely to be severely limited due to the mixed, inconsistent, and variable nature of the fill that has been documented over years of archaeological research in the vicinity. As a result of consultant discussions, the specific conditions obtaining in the areas to be investigated, and the limited utility for the specific goals of the current project, remote sensing equipment was not a part of the research methods for the current project. Historic documents, however, have proved to be of considerable utility in locating historic features in this context. As discussed above, data collected by over 30 years of historic documentary research as well as recently discovered documents were used as an initial, but not the sole, resource to assist in directing the scope and location of excavations.

No new geomorphic studies were undertaken with respect to the current project. Because of recent soils, geological, and geomorphic studies conducted within the NHL (Hundley 1976; Leuth 1974; Meyer and Hobbs 1989) and previous archaeological research (cf. Clouse 1996), historic documentation the relationship between the anthropogenic nature of the strata and geomorphic structure were generally known. Nonetheless, the author consulted with Dr. Howard Hobbs of the Minnesota Geological Survey with respect to the relevance of the specific data obtained from this study and that data used to support conclusions in the recently published studies on the geomorphology of Hennepin and adjacent Dakota counties (Meyer and Hobbs 1989; Balaban and Hobbs 1990). Dr. Hobbs' conclusion (personal communication) was that the stratigraphic data collected as part of the current project was not inconsistent with the conclusions reached in the published data on the project area. The surficial stratigraphy was anthropogenic in nature and the role of geomorphic factors on this documented terrain was essentially not pertinent. Furthermore, based on previous archaeological research, it has been shown that the significant factors responsible for creating and/or altering stratigraphic elements at the Fort Snelling site in general were largely cultural and not natural ones (cf. Clouse 1996; Clouse and Steiner 1998).

The current archaeological undertaking consisted of a systematic survey and testing of high potential areas of the BOM tract by archaeologists experienced in the archaeology of the Historic period. The methods used reflect the variable nature of the geomorphology, soils, and land use history of the Locality. In order to provide appropriate archaeological controls and document the nature, extent and condition of cultural material it is important to know not just presence/absence, but the stratigraphic context of those objects/features recovered. Historic period archaeological sites frequently have considerable quantities of material culture spread

over a relatively large area. The significance of the relationship of the material culture to stratigraphic layers and their potential to answer questions important in archaeological research lies in the relationship of the material culture to the strata in which they are found. Towards this end archaeological testing was conducted using stratigraphic methods. As part of the cooperative agreement, the NPS provided a qualified historic archaeologist to assist with field operations. The fieldwork component of the project was directed by the author with assistance and review by Vergil Noble, historic archaeologist at the National Park Service, Midwest Archeological Center in Lincoln, Nebraska. Additional field personnel participating in the project over the extended field research period included Elizabeth Knudson Steiner, Laurie Sue Holt, and Allison Devers.

Well-defined stratigraphic levels were known to exist throughout all areas previously investigated in the fort complex (Clouse 1982, 1996). It was expected that similar conditions existed in the areas to be tested within the scope of the current project. These expectations were met with clearly defined stratigraphic levels recovered in 28 of the 30 units excavated. Because of the presence of such well-defined anthropic horizons, an accepted rule in archaeological methods is that the presence of definable stratigraphy dictates the use of stratigraphic excavation methods (e.g. Barker 1983; Harris 1989; Hester et al. 1997; Joukowsky 1980; Newlands and Breede 1976; Schofield 1980). The record of the vertical distance of an object from the surface tells nothing of the layer of its origin nor of its age extractable through traditional archaeological dating methods. Its vertical depth is likewise of no value in the presence of soil layers that are sloping or so thin that multiple layers might be incorporated in a single arbitrary excavation level (Newlands and Breede 1976). The use of stratigraphic excavation is the only acceptable method to accurately determine the nature and context of material culture in the presence of stratigraphic layers. Research by Barker (1983), Clouse (1982, 1996), Clouse and Steiner (1996a, 1996b), Harris (1989), Harris et al. (1993), Newlands and Breede (1976), and others describe the necessity for such an approach to achieve the interpretability of archaeological data. This methodology is critical to the process of evaluating the presence or absence of primary deposits that have been demonstrated to exist at Fort Snelling (Clouse 1982, 1996; Tordoff 1979).

All excavations for the current project were conducted using stratigraphic methods (Barker 1983; Clouse 1982, 1996; Clouse and Steiner 1996a, 1996b; Harris 1989). Vertical recording and site stratigraphy are based upon the use of the *locus/context* concept developed for complex sites (Schofield 1980; Clouse 1982; Clouse and Steiner 1996a, 1996b; Harris 1989; Harris et al. 1993; Szondy and Clouse 1990). Briefly, a locus/context is a layer, deposit, feature, cut, or any other aspect of a site that may be found in the stratigraphy. Each stratigraphic entity is identified with a number and its characteristics are detailed on a standard locus/context recording form. The locus numbering system was a one-up numbering process. Because more than one unit was excavated at any point in time, locus numbers within a single stratigraphic sequence may not be consecutive; but since context number assignments are only for reference purposes, it is only necessary to document the associations between the numbers and particular strata. The strengths of this system are that any aspect of the site may be recorded without having to give it a label which implies an interpretation. The stratigraphy of each excavation unit can be charted graphically and these charts are then combined to provide an illustration of site stratigraphy known as a Harris Matrix (Harris 1989; Clouse and Steiner

1996a, 1996b). Elevations, referenced to documentation of building floor elevations on BOM construction plans, were recorded on the upper and lower surfaces of each locus. All of the strata recorded during the current project were in quite straightforward and nearly level layers. The stratigraphic relationships were of a "layer cake" pattern and exhibited no crosscutting relationships. All soil was removed by stratigraphic layer in 0.5 x 0.5, 0.5 x 1, or 1 x 1 meter square or rectangular blocks in the reverse order of their cultural deposition, or in the absence of such recognizable deposits, through the use of arbitrarily defined levels five centimeters thick.

Formal excavation units were used on this project for a number of reasons:

- 1) the existence of a site had already been documented from previous work (Ollendorf 1996),
- 2) there is historic documentation that strongly indicates occupation of the area during the early Historic period which is also the period of significance of the Fort Snelling National Historic Landmark,
- 3) the property is within the boundary of 21HE99, the Fort Snelling archaeological site, and
- 4) much of the parcel is also within the Fort Snelling National Historic Landmark..

Using the methods employed here, particularly large features or areas can be excavated as a series of identifiable contexts, which can then be analytically combined as historically meaningful stratigraphic contexts. Standard recording procedures required by the locus/context system also serve as a check against improper and incomplete recording. Where relevant, additional recording techniques, such as artifact piece-plotting, was implemented to assist in the analytical process. Processing of soil utilized a one-quarter-inch mesh shaker screen.

Cultural materials and other significant objects were collected by stratigraphic unit and placed in labeled bags. Soil profiles, soil descriptions, and detailed plan view drawings were made of all recognized deposits, and generalized descriptions of the material culture collected were recorded on recording forms. Standard Society Archaeology Department locus forms were used to record the relationships of strata to artifacts and strata to each other assuring that relationships are well-documented, analyzed, and corroborated in the field.

A process was developed for implementing necessary field conservation methods as needed. The Society's objects conservator was assigned the task of stabilizing and/or repairing objects when their condition warranted field treatment. However, no material culture was recovered during the current project that required field conservation. When necessary, the research team was also prepared to collect selected soil samples from contained, definable contexts to be processed through flotation in the laboratory to attempt to recover data relevant to site interpretation. No deposits such as pits and hearths were however identified during the excavations.

Principal photography was in 35mm format in color and black and white. Digital photographs were sometimes used as a supplemental backup system. Archaeological records and materials are curated at the Minnesota Historical Society under terms of an agreement with the

Department of the Interior. The Society is a federally approved curation facility under 36CFR Part 79 and an institution accredited by the American Association of Museums. The Minnesota Historical Society's Archaeology and Museum Collections Departments permanently curate originals and copies of field notes, maps, catalogs, photographs, and other records.

Most of the stratigraphic layers identified during the excavations were the product of fill episodes. Fill deposits are distinct from "disturbed" deposits and each fill deposit is considered an artifact in itself (Clouse 1982, 1996; Deetz 1977; Newlands and Breede 1976; Schiffer 1987; and others). The fill deposits found here represent deliberate and incidental human action such as efforts to raise the grade, the creation of special surfaces, the disposal of trash, or were the result of specific actions (such as repair and/or replacement of facilities). These episodes are important to the interpretation of earlier activities at this site in that information about many of these actions are not present in the historic record. Much of the information about what went on at this place can be found only in the archaeological record (Clouse 1996).

Subsurface exploratory test excavations were directed by the results of review of historic maps and plans, the 1950s grading plan, and intuitive and random sampling methods. A total of 30 shovel tests (some of which were expanded into 0.5 x 1 or 1 x 1 meter units) including eight deep machine excavated trenches to remove fill overlying early ground surfaces. These trenches were necessary to reach soil levels buried by the 1950s BOM construction.

Machine assisted testing was employed and limited to three conditions (also detailed below):

- 1) where historic records and construction documents indicated that significant cutting took place during the initial BOM facilities construction that was used to document the extent of disturbance from previous construction,
- 2) where historic records and construction documents indicated that significant quantities of fill had been placed over the pre-construction surface to expose strata that were at the surface prior to the construction of the BOM facilities, and
- 3) where it was necessary to penetrate asphalt to expose underlying strata.