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Title: Evaluating the Impact of National Park Service Landscape Preservation Policies  
on Archaeological Site Formation: Archaeology of the Nevada Camp (42WS4484)

Abstract approved:

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David R. Brauner

Between 1927 and 1930 the Nevada Contracting Company of Fallon, Nevada constructed the Zion Tunnel and a portion of the Zion-Mt. Carmel Highway in Zion National Park, Utah. During the construction approximately 200 workers lived at the contractor's camp, known today as the Nevada Camp. This camp, a temporary work camp, was dismantled upon completion of the construction project and the site was cleaned to the National Park Service landscape preservation standards. Rules and standards set forth by the National Park Service subjected the Nevada Camp site to a substantial cultural transformation process. Research conducted at the Nevada Camp (site number 42WS4484) determined whether identifiable behavioral patterns existed archaeologically in temporary work camps that have been modified by such a substantial cultural transformation processes and provide a base for evaluating the impact of activities such as site dismantling.

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Evaluating the Impact of National Park Service Landscape Preservation Policies on  
Archaeological Site Formation: Archaeology of the Nevada Camp (42WS4484)

by  
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I understand that my thesis will become part of the permanent collection of Oregon State University libraries. My signature below authorizes release of my thesis to any reader upon request.

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Juanita T. Bonnifield, Author

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Finally, I would like to acknowledge the workers of the Nevada Contracting Company who took less time to construct the Zion Tunnel and Zion-Mt. Carmel Highway than I took to conduct research on the camp where they lived.

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## **CHAPTER 1: INTRODUCTION**

The 1920s saw the beginning of great development in the National Parks across America. Technological advances allowed more people to travel in state-of-the-art automobiles to previously inaccessible destinations. The Organic Act of 1916 established the National Park Service as a conservancy agency charged with the management and protection of natural and historical resources while providing “for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations” (National Park Service Organic Act 16 U.S.C.1).

With the new-found freedom of travel, lands administered by the recently established National Park Service became popular destinations and park visitation began increasing annually (New York Times 1925). The National Park Service strove to accommodate the increasing number of visitors and their desire for adequate access by developing existing roads and constructing new roads and scenic byways. At the same time however, the National Park Service remained dedicated to the preservation of the natural landscape and scenic beauty of the National Parks. To achieve these apparently dichotomous objectives, landscape engineers and architects worked with civil engineers and construction contractors to determine the placement of roadways, quarry pits, and work camps, define minimum impact construction practices, and establish post-construction clean-up standards (McClelland 1998).

Zion National Park, located in southwestern Utah (Figure 1.1), was among the national parks visitors were flocking to see. Established in 1919, Zion National Park offered a dramatic landscape of canyons and cliffs. Although geologically unique, the remoteness of the area resulted in limited access on nearly impassible roads. From its inception the park was promoted as a tourist destination with administrators actively seeking the means to develop roads and increase access (Markoff 1982). The construction of the Zion-Mt. Carmel Highway and the Zion Tunnel saw the culmination of years of planning.

Between 1927 and 1930, the Nevada Contracting Company of Fallon, Nevada, constructed the Zion Tunnel and a portion of the Zion-Mt. Carmel Highway in Zion National Park, Utah. During the construction, approximately 200 workers, some with families, lived at the contractor's camp known today as the Nevada Camp (Figure 1.2). This was a temporary work camp that was dismantled at the completion of the construction project, and the site cleaned to National Park Service landscape preservation standards (Scoyen 1930).

Rules and standards set forth by the National Park Service subjected the Nevada Camp site to a substantial cultural transformation process. This research conducted at the Nevada Camp (site number 42WS4484) examines whether behavioral patterns can still be identified archaeologically in temporary work camps that have been modified by substantial cultural transformation processes.

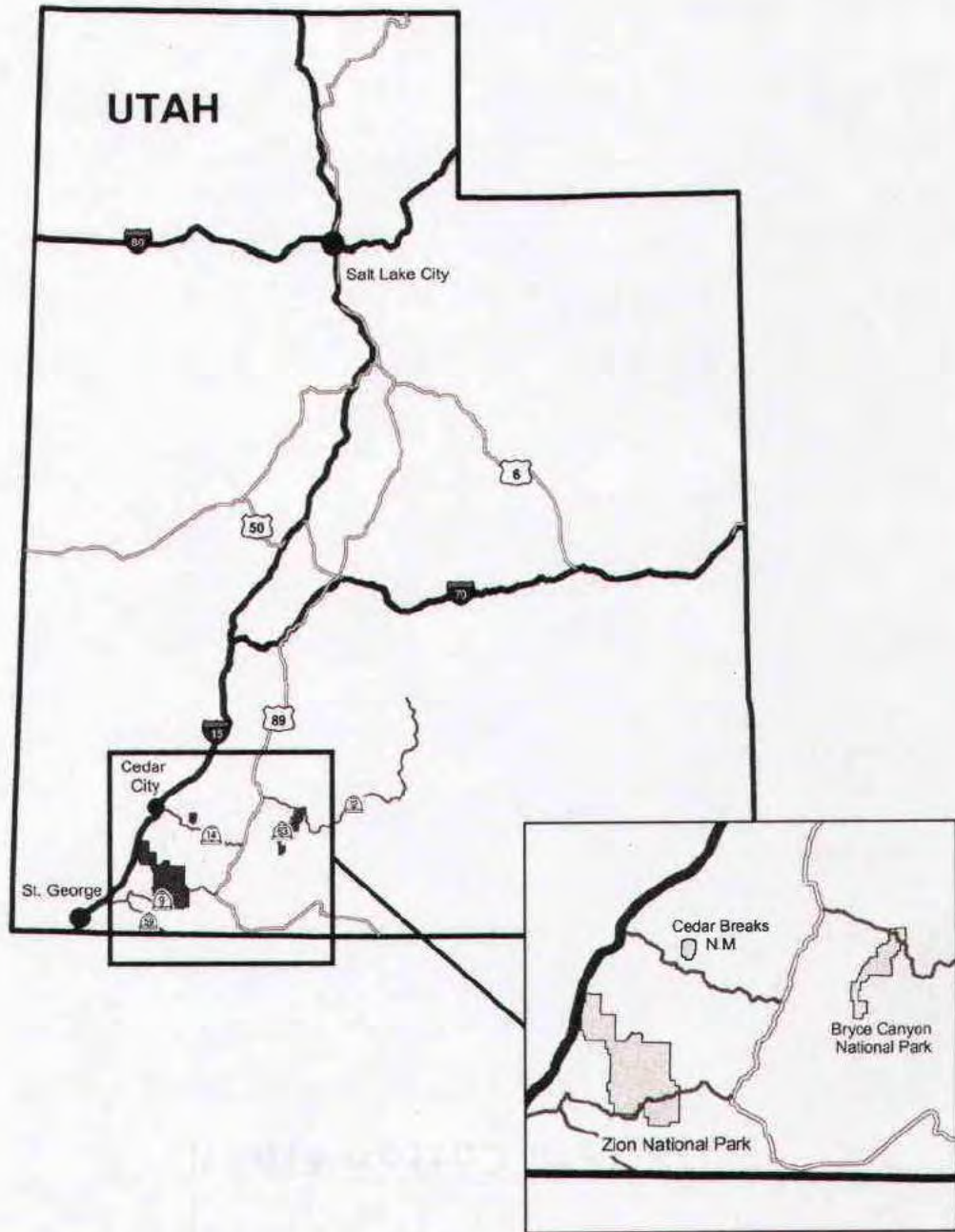


Figure 1.1: Location of Zion National Park in southwestern Utah.

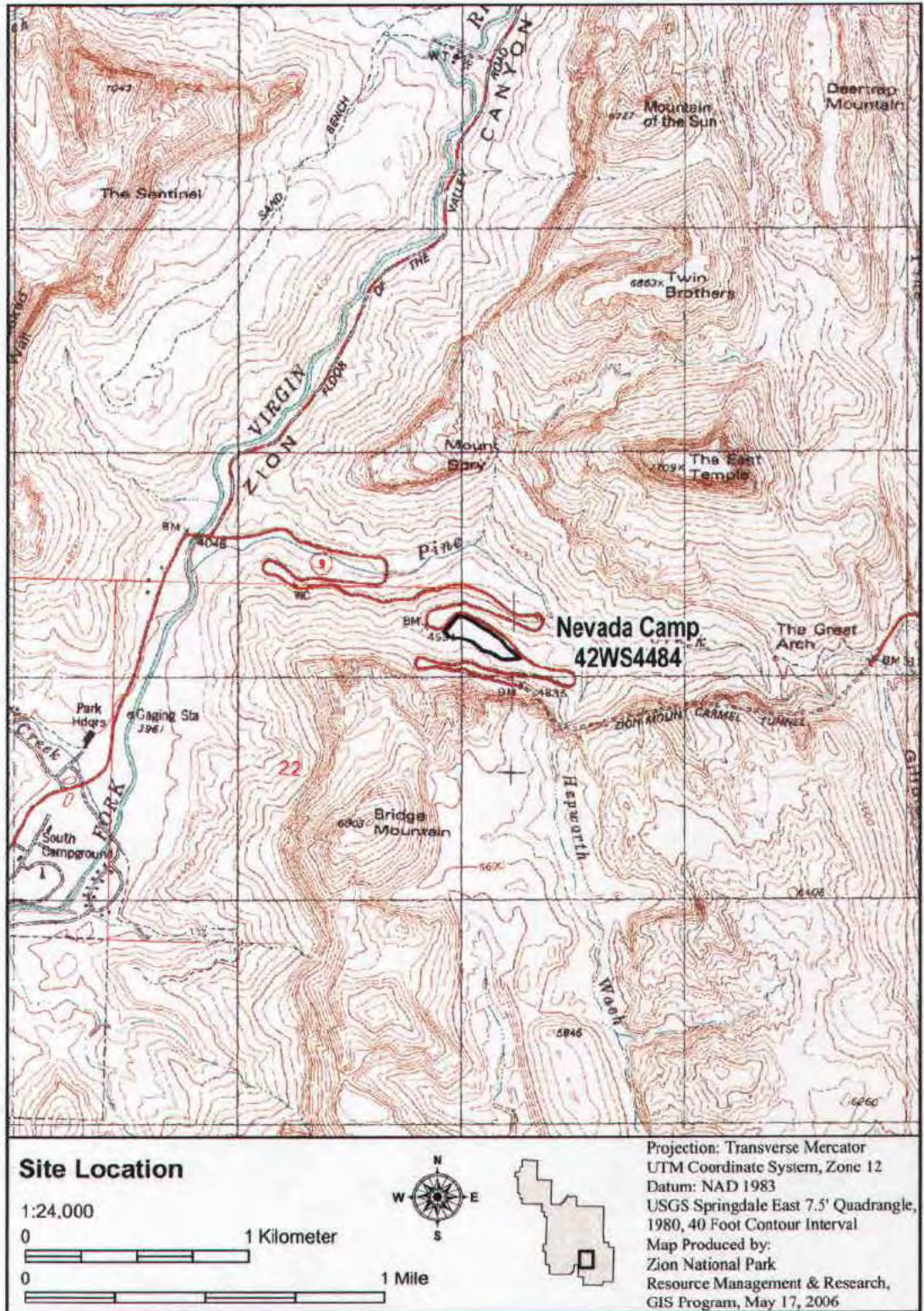


Figure 1.2: Location of the Nevada Camp (site 42WS4484).

## **Project Significance**

Temporary work camps formed culturally unique communities in the western American landscape around the turn of the 20th century. Most were associated with extraction industries, such as logging and mining, or construction projects, such as highways and dams. Young adult males living a distinctive, transient lifestyle dominated these camps. Not only were the workers transient, but the camps, including the physical structures, often were mobile as well. When the resource depleted or a project was complete company owners would dismantle the camp and move to the next work site (Smith 2001; Gregory 2001).

As sites occupied in the early 20th century become eligible for inclusion on the National Register of Historic Places under the National Historic Preservation Act of 1966, as amended (16 U.S.C. 470), a greater focus has been placed on life in the work camps. Extensive studies have examined ethnic diversity and community in the context of temporary work camps (Hardesty 2002; Van Bueren 2002; Chapman et al. 2002). To date, little research has been conducted on the importance of work camp mobility and the role of cultural transformation processes in the understanding of life at a temporary work camp. The results of research conducted at the Nevada Camp add to the increasing corpus of data on this type of site and provide a base for evaluating the impact of a massive cultural transformation process such as site dismantling.

The archaeological record is continually changing. Michael Schiffer succinctly describes the dynamic nature of the archaeological record by stating

“although we would wish it, the past – manifest in artifacts – does not come to us unchanged” (Schiffer 1987:5). Cultural transformation processes define the role human action plays in transforming the remains of an active (systemic) occupation into the archaeological record. Identification and evaluation of the changes resulting from human action is a vital step in understanding the past.

On a local level, the construction of the Zion Tunnel and the Zion-Mt. Carmel Highway is a significant event in the history of Zion National Park. Tourism has always been an important aspect of the National Park System. By the late 1920s, visitation to Zion National Park was increasing. In 1924, there were 8,400 visitors to the park. This number increased to 21,694 in 1926 and up to 30,916 visitors in 1928 (Hinton 2000). With construction of the Zion-Mt. Carmel Highway, previously inaccessible areas of the park opened to the general park visitor and travel routes in southwestern Utah were expanded. The importance of the Zion-Mt. Carmel Highway project is well documented (see Anderson 1993; Garate 1989; Union Pacific Railroad 1935); however, the daily lives of the construction workers have largely been ignored. While this research does not address directly the daily lives of the workers, it provides a foundation for future studies. Additionally, recognition of the impact management policies had on the formation of the archaeological record at the Nevada Camp will provide cultural resource managers at Zion National Park a reference tool for appropriate evaluation and management of similar sites.



## Research Questions

The fundamental objective of the proposed research is to examine whether behavioral patterns can still be identified in the archaeological record of temporary work camps modified by substantial cultural transformation processes. While this objective is broad in scope, testing will focus on data collected at the Nevada Camp in Zion National Park. Three primary questions provide the framework guiding the data recovery and analysis. Each primary question is focused further by a secondary question or series of secondary questions.

Question 1: What impact did the National Park Service landscape preservation policy have on the creation of the archaeological record at the Nevada Camp?

- What was the National Park Service landscape preservation policy?
- What preservation and naturalization procedures were explicitly stated in the contract?
- According to historical records, what clean-up occurred?
- What does the archaeological record reveal in regards to the post-construction clean-up of the camp?

Question 2: What spatial and functional patterns of behavior are discernible in the archaeological record?

- Do these patterns provide an accurate representation of the layout and use of the camp during occupation?

Question 3: What avenues of future research can, or should, be explored at the Nevada Camp and similarly dismantled temporary work camps?

## **CHAPTER 2: RESEARCH METHODS**

Research at the Nevada Camp incorporates two distinct methodological approaches. These approaches are the archaeology of temporary work camp environments and the evaluation of cultural transformation processes in the site formation. Work camp archaeology is a developing field as early 20th century sites become eligible for listing on the National Register of Historic Places. The literature base is growing accordingly.

The commonalities of temporary work camps, most often associated with extraction industries (logging, mining) or construction projects (dams, roads), age-sex structures dominated by young adult males, and distinctive lifestyles provide a forum for the exploration of thematic studies (Hardesty 2002). Researchers are looking at work camps from various social and economic perspectives as well as a variety of camp types including mining (Hardesty 1988, 1994), logging (Gregory 2001) and dam construction (Chapman et al. 2002; Rogge et al. 1995). An entire issue of the journal *Historical Archaeology* was dedicated to a review of work camp studies (Van Bueren 2002).

Michael B. Schiffer has done extensive research on site formation processes. Both *Site Formation Processes of the Archaeological Record* (1987) and *Behavioral Archaeology* (1995) consider the role of human factors in the creation of the archaeological record. Schiffer draws from and expands upon Ascher's (1968) early

work on determinations of site formation processes. To date, Schiffer's work remains the most comprehensive review of cultural transformation processes.

As the field of work camp archaeology expands, researchers are examining site formation and cultural transformation processes in the work camp context. Of particular importance to the research at the Nevada Camp is the study of abandonment processes at mining camps in Southwest Yukon (Stevenson 1982). In this study, Stevenson compares rates of site abandonment and defines expected refuse characteristics corresponding to the various abandonment processes. A recent survey in Bandelier National Monument, New Mexico (Smith 2001) is also important and comparable to the research conducted at the Nevada Camp. This survey looks at the archaeology of a Civilian Conservation Corps (CCC) camp which was dismantled and the site subsequently bulldozed. Despite undergoing such an extensive transformation process the site remains a viable source of information regarding the operations of a CCC camp.

### **Analytical Approach**

The analytical approach to this research is multifaceted. To examine whether behavioral patterns are identifiable in a temporary work camp modified by substantial cultural transformation processes it is necessary to analyze the data in terms of two concepts. First, the cultural transformation processes must be identified. Historical documents provide a record of documented impacts to the site. Comparing historical

documents detailing actions taken with the archaeological record should indicate the extent of the cultural transformations. Second, human behavioral patterns must be identified. Patterns will be identified through a correlation of artifact function, feature identification, and a detailed spatial representation of the current archaeological record.

### **Historical Documentation Review**

Consistent with the nature of temporary work camps across the American West, the Nevada Camp was created for a single purpose: the housing of workers during the construction of the Zion – Mt. Carmel Highway and the Zion Tunnel. While the purpose of the camp is limited, the context leading to the creation and subsequent dismantling of the camp is much more complex. To understand the complete history of the site, it is vital to understand not only the systemic context but also the cultural transformation processes which occurred at the site. The quest for historical documentation focusing on the contractor's camp proved nearly as complex as the context of the camp itself.

The construction of the Zion – Mt. Carmel Highway and the Zion Tunnel between 1927 and 1930 was a federally funded project contracted by the National Park Service, specifically Zion National Park, and the Bureau of Public Roads. As with most federal projects, there exists a plethora of technical reports. The construction in 1927, occupation, and subsequent actions taken in 1930 to eradicate evidence of the

contractor's camp following completion of the construction project are found in project assessment reports, construction reports, and monthly reports prepared by the superintendent of Zion National Park. Official contracts and general contract standards for road construction clean-up are significant for determining the intent of official regulations resulting in cultural transformations at the Nevada Camp.

Technical reports for a federal undertaking are housed in a variety of repositories. These repositories include the National Archives in Washington, D.C., the National Archives regional office in Denver, Colorado, Zion National Park archives, and the Technical Information Center (TIC) in Denver, Colorado. Additional sources for non-government reports documenting the construction of the Zion-Mt. Carmel Highway include the Utah State Historical Society archives, Southern Utah University archives and collections, and local libraries and newspapers in the communities surrounding Zion National Park.

Supplementing the technical reports as a primary source of information about the layout of the contractor's camp, photographs proved to be most valuable. The Union Pacific Railroad Company collection housed at the Nebraska State Historical society contains an extensive photo documentation of the construction of the Zion – Mt. Carmel Highway and the Zion Tunnel. Included in this collection were several useful photos of the Nevada Camp.

Historical documents and texts are inevitably limited. The documentation of the Nevada Camp is no exception. Information sources most likely to shed light on the daily life at the Nevada Camp, such as company payroll rosters, camp census, or

commissary records, are not available. The technical reports focus more on cubic feet of rock moved per day and pounds of dynamite utilized than on the individuals who moved or blasted the rock. Therefore, information directly associated with the function of specific structures within the workers' camp is incomplete.

A literature review of secondary sources revealed few works specifically addressing the Nevada Contracting Company or the Nevada Camp at Zion National Park. Most works focus on the construction of the Zion Tunnel, mentioning the Nevada Camp in periphery. To date, the definitive work on the construction project is Donald Garate's (1989) book *The Zion Tunnel – From Slickrock to Switchback* and the complete manuscript from which the book was derived (Garate n.d.). The Historic American Engineering Report (HAER) (Anderson 1993) provides an in-depth review of the Zion – Mt. Carmel Highway, thereby providing background information on the Nevada Contracting Company and the construction project. Additional information on both the Zion – Mt. Carmel Highway and the role of landscape engineers in the National Parks can be found in *Building the National Parks* (McClelland 1998).

### **Archaeological Documentation**

Although the Zion Cultural Resource Management Program retained the knowledge of the location and historic context of the Nevada Camp, no formal archaeological documentation or research had been conducted. The initial step in the data recovery and research was to conduct a formal inventory and documentation of

the site. Procedures set forth by the Zion Cultural Resource Management Program and the Secretary of the Interior's *Standards and Guidelines for Archeology and Historic Preservation* (1983) governed the archaeological fieldwork. Preliminary documentation included the completion of required IMACS (Intermountain Antiquities Computer System) site forms. IMACS is the standardized site recording form utilized by the Intermountain Region of the National Park Service.

Pedestrian survey identified site boundaries, features, and artifact scatters (Figure 2.1). A feature is defined as a distinct non-portable object or manifestation of human activity, such as rock alignments, coal scatters, or modified trees. At the Nevada Camp the Zion – Mt. Carmel highway and associated rock retaining walls were not recorded as part of the camp even though these features bisect the site boundaries. Distinct from a feature, an artifact scatter consists of a concentration of 10 or more artifacts within a 4 meter squared area. Several smaller clusters of artifacts containing 5-9 artifacts were also identified. Detailed mapping of the entire site, with an emphasis on features and artifact scatters, was completed with the use of a Trimble® ProXR GPS (Global Positioning System) receiver which provided sub-meter provenience accuracy.

Artifacts cover the site in a continuous, sparse to moderate density, distribution. The initial pedestrian survey indicated a detailed recording of every individual artifact was not feasible. General artifact type and distribution was determined through a series of artifact sample units (S.U.). Artifacts within a sample

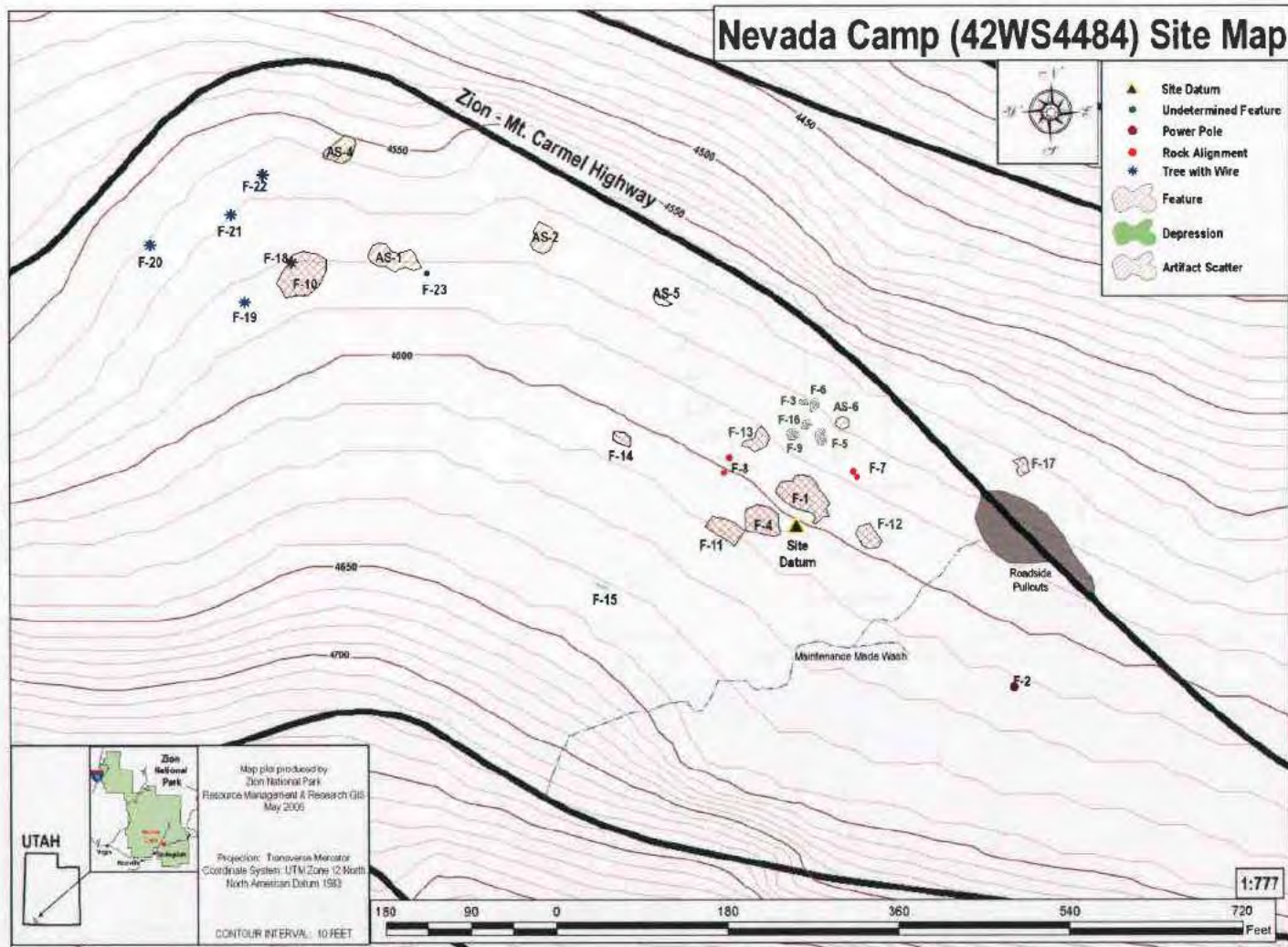


Figure 2.1: Site map of the Nevada Camp -- 42WS4484



unit are identified and tallied based on material type and general function. Eleven 5 x 5 meter sample units were placed across the site (Figure 2.2).

Depth of cultural deposits was determined through sub-surface testing. Due to the preliminary nature of the documentation and research, the testing strategy attempted to minimize site disturbance while adequately assessing sub-surface deposits and addressing the research objective. A judgmental sampling method utilizing the historical record and observed surface distribution of artifacts and features guided the testing. Testing was limited to areas of the site located south of the Zion-Mt. Carmel Highway. Several factors contributed to this limitation. First, and foremost, was a concern for visitor safety. The area north of the road provides an easily accessible viewpoint of The Great Arch and Pine Creek. Therefore, this area receives a high level of visitor traffic. It was not feasible to block off the area or reroute visitor foot traffic during excavation. Second, in recent years this area has served as not only a viewpoint, but, unfortunately, it also serves as an unofficial roadside toilet. The impact of human waste made testing north of the road unsanitary and undesirable. Finally, the function of the north side of the road as a garage and mechanics' shop is well documented. Testing, therefore, focused on the lesser documented residential area of the Nevada Camp. Five excavation units (Unit) varying in size between 0.5 x 1 meter and 1 x 1 meter were placed in or near distinct features and artifact scatters. Three shovel probes (S.P.) measuring 0.5 x 0.5 meter were placed in areas of the site indicating little or no surface activity (Figure 2.2). All test units were excavated to culturally sterile levels.

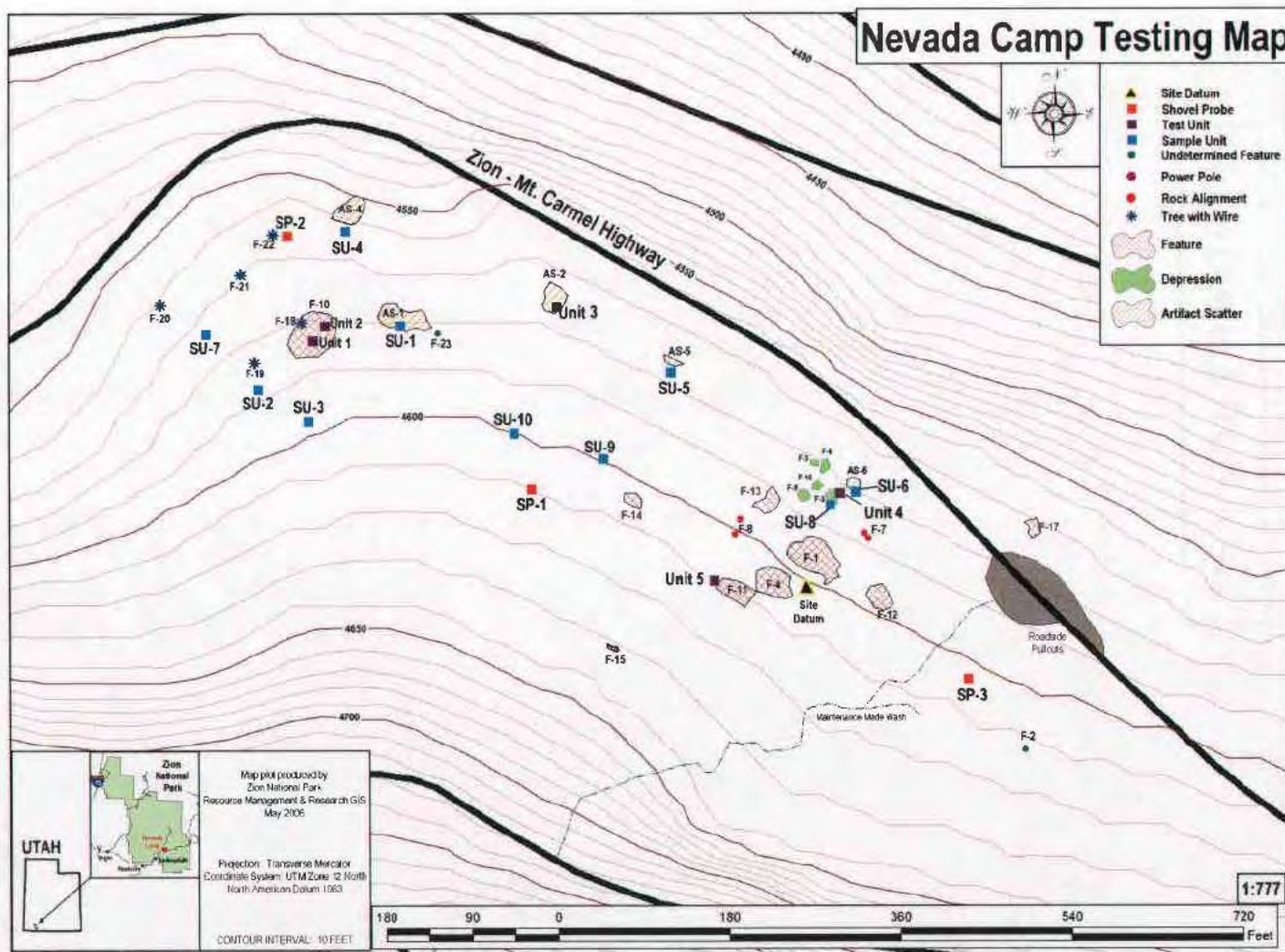


Figure 2.2: Location of excavation and surface sample units.

## **Artifact Analysis**

The classification scheme utilized for analysis of artifacts from the Nevada Camp is a modified version of the typology designed by Roderick Sprague (1980). The basic structure and primary functional categories of Sprague's multi-tiered scheme remain unaltered. Modifications made to terminology of the sub-categories of the scheme represent the artifact assemblage of the Nevada Camp. These modifications draw from similar analysis conducted by Archaeological Investigations Northwest, Inc. (AINW) at the Keechelus Construction Camp site in Kittitas County, Washington (Chapman et al. 2002).

Within the typology artifacts are assigned to a primary functional category. Although Sprague (1980) defined eight categories, the Nevada Camp analysis utilizes only six. The six categories include Personal Items, Domestic Items, Architecture, Commerce and Industry, Group Services, and Unknowns. Each primary category is divided into assorted classes (e.g. Domestic Items: Consumption). The classes provide a more detailed and refined level of analysis. Placement into a sub-class (e.g. Domestic Items: Housewares: Tableware) further distinguishes an artifact's primary function.

The most difficult aspect of the artifact analysis is the initial placement into a primary category. What distinguishes the remains of an individual family's "Domestic consumption" from the remains of a communal mess hall's "Commercial Services dining"? In an early critique of Sprague's typology, Saastamo (1971)

observed many artifacts may have multiple functions often occurring simultaneously and that both form and context determine function. One advantage archaeologists studying historical sites have over those studying prehistoric sites is the opportunity to interpret context through not only the archaeological setting, but also through a review of historical documents. Understanding the context also includes an understanding of the artifact assemblage most likely to characterize a specific function and the setting of deposition. Catherine Holder Blee (1991) characterized a series of hypothetical assemblages representing various situations, including Family Households and Restaurants and Hotels, contributing to the archaeological record in Gold Rush era Alaska. While these traits do not directly correlate to the Nevada Camp, they provide general guidelines for evaluation and assigning function.

## CHAPTER 3: HISTORICAL OVERVIEW

### **Zion National Park**

Administratively, Zion National Park began in 1909 as Mukuntuweap National Monument, a small monument encompassing 15,840 acres along the North Fork of the Virgin River in southwestern Utah. Following the creation of the National Park Service with the passage of the National Park Service Organic Act in 1916 (16 U.S.C. 1), steps were taken to convert this small national monument in remote Utah into a national park. On November 19, 1919, President Wilson signed a Congressional bill establishing Zion National Park. The park included 76,800 acres in Little Zion Canyon, known today as Zion Canyon, and the surrounding plateaus (Figure 3.1).

Geologically located on the Colorado Plateau, Zion National Park is a dramatic mix of high plateaus, steep sandstone cliffs, and narrow slot canyons. Early visitors to Zion compared it to Yosemite and the Grand Canyon. Robert Sterling Yard, a renowned author on the subject of national parks declared “We have not realized the tremendous grandeur of Zion canyon. It is strongly reminiscent of the Yosemite in a way, and yet there are points which rank with and sometimes exceed the Yosemite’s beauties” (Washington County News 1919). A decade later the Union Pacific Railroad’s Red Book, a guide to the Circle Tour of the Southwest’s national parks, described Zion in a more succinct yet none-the-less enraptured manner referring to Zion as “The land of sublime canyons and gorgeous chasms” (Union Pacific 1929).

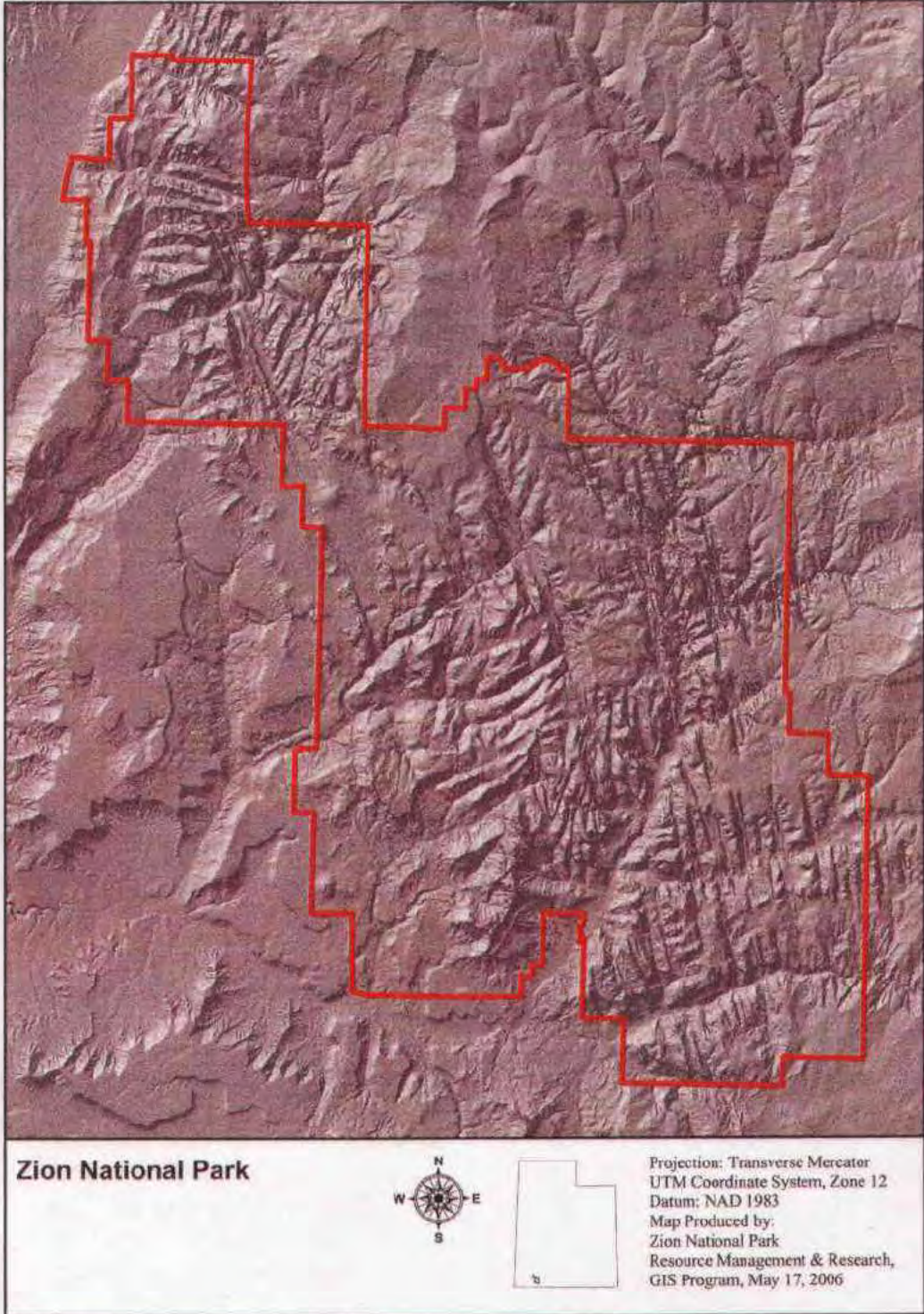


Figure 3.1: Digital ortho-quadrangle depicting the canyons and plateaus of Zion National Park.

### Tourism and the Need for the Zion-Mt. Carmel Highway

From the beginning, Zion National Park was touted as a tourist destination (Figure 3.2). In 1921, the *Washington County News*, the local newspaper for southwestern Utah, ran a series of articles designed to highlight the wonders of southwestern Utah, ran a series of articles designed to highlight the wonders of southern Utah. The April 21, 1921, contribution to this series provides an optimistic view of the future of tourism in the region.

This scenery and the many inviting and thrilling spots with which the mountains and canyons of this region abound will bring a continuous stream of gold from tourists and sightseers, who could not be kept out with trench mortars and barbwire entanglements....Eventually all these scenic wonders and beauty spots will be connected so the tourist who has the time and ambition may complete the loop and take in all this wonderful country (Washington County News 1921).

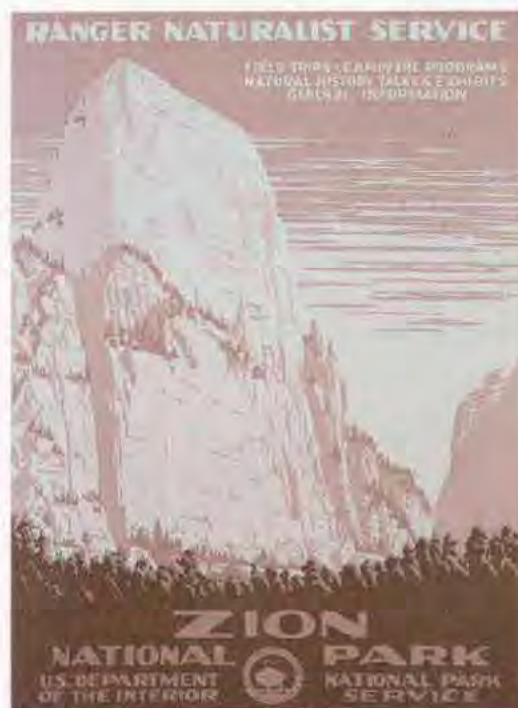


Figure 3.2: 1920s promotional poster for Zion National Park. (Courtesy National Park Service, ZION 9385, Zion National Park Museum Collection)

Early promoters recognized the significance of Zion National Park as more than an isolated destination. They envisioned it on a grander regional scale.

The Union Pacific Railroad in conjunction with the Utah Parks Company capitalized on the regional tourism theme. They developed a motor car tour of the “Grand Circle of Southwest National Parks.” This circle tour originated in Cedar City, Utah, which was the terminus for a branch of the Union Pacific rail line and encompassed Cedar Breaks, Pipe Spring National Monument, Bryce Canyon National Monument, Zion National Park, and the North Rim of the Grand Canyon (Figures 3.3 and 3.4). The railroad offered a variety of tour options. A visitor wishing to see all five destinations would take a five-day tour leaving Cedar City on the first day and returning on the fifth day, or one could take a two-day tour to either Zion National Park or Bryce Canyon National Monument departing and returning the next day to Cedar City.

In 1925, a visitor wishing to see Zion and Bryce Canyon in one tour needed to take a four-day tour which departed Cedar City on the first day and returned on the second. The tour then departed Cedar City again on the third day and returned on the fourth day. Expenses while in Cedar City were not included in the tour fare (Union Pacific 1925). This tour involved a round trip to Zion of 120 miles and a second round trip to Bryce Canyon of 180 miles. After only one “leg” of this tour many travelers were road-weary and departed Cedar City on the train without completing the full tour.



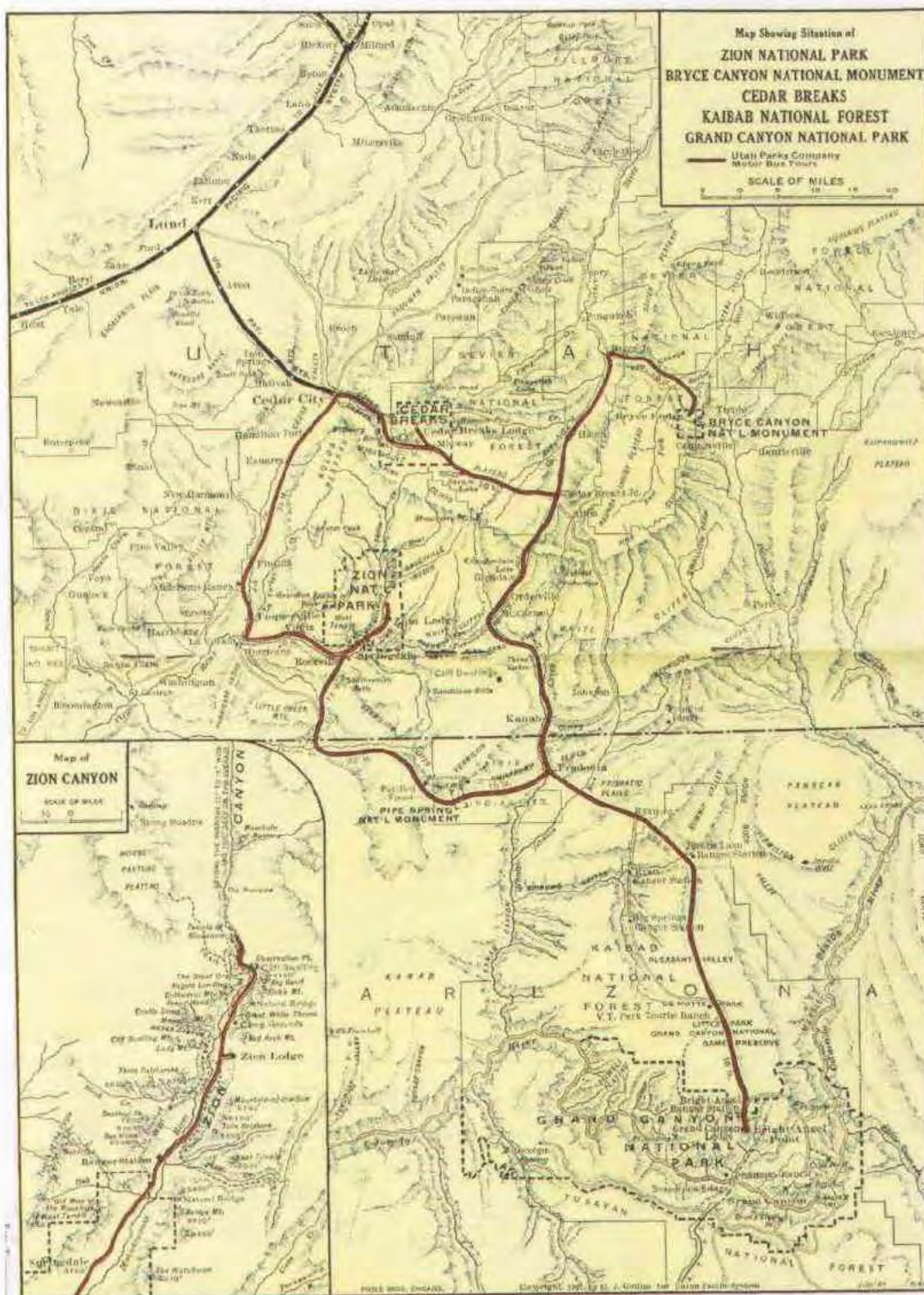


Figure 3.3: Map of the Circle Tour of Southwest national parks offered by the Utah Parks Company in 1928, prior to the construction of the Zion-Mt. Carmel Highway (Union Pacific 1928).

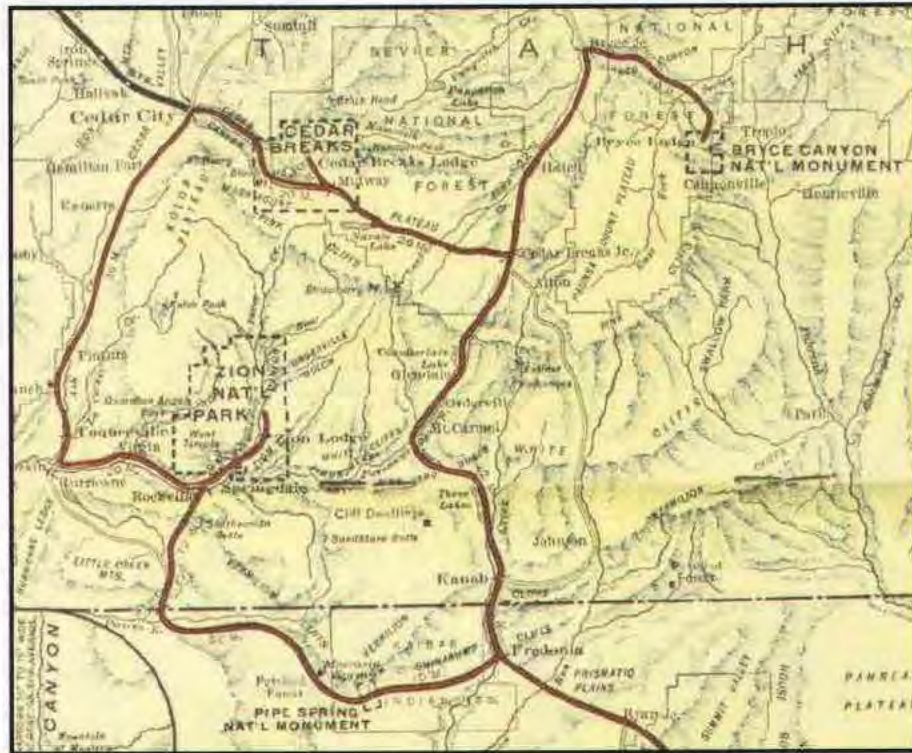


Figure 3.4: Detail of Circle Tour in 1928 (Union Pacific 1928).

As the number of visitors increased, the tours offered by the Union Pacific evolved. What was originally an out-and-back tour from Cedar City to Zion and Bryce became a loop tour. By 1928, a circle route between Cedar City, Zion National Park, and Bryce Canyon was established. This four day tour traveled south from Zion to Pipe Spring National Monument. After a 15 minute stop the tour continued on to Bryce Canyon through Fredonia and Kanab, eventually returning to Cedar City on the fourth day (Union Pacific 1928). At 253 miles per tour, 159 of which extended between Zion and Bryce Canyon, this circle route reduced the total distance traveled by 47 miles. Yet, the distance remained daunting.

With advances in automobile technology, more and more individuals bypassed the organized tours and set out to explore the national parks in privately owned vehicles. The National Park Service, Utah Department of Transportation, the Bureau of Public Roads, and the Union Pacific Railroad sought a solution to the long distances and poor roads encountered by visitors to the region. As early as 1923, shorter routes were explored. Unfortunately, the spectacular scenery that drew visitors from all over the world presented the largest obstacle for a shorter route. Access from the canyon floor to the plateaus appeared blocked by over one thousand feet of sandstone cliff.

After exploration of several possible routes by government highway engineers and local pioneer and area expert John Winder, a route up Pine Creek was determined most feasible (Kittredge 1926). This 24 mile section of road included a 1.1 mile long tunnel through the sandstone cliff and connected Zion Canyon to the town of Mt. Carmel on Highway 89 (Figures 3.5 and 3.6). The completion of the Zion-Mt. Carmel Highway and the Zion Tunnel in 1930 reduced the travel distance between Zion National Park and the North Rim of the Grand Canyon by 40 miles. The 159-mile traverse between Zion and Bryce Canyon was reduced to a mere 88 miles.

The Zion-Mt. Carmel Highway opened previously inaccessible areas of the park. In addition to providing access for park visitors, this highway was economically valuable for local residents as well. A direct route now existed between the stock rangeland of the plateaus along the eastern boundary of Zion National Park and the railroad terminal in Cedar City. Timber, previously transported from the plateau to the

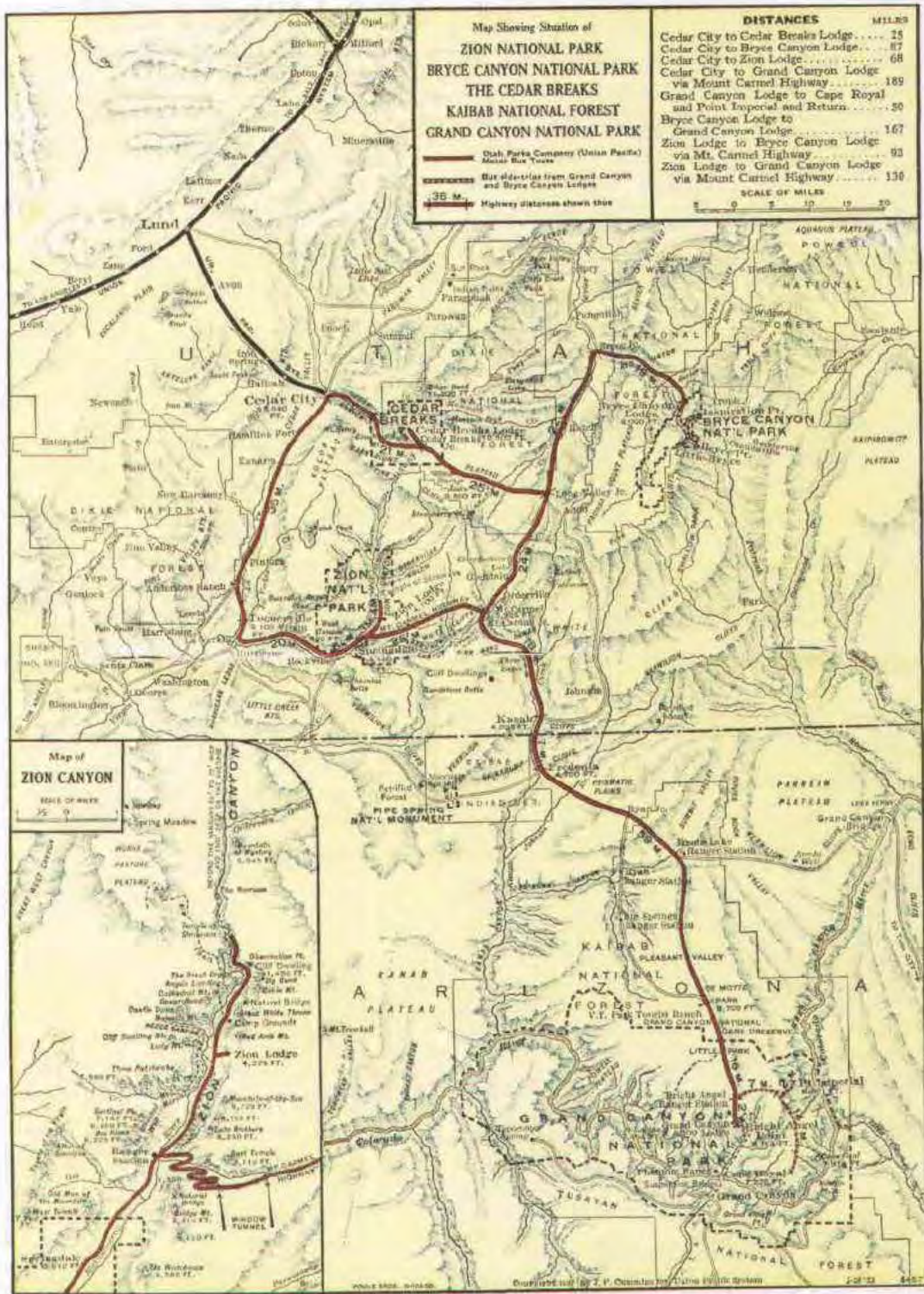


Figure 3.5: Map of the Circle Tour of Southwest national parks offered by the Utah Parks Company in 1932 following completion of the Zion-Mt. Carmel Highway (Union Pacific 1932).

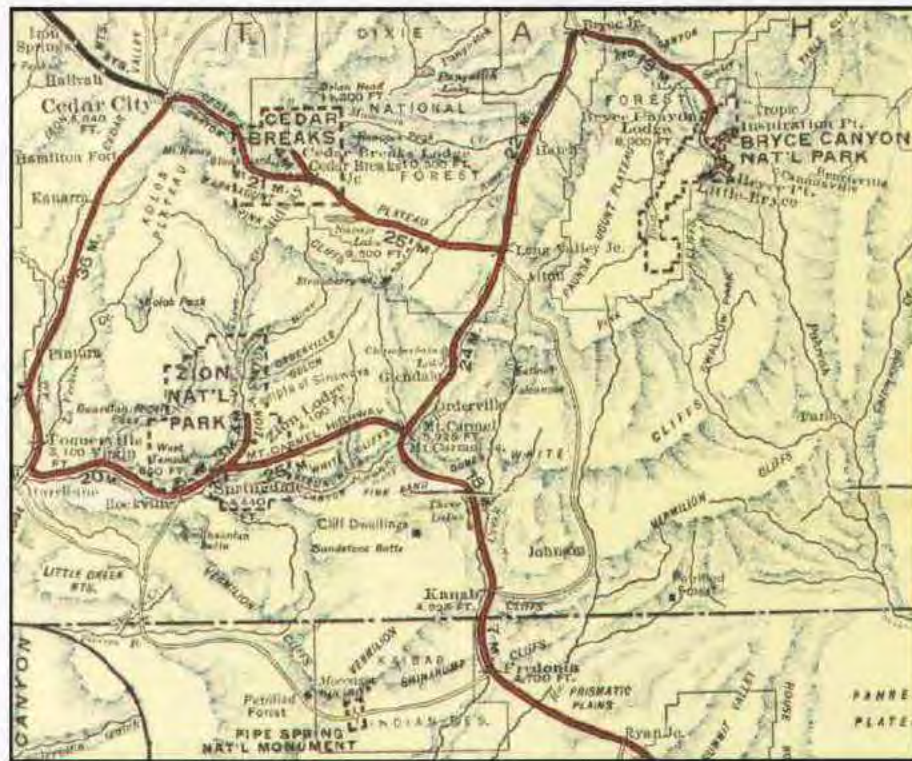


Figure 3.6: Detail of Circle Tour in 1932 following completion of the Zion-Mt. Carmel Highway (Union Pacific 1932).

canyon bottom via the Cable Mountain Draw Works, could now be transported in a safer and less dramatic fashion via the highway.

### Highway Construction and Landscape Preservation in the National Park Service

During the formative years of the National Park Service, as individual park units began the process of park development and road construction, the dichotomous nature of the NPS mission became apparent. The mission, derived from the Organic

Act of 1916, is to “conserve the scenery and the natural and historic objects and the wild life therein and... provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations” (National Park Service Organic Act 16 U.S.C.1). To work within this dichotomy, landscape preservation standards were developed. Landscape architects and engineers forged a cohesive style of landscape design which allowed park development while preserving the unique natural elements for which each park had been designated (McClelland 1998).

While preservation standards applied to all aspects of park development, they were particularly vital for road construction. In 1924, Congress granted appropriations annually for the development of roads in the national parks. With the influx of funds, there was a boom in road construction in the national parks. Roads were designed to follow the natural contour of the landscape, provide unobstructed views, and maintain an unobtrusive presence on the landscape. To accomplish this harmony, landscape architects worked closely with engineers and contractors, approving sites for borrow pits, quarries, and work camps (McClelland 1998).

Contract specifications detailed appropriate actions necessary for landscape preservation. Often those specifications were counter to the most efficient method for completing a project. During construction of the Zion-Mt. Carmel Highway, the actions of Nevada Contracting Company, the primary contractor for road construction, were dictated by the “care necessary in prosecution of work so the least amount of scarring of landscape resulted” (Brown 1931). This “care” was most obviously

manifest in the selection of boulders to be used in construction of retaining walls. Although there was a sufficient supply of suitable rock distributed across the nearby slope, most of the rocks could not be used because moving the rock would scar the landscape. Upon completion of the project, contractors were required to clean work areas through the removal of debris, tree limbs, stumps, and stump holes to the extent that “the areas involved may be left in as near the original condition as possible” (Standard Form-20 1927).

### **The Nevada Camp**

Late in 1927, the National Park Service finalized the plans for construction of the Zion-Mt. Carmel Highway, initially called the East Rim Road. Construction work was divided into three sections (Figure 3.7). Section 1, 3.6 miles of road leading to the west portal of the tunnel, and Section 2, the tunnel, required simultaneous construction. Construction of Section 3, 3.4 miles of road extending from the east portal of the tunnel to the east boundary of the park, followed Sections 1 and 2. The Nevada Contracting Company of Fallon, Nevada, was awarded the contract for primary construction of all three sections. No road existed along the intended route of Section 1 prior to the start of construction. On October 8, 1927, the Nevada Contracting Company began work on a “pioneer” road to access the west end of the project. One month later, with adequate access established, blasting began on the tunnel (Figure 3.8).

UNITED STATES DEPARTMENT OF THE INTERIOR  
NATIONAL PARK SERVICE

PLANS FOR PROPOSED

ROUTE NO. 1~EAST RIM ROAD  
ZION NATIONAL PARK  
HIGHWAY SYSTEM  
UTAH

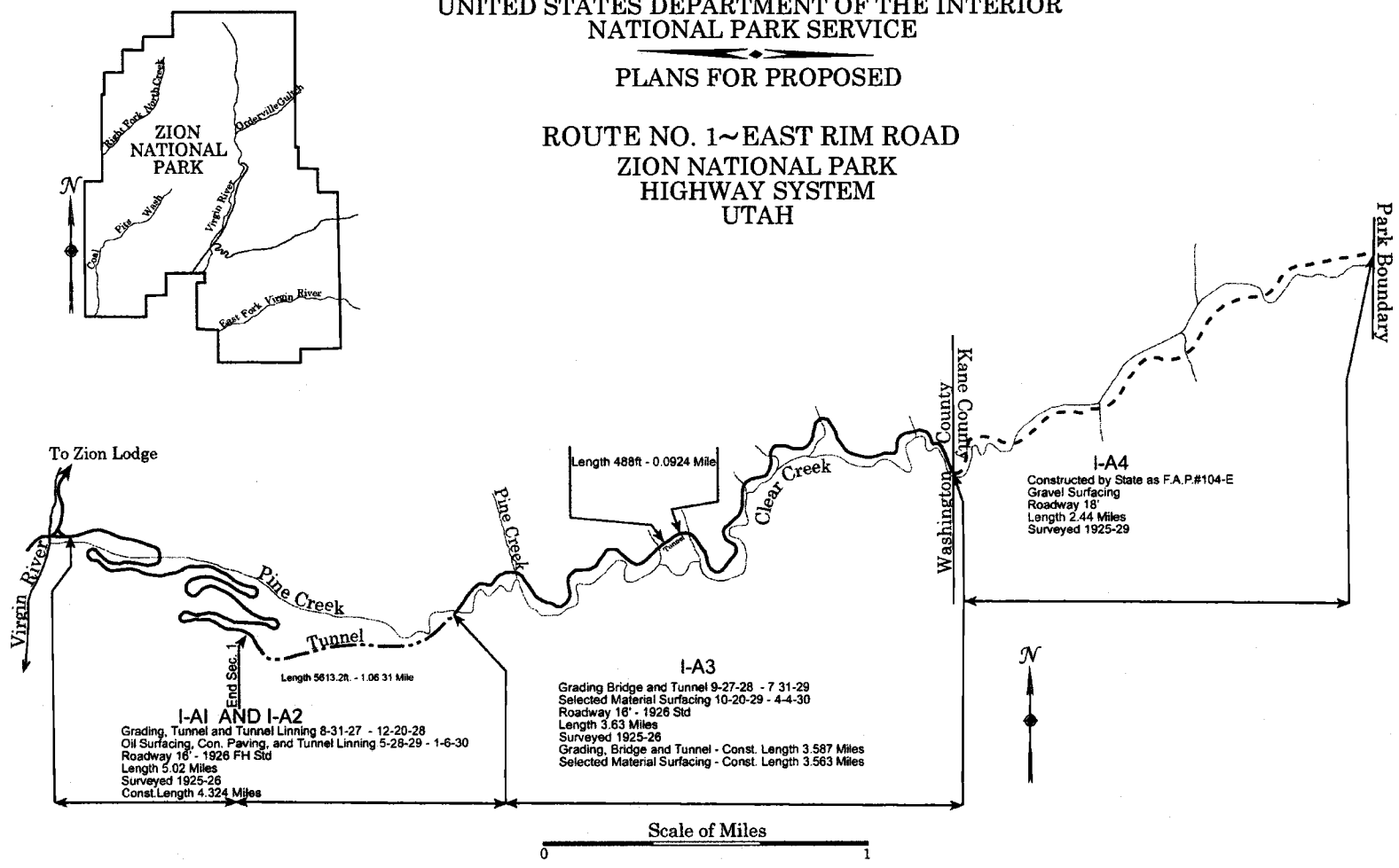


Figure 3.7: Digitized map from the final construction report indicating the division of sections during construction (Brown 1931).





Figure 3.8: Construction of the Zion-Mt. Carmel Highway circa 1929. (Courtesy National Park Service, ZION 13554 , Zion National Park Museum Collection)

When construction began on both the highway and the tunnel, it was necessary for the contractor to establish a camp to house the workers. Establishment of the camp was not an easy feat given the steep topography of the construction area and the lack of access without an existing road to the cliff face through which the tunnel was to be bored. In addition to overcoming the topographical obstacle, the camp location needed access to a year-round water source. Pine Creek, approximately 1,000 feet below the tunnel, was not a viable option because it provided only a seasonal water source and was subject to flash flooding when it rained.

The camp was established mid-way up the slope between Pine Creek and the Navajo sandstone cliff (Figure 3.9). A bench, measuring approximately 1,000 feet long by 300 feet wide with an average slope of about 10%, was determined to be the only area on the slope large enough and flat enough to contain a permanent workers'

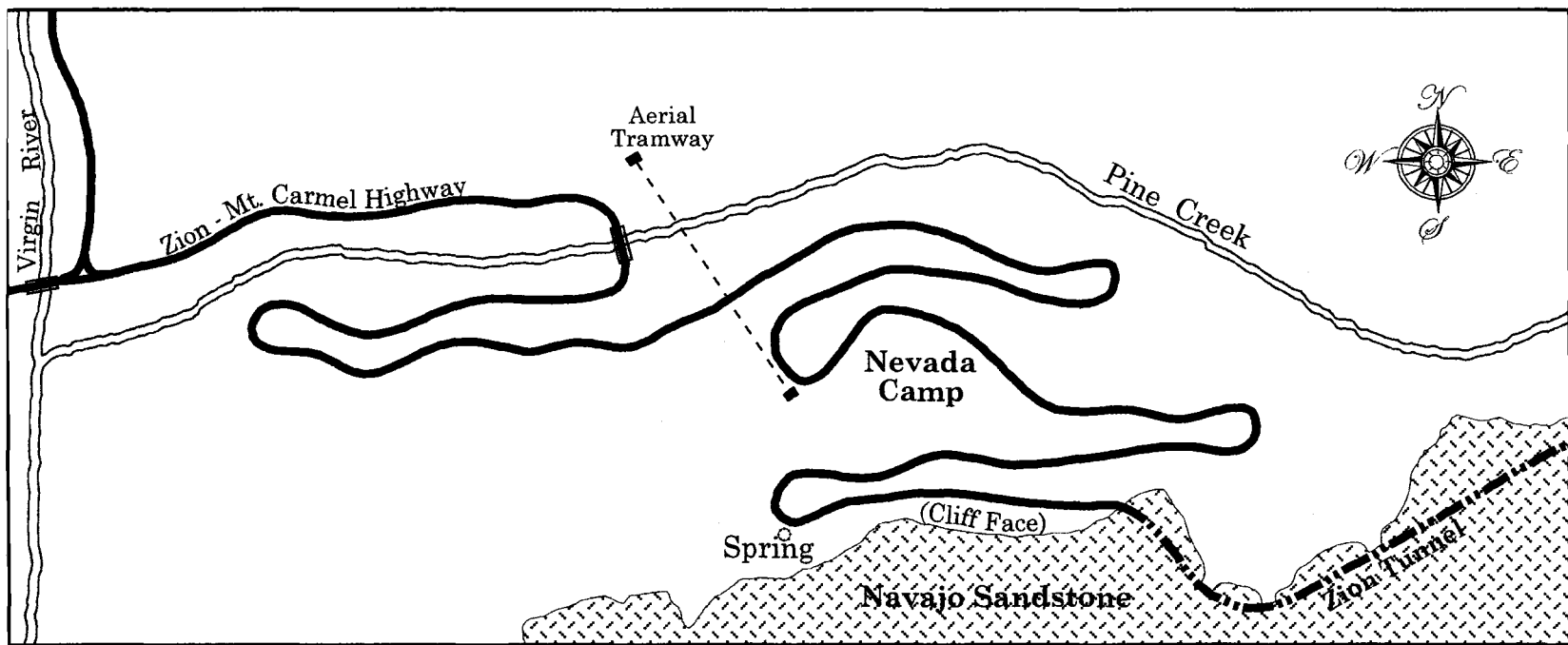


Figure 3.9: Map showing the Nevada Camp in relation to Pine Creek and the Navajo Sandstone.

camp. A spring approximately  $\frac{1}{4}$  mile upslope from the bench provided water. During the camp's occupation the spring produced nearly 8,000 gallons of water per day (Brown 1931).

Without a road, or even a well-established foot trail, construction of the camp was problematic. An aerial tram provided initial access to the camp and to the work site. The tram transported materials and equipment necessary for the construction of a permanent camp. After the construction of the camp in December of 1927, the tram continued to transport equipment and supplies until the completion of the pilot bore in September of 1928.

There is a discrepancy in the historical literature regarding the tram. Barnhill (1929) in the journal *The Explosives Engineer* describes the tram as a  $1\frac{1}{8}$ -inch Tru-lay wire rope trolley, strung from one side of the canyon (opposite the proposed road and tunnel) to the west portal of the tunnel rising 700 feet in 1,000 linear feet. On the other hand, Brown (1931) in the Final Construction Report describes the tram as 1,200 feet long with a vertical lift of 400 feet, rising from Pine Creek to the bench containing the contractor's camp. To date, no evidence of the southern terminus of the tram has been located at either the tunnel portal or the camp bench. Despite the inconsistency in location, the function of the tram in establishing the camp is undisputed.

Construction of the Nevada Camp began on October 23 and was completed on December 8, 1927. Workers moved into the camp on December 9, 1927. In January 1928, the contractor's work force increased to 200 workers, most of whom lived at the Nevada Camp (Scoyen 1928). While no records have been found providing a

definitive description of the camp, a general composition can be determined through the compilation of photographs and documents.

Employee housing consisted of 16 “boxcar” type bunkhouses measuring approximately 14 x 16 feet and 12 cabins, also measuring 14 x 16 feet (Brown 1931). Additional buildings at the camp included a cook shack and dining hall, a commissary, a doctor’s office, and an assortment of tents. The married men and their families lived in the cabins or in tents located on the western edge of the camp (Garate n.d.) A maintenance area with an auto garage and blacksmith shop was located on the northern edge of the bench, separated from the main portion of the camp by the newly constructed road (Figure 3.10).

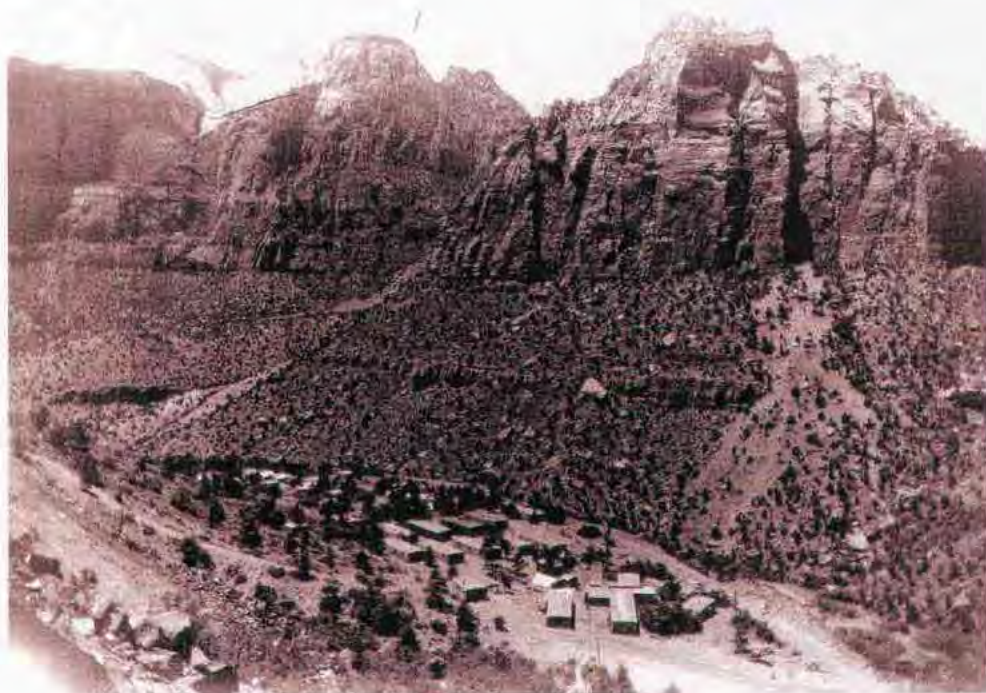


Figure 3.10: Undated photo of the Nevada Camp looking northwest. (Courtesy of the J. L. Crawford Collection)

According to the contractual agreement, the contractor was required to provide a sanitary camp for the workers. Sanitation included fly-proof kitchen and dining areas, an incinerator for disposal of garbage, cans, and waste food, and a cesspool for disposal of liquid refuse. The cesspool was to be placed no less than 50 feet from the kitchen and living quarters and must be covered with no less than 1 foot of earth (Standard Form-20 1927). Privy vaults and urinals were to be placed at convenient distances from living quarters. The vaults were to be covered and fly-proofed as well.

In early January of 1928, the workers' camp received electricity. Dixie Power Company of St. George, Utah, ran a three phase, 33,000 volt line from LaVerkin, Utah, to a transformer at the camp. From the transformer a three phase, 2300 volt line extended to a compressor plant at the base of the sandstone cliff for tunnel operations. Installation of power at the Nevada Camp provided the first power services for Zion National Park and the surrounding communities of Springdale and Rockville.

Upon completion of the project in February of 1930, the Nevada Contracting Company dismantled the camp. The company transported and utilized all buildings, equipment, and reusable material at the next project location (Mahan 1979). Following the dismantling of Nevada camp by the contractor, Chief Ranger Jolley of Zion National Park supervised the final clean-up of the camp site. The final clean-up involved a "thorough raking" of the area and the planting of rye grass to stabilize the sediment until native plants returned (Scoyen 1930).

## **CHAPTER 4: ARCHAEOLOGICAL TESTING**

### **Surface Observations**

Seventy-five years after its occupation the Nevada Camp is unassuming in appearance, with little to indicate the crucial role it played in the development of Zion National Park (Figure 4.1). The camp remains consist of a generally sparse dispersal of artifacts across the site accentuated by higher density artifact concentrations (Figure 4.2) and largely amorphous and ambiguous features. These remains are relatively obscured from the casual observer by the natural vegetation understory of rabbitbrush (*Chrysothamnus nauseosus*), sagebrush (*Artemisia tridentada*), yucca (*Yucca baccata*), and cheatgrass (*Bromus tectorum*).

Disturbance to the archaeological resource appears localized in the eastern portion, specifically the area adjacent to the two roadside parking pull-outs (Figure 4.3). Unauthorized collecting of artifacts occurs mainly on an opportunistic basis (i.e. Park visitors collecting “interesting” objects from the surface). There is, however, some evidence of intentional looting, most likely by bottle collectors.

Surface inventory identified six artifact concentrations and 23 features. The feature types range from a rock alignment possibly representing a structure foundation to a juniper modified for landscape preservation (Table 4.1). A detailed site report is on file at Zion National Park (Bonnifield 2005).



Figure 4.1: Overview of the Nevada Camp, looking west, in 2004.



Figure 4.2: Detail of an artifact concentration (A.S.-1) at the Nevada Camp. Note 50 cm scale.

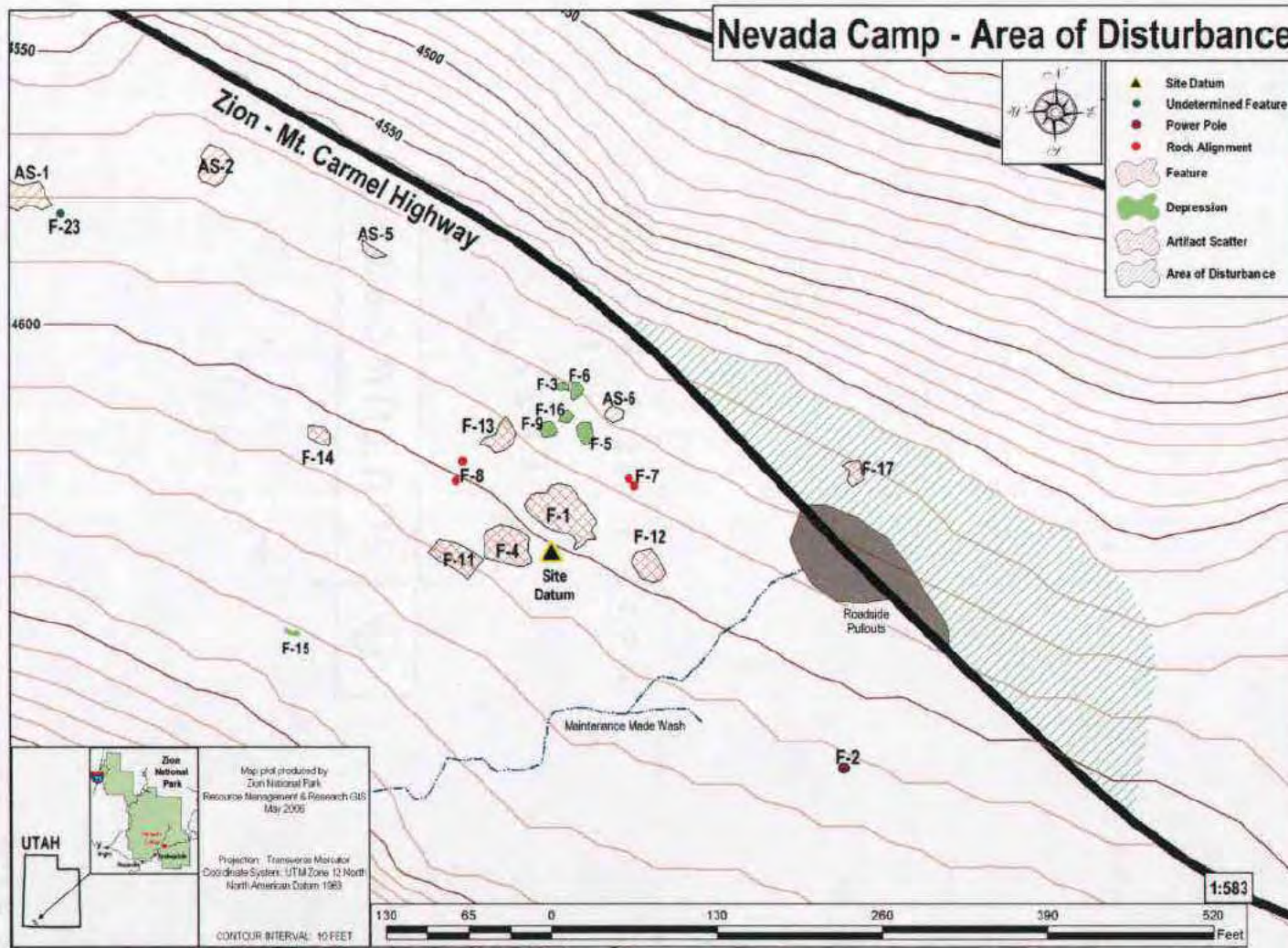


Figure 4.3: Area of modern disturbance at the Nevada Camp site.



Table 4.1: List of features.

<b>Feature Number</b>	<b>Type</b>	<b>Function</b>
F-1	Rock scatter, Coal/Ash scatter	Undetermined
F-2	Insulator mount in snag	Power line
F-3	Depression	Trash pit
F-4	Coal scatter	Undetermined
F-5	Depression, Looters pit	Trash pit - tested
F-6	Depression	Trash pit
F-7	Rock alignment	Possible structure foundation
F-8	Rocks with striations	Undetermined
F-9	Depression	Trash pit
F-10	Flagstone and artifact scatter	Possible bath house floor - tested
F-11	Possible leveled platform	Undetermined
F-12	Rock scatter, Coal/Ash scatter	Undetermined
F-13	Rock alignment, Coal scatter	Undetermined
F-14	Tar paper scatter	Undetermined
F-15	Depression	Undetermined
F-16	Depression	Trash pit
F-17	Soil stain, artifact scatter	Auto mechanic shop - historic record
F-18	Wire modified tree	Landscape preservation
F-19	Wire modified tree	Landscape preservation
F-20	Wire modified tree	Landscape preservation
F-21	Wire modified tree	Landscape preservation
F-22	Wire modified tree	Landscape preservation
F-23	Modified tree	Undetermined

## **Sub-surface Testing**

The primary goal of the sub-surface testing was to determine the depth of cultural deposits. The testing strategy strove to minimize site disturbance while adequately assessing sub-surface deposits. Placement of the test units followed a judgmental sampling method focusing on areas most likely to contain sub-surface deposits. Testing was limited to areas of the site south of the Zion-Mt. Carmel Highway (Figure 4.4).

Three shovel probes and five test units (Table 4.2) were excavated to determine the depth, nature, and potential for sub-surface cultural deposits at the Nevada Camp. Excavation was accomplished utilizing shovel scrape excavation techniques in arbitrary 10 cm levels. Depths were measured in centimeters below ground surface. In the following discussion depths are labeled simply as “cm”, however, with each label there is an implied “below surface”. All materials were screened through 1/8” mesh.

### *Shovel Probes*

Shovel Probe 1 (SP-1) was placed in an area believed, based on historic photographs, to be near the western edge of the bunkhouses. The area around SP-1 contained few surface artifacts indicating a possible gap between activity areas. The sparse artifacts recovered from within the probe consist predominately of coal slag.

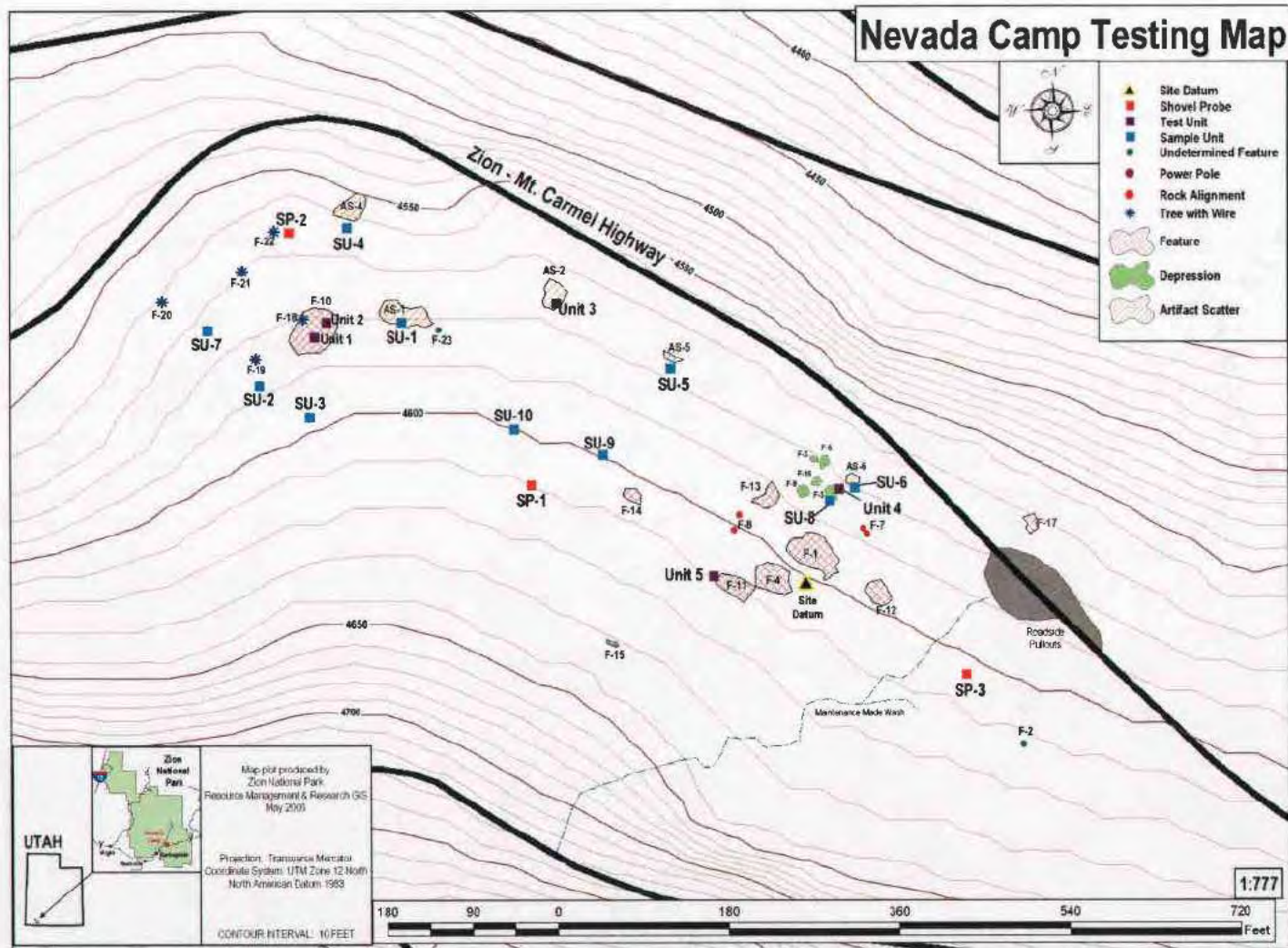


Figure 4.4: Location of sub-surface test units.

Table 4.2: Excavation Units

Unit Number	Size	Depth of Excavation	Maximum Depth of Cultural Material
SP-1	0.5 x 0.5 m	60 cmbs	40 cmbs
SP-2	0.5 x 0.5 m	30 cmbs	20 cmbs
SP-3	0.5 x 0.5 m	50 cmbs	Sterile
Unit-1	1 x 1 m	40 cmbs	30 cmbs
Unit-2	0.5 x 1 m	60 cmbs	60 cmbs
Unit-3	0.5 x 1 m	30 cmbs	20 cmbs
Unit-4	1 x 1 m	130 cmbs	130 cmbs
Unit-5	0.5 x 1 m	40 cmbs	40 cmbs

In addition to the coal slag, a single button was collected. The button, collected from the surface, is a zinc four-hole, sew-through button commonly found on work shirts.

The probe was excavated to a depth of 60 cm. No cultural material was encountered below 40 cm. There was no evidence of cultural features within the shovel probe. The sediment consisted of a loosely consolidated brown (Munsell 7.5YR 5/4) fine sand. At approximately 50 cm the sediment became slightly more compact with a slight color change to yellowish-red (Munsell 7.5YR 5/6).

Shovel Probe 2 (SP-2) was placed near the western edge of the site. Historic photographs, which were taken primarily from east of the camp because of topographic limitations, provide little detail of the western edge of the camp. Surface

artifacts in the vicinity of SP-2 consist of several clusters of artifacts generally domestic in nature – can fragments, bottle glass, and crown-cap bottle caps. Artifacts recovered from SP-2 were consistent with the surrounding surface artifacts and include glass fragments, a can and can fragments, wire nails, pieces of tar paper, and coal slag. Depth of cultural material was limited to the top 20 cm.

Termination of the shovel probe occurred at a depth of 30 cm. No cultural features were present in the probe. The sediment in Level 1 (0-10 cm) consisted of a loosely consolidated fine sand (Munsell 7.5YR 5/4). A color change to yellowish red (Munsell 5YR 5/6) was observed in Level 2 (10-20 cm). At 20 cm the sediment became more compact fine sand. Evidence of bioturbation was encountered approximately 10cm below surface.

Shovel Probe 3 (SP-3) was placed near the eastern edge of the site. The complete lack of surface artifacts indicated the area was outside the activity locus of the Nevada Camp. This lack of artifacts was consistent with historic photos which showed very little use of the eastern portion of the bench. Excavated to a depth of 50 cm, SP-3 proved to be culturally sterile. However, the large numbers of gravels and road-base cinders encountered between 10 – 50 cm indicated a substantial amount of slope wash and infilling. This deposit of slope wash and infilling may cover cultural deposits.

### *Test Units*

Unit 1 was placed in the southern portion of Feature 10, near the cluster of sandstone flagstone (Figure 4.5). Measuring 1 x 1 meter and aligned on a north/south axis, the unit was excavated to a depth of 40cm. The unit was initially opened as a 0.5 x 1 meter unit; however, a sandstone flagstone slab was encountered 5cm below the surface requiring the unit to be enlarged. This slab was similar to flagstone slabs observed on the surface. The slabs are believed to have served as flooring for a bathhouse or shower. Cultural material was limited to the top 30cm of the unit. The transition between Layer II and Layer III occurred in Level 4 (30 – 40cm).

A total of 179 artifacts representing a minimum of 141 items were recovered from Unit 1. The artifact assemblage of Unit 1 is dominated by architectural items (Figure 4.6), specifically nails and tar paper. It is the personal items, representing 10 percent of the identifiable items that are most valuable in determining the function of Feature 10. Personal items include a hair comb, an Art Deco lapel pin, several beads, and two dress buttons.

Four pieces of lithic debitage were recovered from Unit 1. These flakes appear anomalous to the site. No other indicators of a prehistoric component were identified during initial documentation or subsequent sub-surface testing. This debitage may represent an isolated prehistoric occurrence. An alternative explanation suggests an occupant of the Nevada Camp collected the debitage from a nearby prehistoric site.

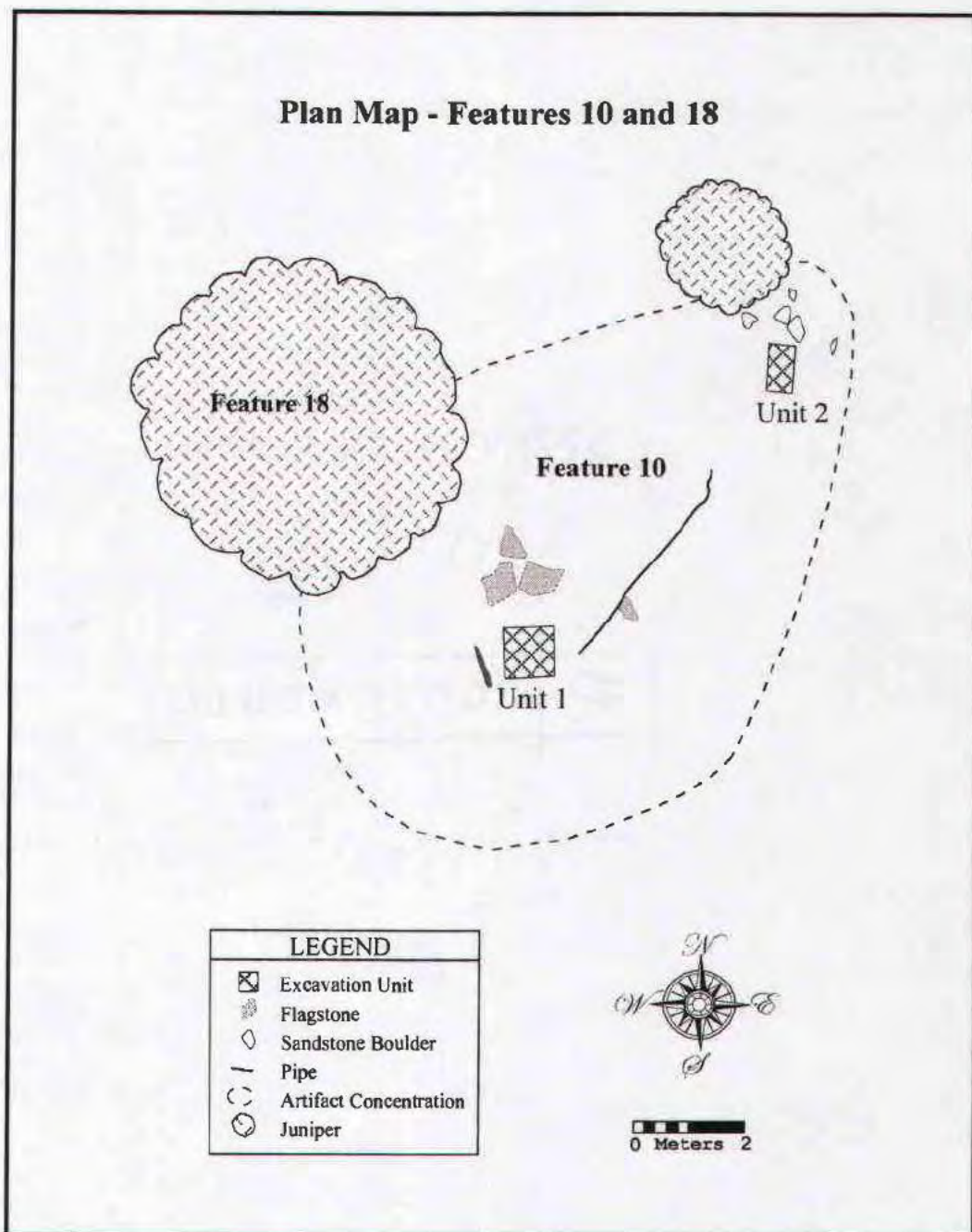


Figure 4.5: Plan map showing location of Units 1 and 2 in relationship to Feature 10 (a flagstone and artifact scatter) and Feature 18 (juniper with wired branches).

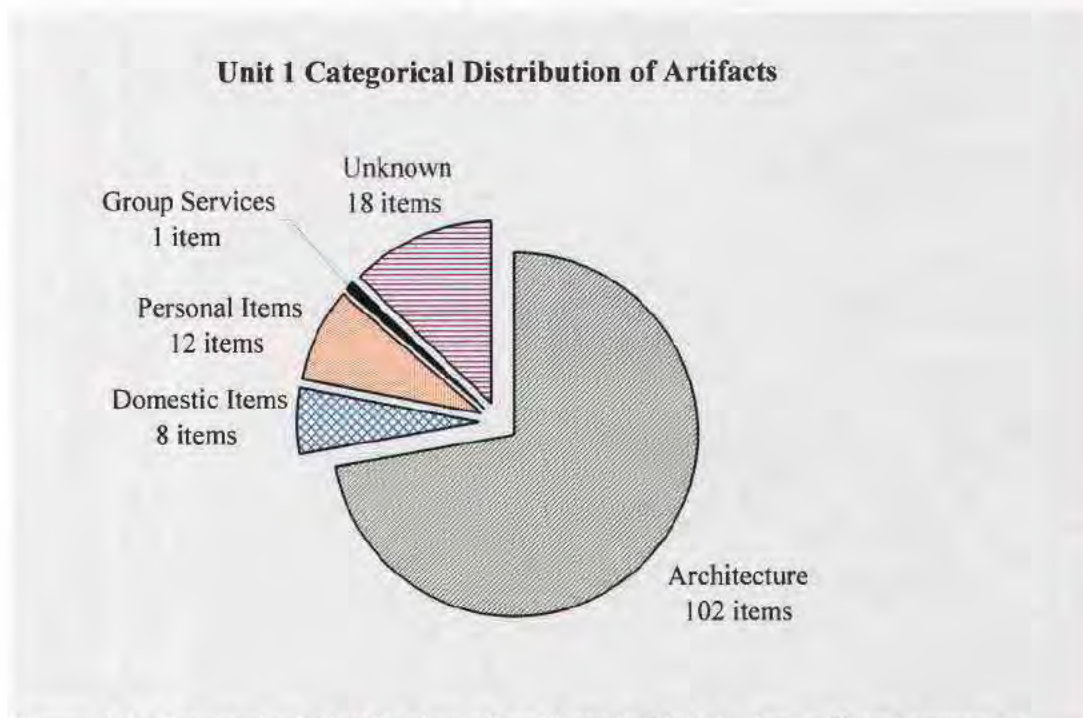


Figure 4.6: Categorical distribution of artifacts in Unit 1. Items listed represent minimum number possible.

Unit 2 was placed in the northern portion of Feature 10, seven meters northeast of Unit 1 (Figure 4.5). This unit was placed near an ambiguous alignment of sandstone slabs (not flagstone) just within the boundary of the artifact scatter associated with Feature 10. Unit 2 was placed near the rock alignment in an attempt to define the nature of the alignment. Unfortunately, no discernable pattern or function was identified.

Measuring 0.5 x 1 meter and aligned on a north/south axis, Unit 2 was excavated to a depth of 60 cm. Although artifacts were recovered from all levels, the artifacts in Level 6 were attributed to sidewall fall from upper levels. The transition from Layer II to Layer III occurred in Level 6 at approximately 55cm.



Numerous angular sandstone rocks, ranging in size from 5cm to 20cm, were encountered in Level 2. The presence of rocks continued into Level 5 with a decreasing frequency with depth. Levels 3 and 4 contained hundreds of small fragments of tar paper and coal slag. Although all fragments were examined for unusual attributes only a grab sample was collected from the screen fill. The tar paper and numerous wire nails combined to make architectural items the dominant artifact type in Unit 2 (Figure 4.7). Domestic items associated with consumption, primarily bottle caps and food can fragments, and personal items, including an eye-glass lens, beads, and a phonograph record fragment, complete the array of identifiable objects. A galvanized wire of unknown function was encountered protruding from the north wall of Level 3.

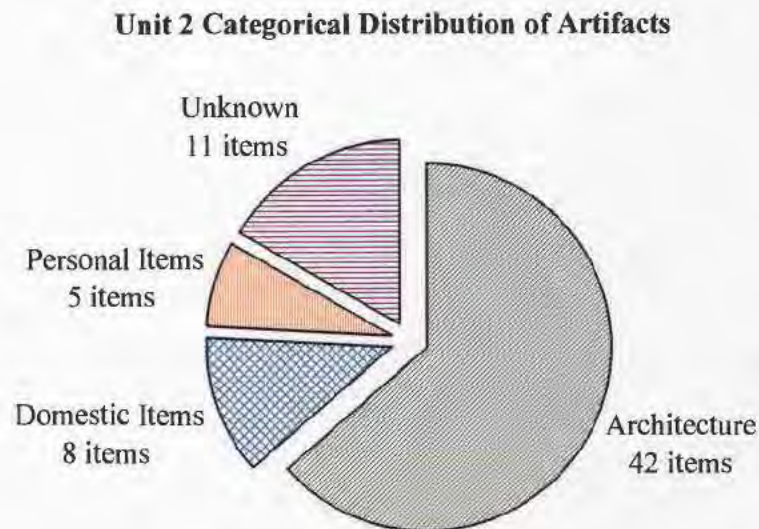


Figure 4.7: Categorical distribution of artifacts in Unit 2. Items listed represent minimum number possible.

Unit 3 was placed near the southern edge of Artifact Scatter 2, approximately 10 meters south of a cut-bank overlooking the Zion-Mt. Carmel Highway. Historical photographs show no structures in the vicinity of this cut-bank. Additionally, it is highly unlikely any structures, especially residential structures, would have been placed so close to the construction zone. Therefore, the goal of Unit 3 was to evaluate the potential depth of an artifact concentration with a moderate density.

Placed in an area of the concentration with sparse surface artifacts, Unit 3 measured 0.5 x 1 meter with a north/south alignment and was excavated to a depth of 30cm. Overall artifact density of the unit was light. Nineteen total artifacts representing a minimum of 8 items (Figure 4.8) were collected.

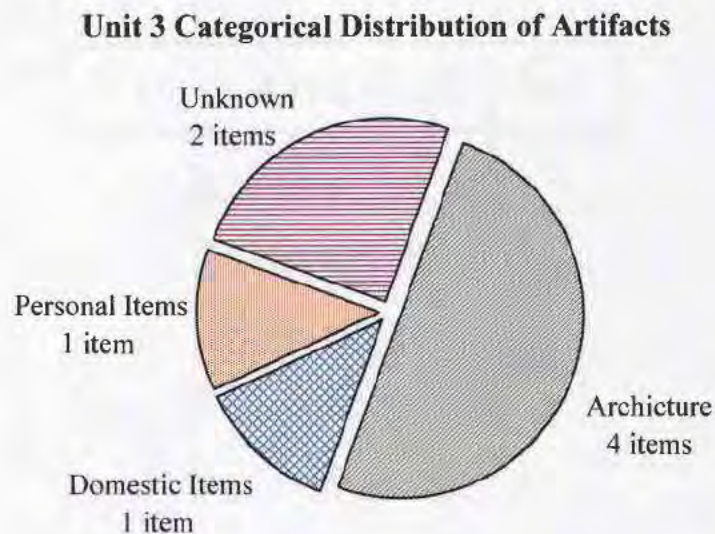


Figure 4.8: Categorical distribution of artifacts in Unit 3. Items listed represent minimum number possible.

Artifacts included wire nails, bottle glass, milled lumber, tar paper, and small fragments of coal slag. The lower portion of Level 3 was determined to be sterile. The transition from Layer II to Layer III was noted at approximately 25 – 26cm.

Unit 4 was placed in Feature 5 adjacent to the remains of a looter's pit. The rim of the pit contained a number of pieces of plain, utilitarian tableware, often referred to as restaurant-ware, and several bulk-size food cans. (For a detailed analysis of the surface artifacts, refer to SU-8, Appendix A.) Surface artifacts indicated Feature 5 was a rubbish pit or possible sub-surface incinerator for the camp cook shack and mess hall. Unit 4 was placed near the northern edge of the Feature 5 depression in an attempt to determine if the pit had originally been lined.

Measuring 1 x 1 meter with a north/south alignment, Unit 4 was excavated to 100cm, at which point the unit was cut in half and only the southern portion was excavated to 120cm. The loosely consolidated matrix of refuse and sand made the unit walls unstable at such depth. In an attempt to determine the depth of the cultural deposit, the southeast corner (0.5 x 0.5 meter) was excavated further. Excavation was terminated at a depth of 130cm, even though culturally sterile material was not encountered.

Unit 4 is stratigraphically unique at the Nevada Camp. The unit contains two distinct cultural layers representing two depositional events (Figure 4.9). Surrounding the cultural layers is culturally sterile sediment similar to Layer II observed in the other test units. The cultural layers are a mix of refuse from the camp dining services.

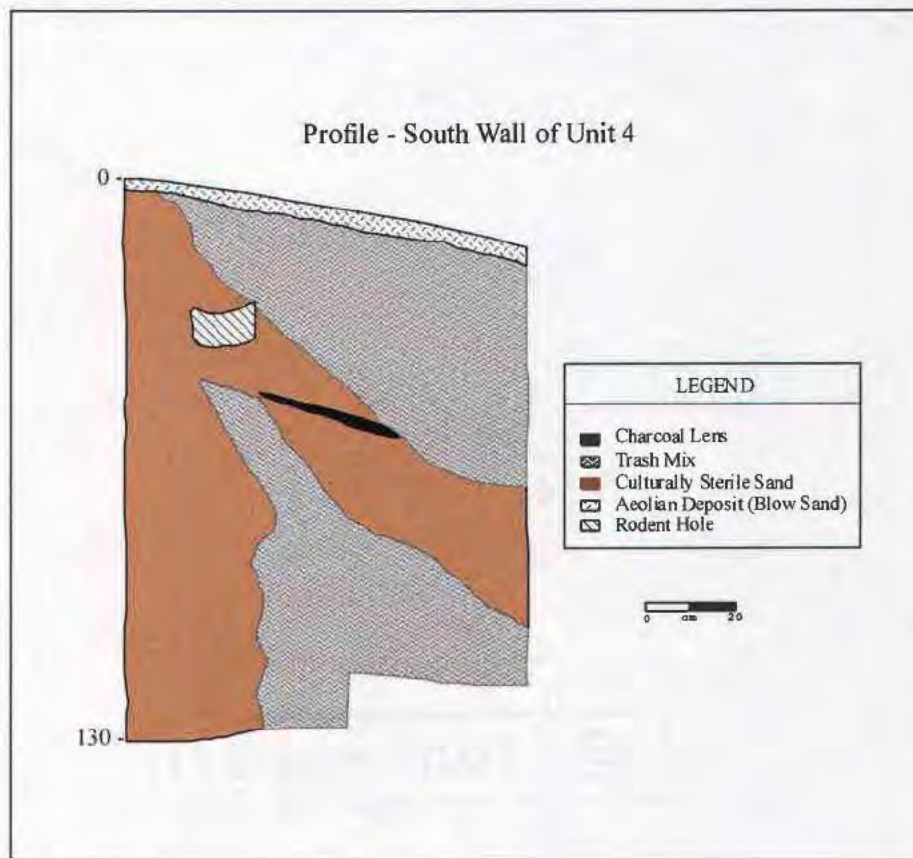


Figure 4.9: Profile of the south wall of Unit 4.

Artifacts including numerous can fragments, condiment and beverage bottles, and utilitarian tableware were mixed with egg shells and butchered faunal remains. Hundreds to thousands of small fragments of tar paper and coal slag were encountered. Although all fragments were examined for unusual attributes only a grab sample was collected from the screen fill. The diverse mix of artifact types (Figure 4.10) indicate Feature 5 was indeed a rubbish pit associated with the camp dining facilities.

#### Unit 4 Categorical Distribution of Artifacts

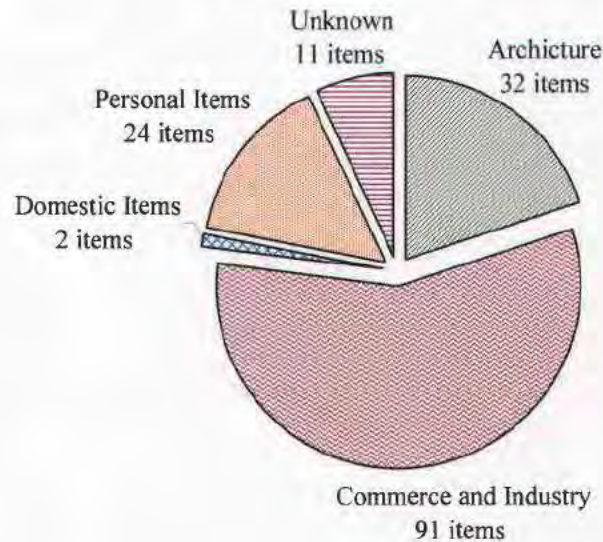


Figure 4.10: Categorical distribution of artifacts in Unit 4. Items listed represent minimum number possible.

Unit 5 was placed on the western edge of Feature 11 near the southeastern edge of the site, the area of the camp that contained the company offices and the commissary (Mahan 1979). Feature 11 is a leveled area, possibly a structure terrace, roughly 10 meters by 5 meters aligned on an east/west axis. The surface of Feature 11 contained few artifacts which were concentrated near the western edge of the feature. Unit 5 was placed near the artifact concentration.

Unit 5 measured 0.5 x 1 meter and was aligned on a north/south axis. Excavation was terminated at 40cm due to a large sandstone boulder covering nearly three quarters of the unit floor. Artifact density of Unit 5 was sparse. A total of 14

artifacts representing a minimum of 13 items were collected. Three personal items consisting of a button, a metal clasp for paper, and a rubber shoe heel were collected. The five architectural items were fragments of tar paper and nails. The five unknown items were coal slag for heating or cooking and unidentified metal fragments.

### **Site Stratigraphy**

The Nevada Camp is located on a small terrace/bench on the south edge of Pine Creek near the base of the Navajo Sandstone. Geologically, this bench is situated within the Kayenta Formation. On-site deposition is generally colluvial, with some sediment deposited during flash flooding from the overlying Navajo Formation.

General stratigraphy of the site consists of three layers with one exception which will be discussed in detail later. The surface of the site (Layer I) consists of a thin layer (1-3cm) of aeolian sand and associated vegetation debris. Directly below the wind blown sand, Layer II is composed of a loosely compacted fine sand matrix containing a limited amount of gravel. The gravels intermixed in Layer II are roughly 1-3cm diameter sandstone. Layer II varies in depth across the site, ranging from 10cm below surface to 40cm below surface. Sediment color in Layer II varied slightly from brown (Munsell 7.5YR 5/4) to yellowish red (Munsell 7.5YR 5/6). Cultural material is limited to the surface and Layer II. The temporally homogenous nature of the cultural material indicates the site contains a single component.

A distinct boundary between Layer II and Layer III is not visible. Layer III is distinguishable from Layer II by the more compact nature of the fine sand matrix. A slight color change to yellowish red (Munsell 5YR 5/6) marked the layer change. Layer III was culturally sterile in the test units, therefore testing was terminated before the extent of the layer could be determined.

The far eastern portion of the site contains a different stratigraphic profile. Below the surface aeolian sand there is a matrix of loosely compacted fine sand and numerous gravels. Intermixed with the gravels are road-base cinders. This layer appears to represent slope wash and infilling from an upslope culvert and wash. The wash was enhanced by Park maintenance in the late 1970s or early 1980s in an attempt to disperse run-off and prevent flooding of the highway. The slope wash and infilling extends to a depth of 50cm below surface. Other than contemporary materials (i.e. road-based cinders), this layer does not appear to contain cultural material.

### **Artifact Analysis**

Two forms of sampling provide data for artifact analysis – surface sample units and sub-surface testing units. Due to Zion National Park collection policies, artifacts in the surface sample units were not collected, merely tallied in the field. The data from the sample units were then compiled in a database table (Appendix A) for further analysis. Artifacts recovered during test excavations, on the other hand, were collected, cleaned in a laboratory facility, and assigned a Zion catalog number

(Appendix B). Similar analytical techniques were employed for all artifacts, collected or not collected. Objects were tallied by number of fragments and number of complete items. Evaluation of various attributes including form, composition, color, and provenience provided an estimate of minimum number of items (MNI). Although form and material components were documented for descriptive purposes, final analysis is based on a typology which groups items into various categories based on primary function within the systemic context (Table 4.3).

The following section defines each primary category comprising the analytical typology and summarizes the artifacts observed at the Nevada Camp. This summary incorporates objects collected during sub-surface testing and objects tallied in surface sample units.

### *Architecture*

“Architecture”, as a category, contains the material culture representing the physical structure of the camp. Elements of construction, both materials (tar paper, windowpane, milled lumber) and hardware (nails, roofing tacks, screws), form the predominate class within the category. Many architectural items are *de facto* refuse (Schiffer 1987:89) deposited during the abandonment of the camp. Architectural items comprise the most prevalent category at the Nevada Camp (Figure 4.11)



Table 4.3: Summary of artifact classifications.

	Fragments	Complete	MNI	Total
<b>Personal Items</b>				
Accessories	4		4	
Adornment	2	9	10	
Child Care		1	1	
Clothing	36	13	23	
Coins and Tokens		3	3	
Grooming	3	2	5	
Indulgences	38	7	20	
Medical and Health	1	7	8	
Pastimes and Recreation	7	1	5	
Reading and Writing	4	1	4	
				83
<b>Domestic Items</b>				
Consumption	63	41	77	
Furnishings/Appliances				
Furniture	2		1	
Illumination	2		2	
Home Maintenance	1	1	2	
Housewares				
Food Preparation	10	1	3	
Food Preservation	19	3	13	
Tableware	26		19	
				117
<b>Architecture</b>				
Construction				
Hardware	12	194	208	
Materials	49		20	
Landscaping	4		2	
Plumbing		1	1	
Utilities	9		7	
				238
<b>Commerce and Industry</b>				
Commercial Services				
Food, Drink, Lodging	84	31	131	
				131
<b>Group Services</b>				
Utilities	2		2	
				2
<b>Unknown</b>				
Appliances				
Heating/Cooking			25	
Material				
Ceramic	13		3	
Glass	49	2	26	
Metal	36	5	23	
			648	77
<b>TOTALS</b>	523	323	648	648

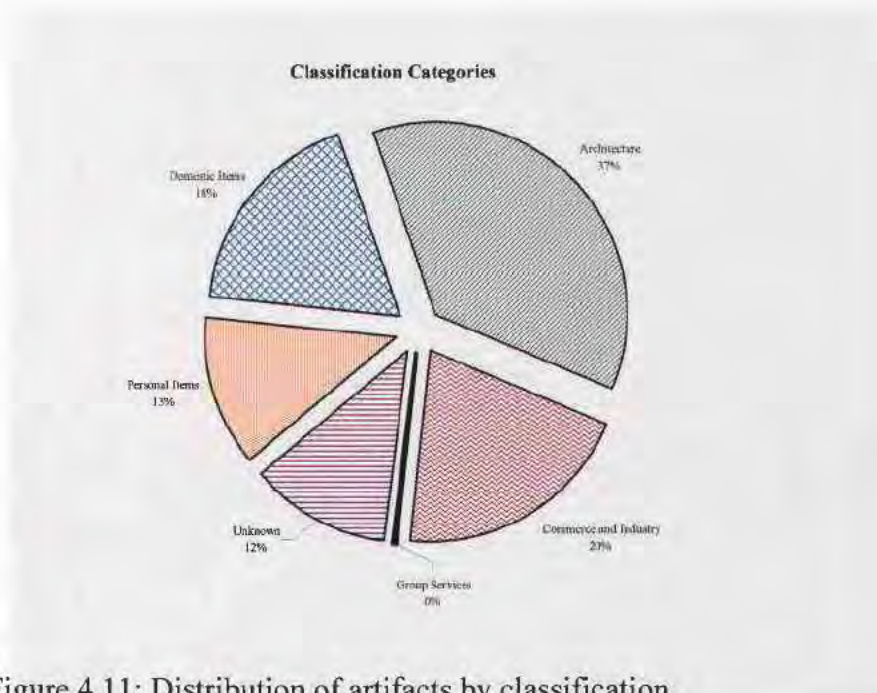


Figure 4.11: Distribution of artifacts by classification.

### *Commerce and Industry*

The category “Commerce and Industry” generally encompasses many diverse activities, most conducted for the purpose of generating an economic profit. However, artifacts from the Nevada Camp placed in this category focus on the food service industry. Artifacts categorized as “Commerce and Industry” distinguish group dining activities of the cook shack and mess hall from the individual or family level of dining. The mess hall at the Nevada Camp did not operate to create a profit in the sense of a restaurant, but the primary function – serving food on a large scale – remains the same. Artifact assemblages of mess halls in work camps consist of predominately plain, utilitarian serving-and-eating tableware, an abundance of cans, and condiment and beverage bottles (Blee 1991, Maniery 2002). The tableware is

generally white improved earthenware or ironstone commonly referred to as restaurant- or institution-ware. Food cans are often large, bulk size designed for mass consumption.

Distribution of such items at the Nevada Camp is limited to the area around Feature 5, a refuse pit believed to be associated with the cook shack. The commercial services assemblage for the camp contains 56 pieces of restaurantware representing 31 individual items, including 6 cups, 4 bowls, 7 plates, and 14 serving or baking dishes, 11 bulk size food or beverage cans, and an assortment of condiment and beverage bottles. The tableware bears three distinct, identifiable maker's marks. One is the Empire China Company of Burbank, California, dating circa 1924-1927. The second is the Illinois China Company of Lincoln, Illinois, dating between 1917 and 1946. The third mark is the Poxon China Company of Vernon, California. The base mark for the Poxon China Company dates between 1912 and 1931. All three companies were producers of restaurant quality tableware (Conroy 1999).

### *Personal Items*

Personal items comprise the most diverse types of items. These artifacts represent the needs and wants of the individual. Classifications within the Personal Items category range from indulgences such as alcohol and tobacco to clothing and adornment such as buttons and jewelry to grooming items such as hair tonic and combs. Personal items are often items of value or sentiment which are traditionally

curated. Many of these items find their way into the archaeological record through casual or inadvertent loss.

At the Nevada Camp, items of indulgence constitute the largest class of personal items. Six pocket tobacco tins and a minimum of 17 alcohol (including beer and liquor) bottles were recorded. The prevalence of alcohol was unexpected given the illicit nature of alcoholic consumption during Prohibition. In addition to items of indulgence, a number of medical items were documented. Identified medicines include *Bell-Ans* sodium bicarbonate for indigestion and *Absorbine, Jr.* liniment for muscle aches.

Personal items also indicate the presence of families at the workers' camp. Several distinct items commonly associated with women and children were identified. These items, a necklace pendant, an enameled Art Deco lapel pin, a porcelain doll arm, and a baby's cup (Figure 4.12), were located in Feature 10 and Artifact Scatter 1 in the western portion of the site. Feature 10 also produced a high frequency of beads. Descriptions of the camp indicate the western portion contained the married workers' cabins and tents (Garate n.d.).

### *Domestic Items*

Domestic items represent daily activities and habitational settings on an individual or family household level. Activities which produce domestic items are



Figure 4.12: Detail of selected gender-specific artifacts collected from the Nevada Camp. Clockwise from upper left: necklace pendant, baby's cup, porcelain doll arm, and Art Deco lapel pin.

often similar to activities which produce commercial services (categorized under “Commerce and Industry”) items. The distinction between the two categories relies partially on scale. Domestic households operate on a much smaller scale than commercial services. At the Nevada Camp the distinction is also based partially on the presence of women and children. In work camps across the American West workers with families residing at the camp were often removed from the communal aspects (mess halls and bunkhouses) of the single workers’ life (Chapman et.al. 2002, Maniery 2002, Van Bueren 2002). The Nevada Camp appears to have utilized a similar separation practice (Garate n.d.).

Within the Domestic Items category the two most common classes are “Consumption” and “Housewares”. “Consumption” includes beverage bottles, condiment bottles, and food cans. Domestic housewares, especially in households with women, are characterized by the presence or higher frequency of decorated ceramics and canning jars or other implements associated with food preservation (Blee 1991).

### *Group Services*

The category “Group Services” contains only two items which relate to “Utilities”. Both items are fragments of white ceramic spool style insulators. This type of insulator was used on both power and communication lines. Although only two utility items were documented within the camp, it should be noted that approximately 215 meters northeast/east of the residential area is a concentration of artifacts associated with the power line that brought electricity to the camp and to the tunnel.

### *Unknown*

Twelve percent of the artifacts analyzed at the Nevada Camp are categorized as “Unknown” (Figure 4.10). Many of the items in this category are too fragmentary for identification of form or function. On the other hand, the form and sometimes

function of some of the items was identified but an accurate assignment of category was not possible. The best example is coal slag. Coal was used for heating and cooking in the camp (Garate n.d.), however distinguishing between coal slag from the cook shack and coal slag from a residence is impossible.

## CHAPTER 5: DISCUSSION

As sites occupied in the early 20th century become eligible for inclusion on the National Register of Historic Places, life in the work camps receives more archaeological attention. Predominately populated by young, single males, work camps represent a unique, transient lifestyle. The transient nature of a work camp extends beyond the lifestyle of the worker and includes the physical aspects of the camp as well. When the resource depleted or a project was complete company owners would dismantle the camp and move to the next work site (Smith 2001; Gregory 2001). The extent to which a temporary work camp was dismantled and evidence of occupation eradicated varied. Camps within the boundaries of land administered by the National Park Service were often subjected to stringent landscape preservation and naturalization standards (McClelland 1998; Harrison et al. 1984). The primary research objective of the archaeological work conducted at the Nevada Camp addressed the question of whether behavioral patterns are identifiable in a site that has been subjected to dramatic cultural transformation processes resulting from attempts to preserve and naturalize the landscape. Three questions directed the analysis of data recovered during the research.

**Question 1: What impact did the National Park Service landscape preservation policy have on the creation of the archaeological record at the Nevada Camp?**



During the latter half of the 19th century Americans were exploring and settling across the West. Reports were made of astounding natural scenery and a wealth of natural resources encountered in the newly “discovered” land. Developers searched for ways to capitalize on the abundance of resources while conservationists fought to preserve the natural beauty (Everhart 1972). As early as 1872, land was set aside as national parks. With the onset of World War I, a movement once again called for the extraction and utilization of resources within the national parks (Everhart 1972). In 1916 the passage of the National Park Service Organic Act (16 U.S.C.1) established the National Park Service and provided a mechanism for the protection of Federal land designated as parks, monuments, or reserves.

By the 1920s tourism in the National Parks was increasing. Parks were undergoing a period of development with the construction of roads, trails, and visitor amenities such as lodges and museums. A desire for the retention of undisturbed nature and adequate facilities led park designers to incorporate principles of natural landscape design for the restoration of building sites to a natural state after construction (McClelland 1998). These principles suggested:

Development was carefully situated and then constructed to blend unobtrusively into the natural setting....Roads and trails were laid gently upon the land, and construction techniques were developed to create the illusion that the natural landscape had never been disturbed....These principles included the preservation of existing natural features and vegetation. (McClelland 1998:2).

Construction contractors worked closely with landscape architects to adequately comply with the landscape preservation policy and implement the

principles of natural landscape design. In accordance with the required naturalization of the landscape, the Nevada Contracting Company dismantled and removed the workers' camp. Following the dismantling of the camp by the Nevada Contracting Company, rangers at Zion National Park conducted a final clean-up of the camp site. According to the park superintendent's monthly report Chief Ranger Jolley supervised the clean-up of the camp which consisted of a "thorough raking" of the site (Scoyen 1930). While the monthly report does not specify the exact method or extent of the raking, the implication is that the remaining evidence of occupation was dispersed or buried.

The archaeological record at the Nevada Camp tells a more complete story regarding the concept of landscape naturalization. To understand fully the impact the National Park Service landscape preservation policy had on the creation of the archaeological record at the Nevada Camp it is important to understand the basic principles of site formation processes. Michael Schiffer's (1987) seminal work, *Formation Processes of the Archaeological Record*, provides the fundamental foundation for these principles. Of particular importance is the concept of abandonment processes.

Abandonment is the process of transforming a place from a systemic context into an archaeological context. The rate at which a place is abandoned is crucial to the formation of cultural deposits. Studies have shown that a location abandoned in a slow, planned manner contain fewer *de facto* (still usable or reusable) refuse deposits than a rapid, unplanned abandonment (Schiffer 1987; Stevenson 1982). Although the

abandonment of the Nevada Camp was chronologically rapid, taking only a few weeks to completely dismantle and move the camp, the abandonment should be viewed as a slow, planned abandonment. Therefore, the cultural deposits should consist of predominately primary or secondary refuse deposits with few *de facto* refuse deposits.

Surface inventory documented a generally sparse dispersal of artifacts across the site accentuated by higher density artifact concentrations. Many of the artifacts are fragments or small sized complete artifacts such as bottle and ceramic fragments, beads, buttons, bottle caps, and cans or can fragments. As expected, the artifact assemblage contains few *de facto* refuse items. Architectural items, specifically nails and assorted hardware, comprised the majority of *de facto* refuse.

Following completion of the Zion Tunnel and the Zion-Mt. Carmel Highway the Nevada Contracting Company moved the camp structures to the next project (Mahan 1979). Therefore, it was not unexpected to find little structural evidence at the site. Features identified in areas of possible structural remains consisted of “amorphous scatters of rock in an indeterminate configuration” or a “possible rock alignment” (Bonnifield 2005). Photos depicting the bunkhouses clearly show the structures situated on leveled platforms (Figure 5.1). A thorough surface inventory failed to detect any evidence of the platforms (Figure 5.2). The eradication of constructed features combined with the relative abundance of surface debris and the presence of sub-surface refuse pits implies the naturalization and clean-up focused on aesthetics more than complete elimination of evidence of human occupation.

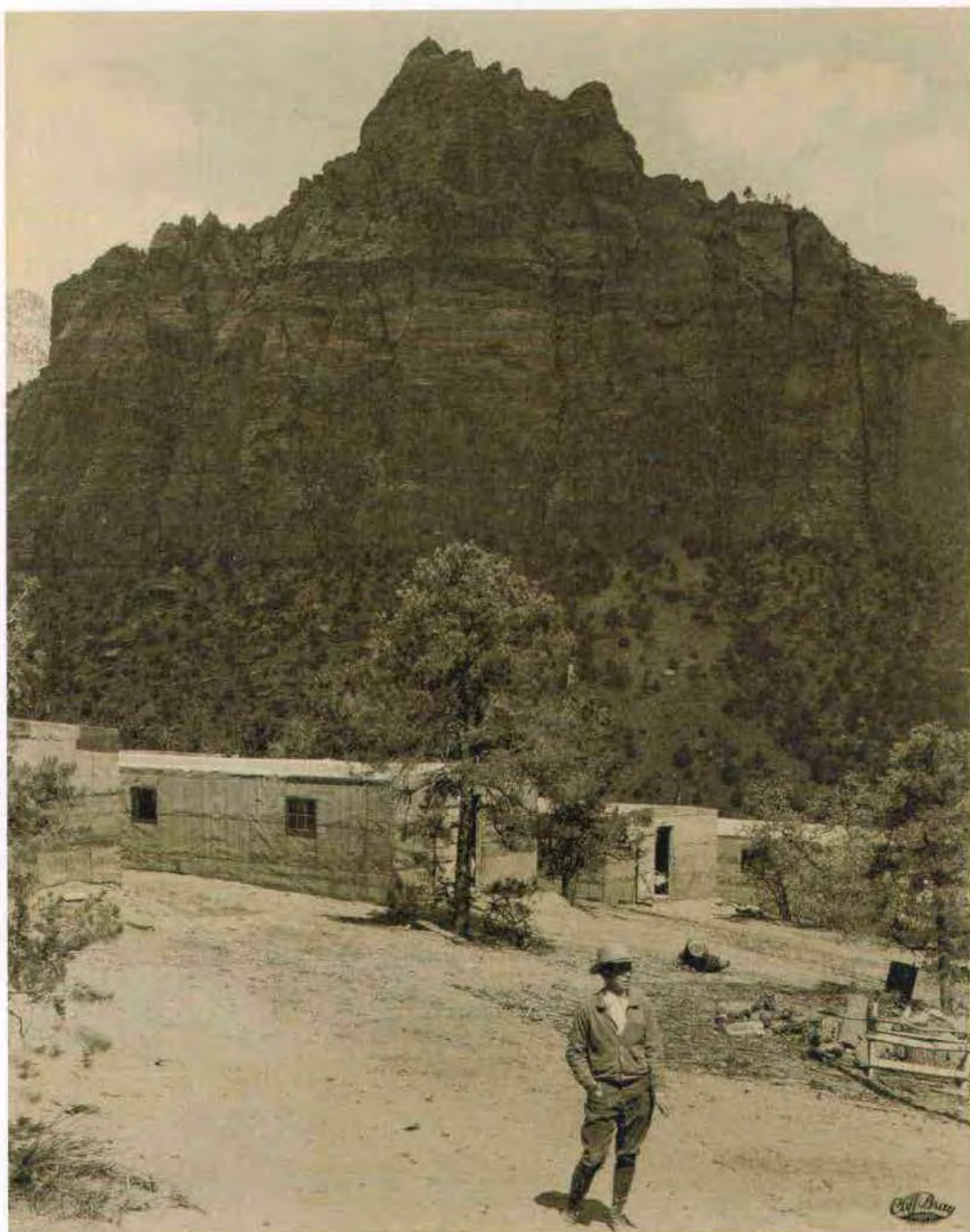


Figure 5.1: Single men's quarters, 1928. Note the leveled platforms. (Courtesy National Park Service, ZION 1872, Zion National Park Museum Collection)

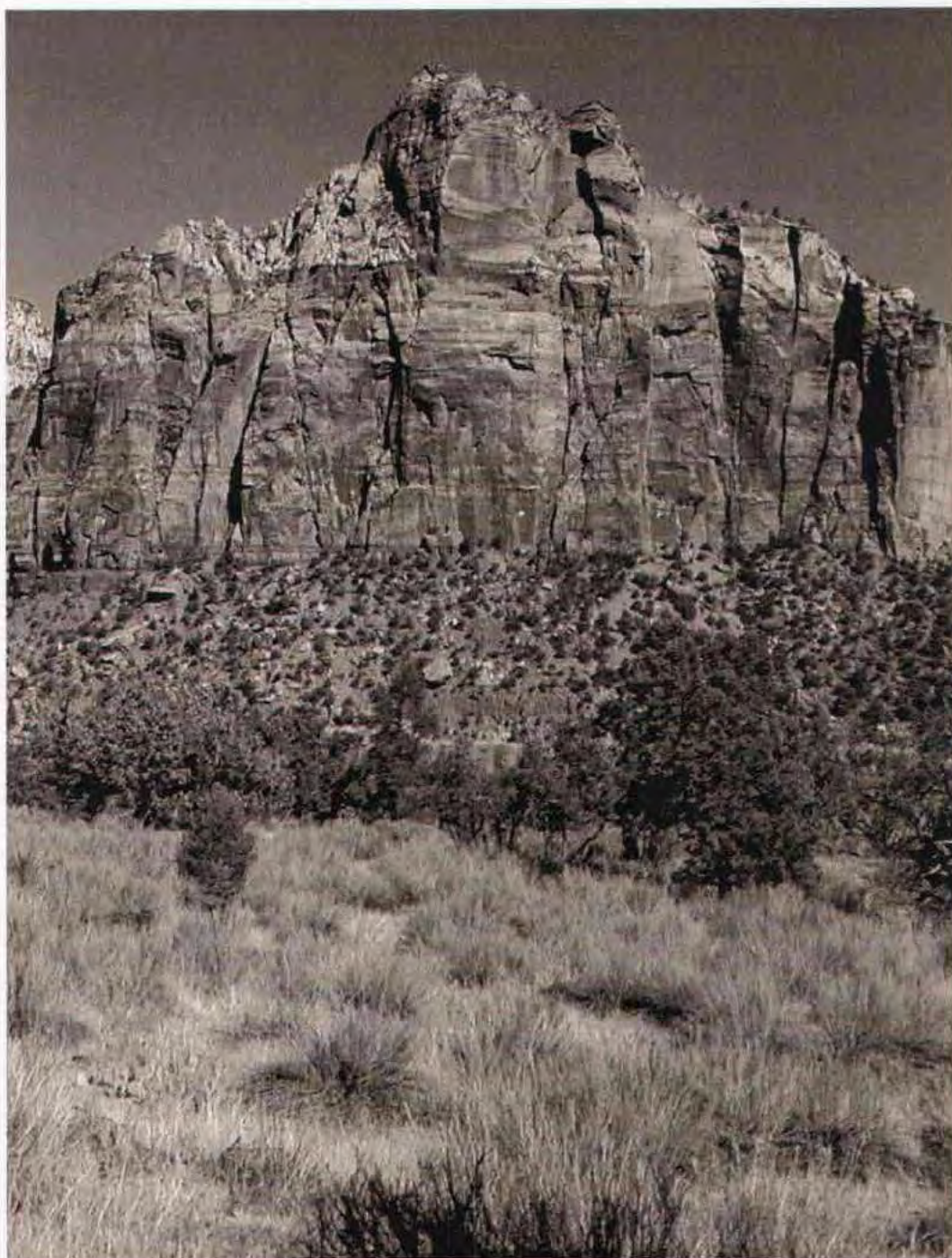


Figure 5.2: Location of single men's quarters, 2004.

**Question 2: What spatial and functional patterns of behavior are discernible in the archaeological record?**

The research conducted at the Nevada Camp was preliminary and the sample size small, prohibiting a comprehensive analysis of behavioral patterns. Though analysis was limited, the archaeological record reveals two distinct, identifiable patterns of behavior regarding the need to preserve and ultimately restore the natural landscape and the lay-out of the camp during occupation.

Historical documents indicate the Nevada Contracting Company was aware of the National Park Service requirement for landscape preservation during construction of the tunnel and road. This requirement was indicated specifically in the contract which stated that on completion of work debris, tree limbs, stumps and stump holes, and secondary roadways were to be removed such that “the areas involved may be left in as near the original condition as possible” (Standard Form–20 1927). However, what was not apparent from the historic documents was the proactive approach to landscape preservation taken by Nevada Contracting Company officials.

During the site survey a number of trees (Features 18, 19, 20, 21, and 22) in the western portion of the site (Figure 5.3) were observed which contained branches that had been wired up (Figure 5.4). The trees containing wire are pinyon (*Pinus monophylla*) and juniper (*Juniperus osteosperma*). Both species have a dense, full crown that extends nearly to the ground. The branches of these trees are sinuous and limber allowing the branch to flex under pressure without breaking.

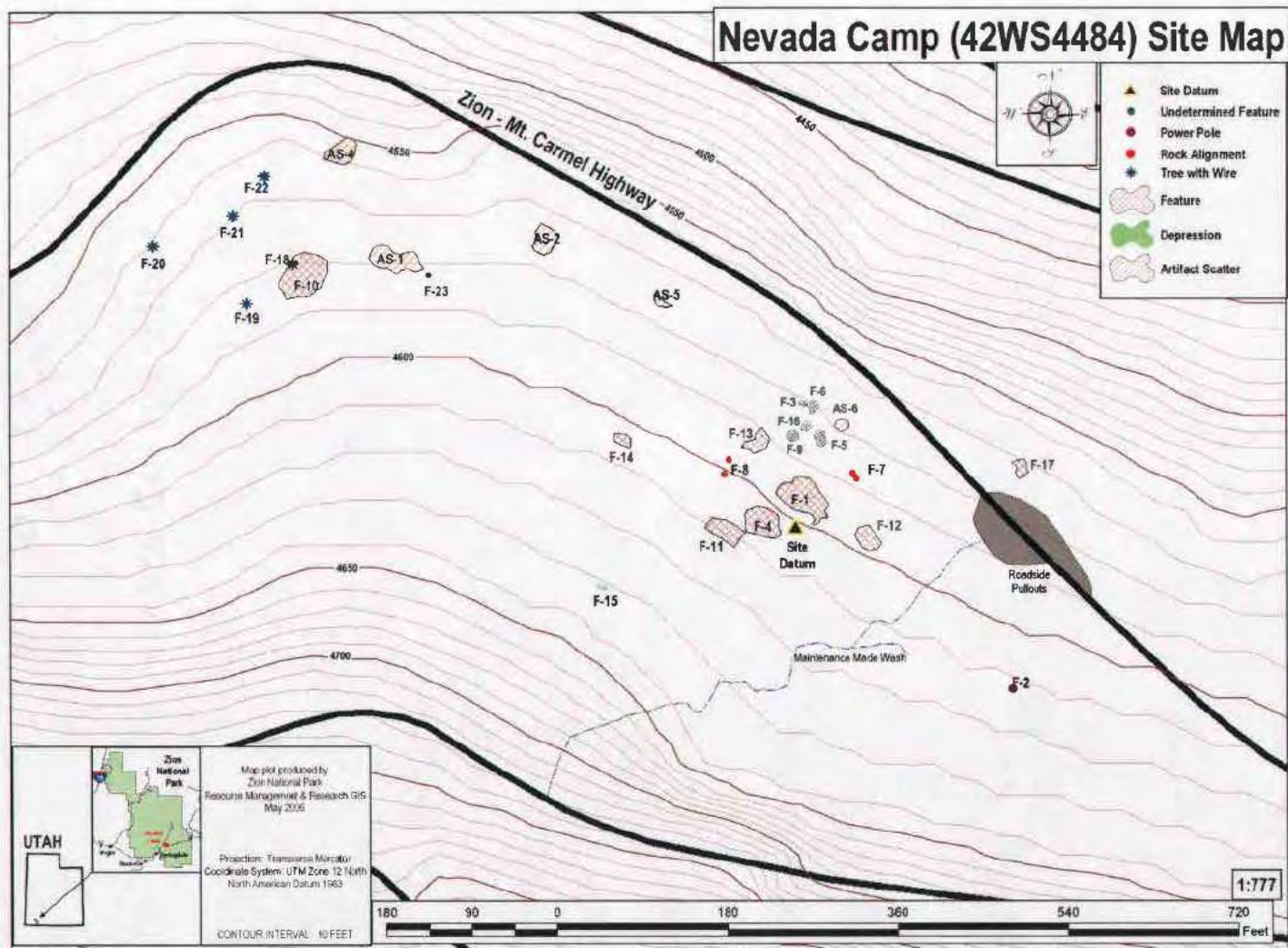


Figure 5.3: Location of trees with wired branches.



Figure 5.4: Detail of juniper with branches wired up.

Wiring the branches up appears to have been utilized as an efficient method of providing more ground space for structures without removing or damaging the entire tree, thereby preserving the sparse overstory on the terrace. Juniper and pinyon reach seed-producing maturity in 30 to 50 years (Gottfried and Severson 1993). Therefore removal of the trees would have left the terrace barren for many years, proving counterproductive in terms of landscape preservation.

A detailed map or description of the camp lay-out was not found in primary written or photographic records. Secondary sources (Anderson 1993; Garate n.d.) indicate the cabins for married workers and their families were located in the western



portion of the camp. Analysis of the archaeological data concurs with the description presented in the secondary sources.

The presence of families at the Nevada Camp is inferred through the identification of distinct items with a gender-specific function associated with women and children. These items include a necklace pendant, an Art Deco lapel pin, a porcelain doll arm, and a baby's cup. An assortment of beads, not gender-specific but commonly associated with women, was also identified. Data collected through sub-surface testing, surface sample units, and general surface observations indicates the limited distribution of family-specific artifacts restricted to the western portion of the site (Figure 5.5).

The artifact assemblage from the eastern portion of the site represents the more communal aspects of the worker's camp. This artifact assemblage contained few domestic items and personal items. The personal items included buttons from work clothes and pocket tobacco tins. The artifacts recovered from the eastern portion of the site are consistent with assemblages commonly found in male-dominated work camps (Hardesty 1994).

Additionally, the presence of trees with branches wired up not only provides insight into the proactive protection measures taken at the camp, they also support the inference of separation between married workers with their families and the single workers living in the communal bunkhouse setting. The density of trees on the terrace on which the camp was situated was generally sparse (Figure 5.6) and by preserving

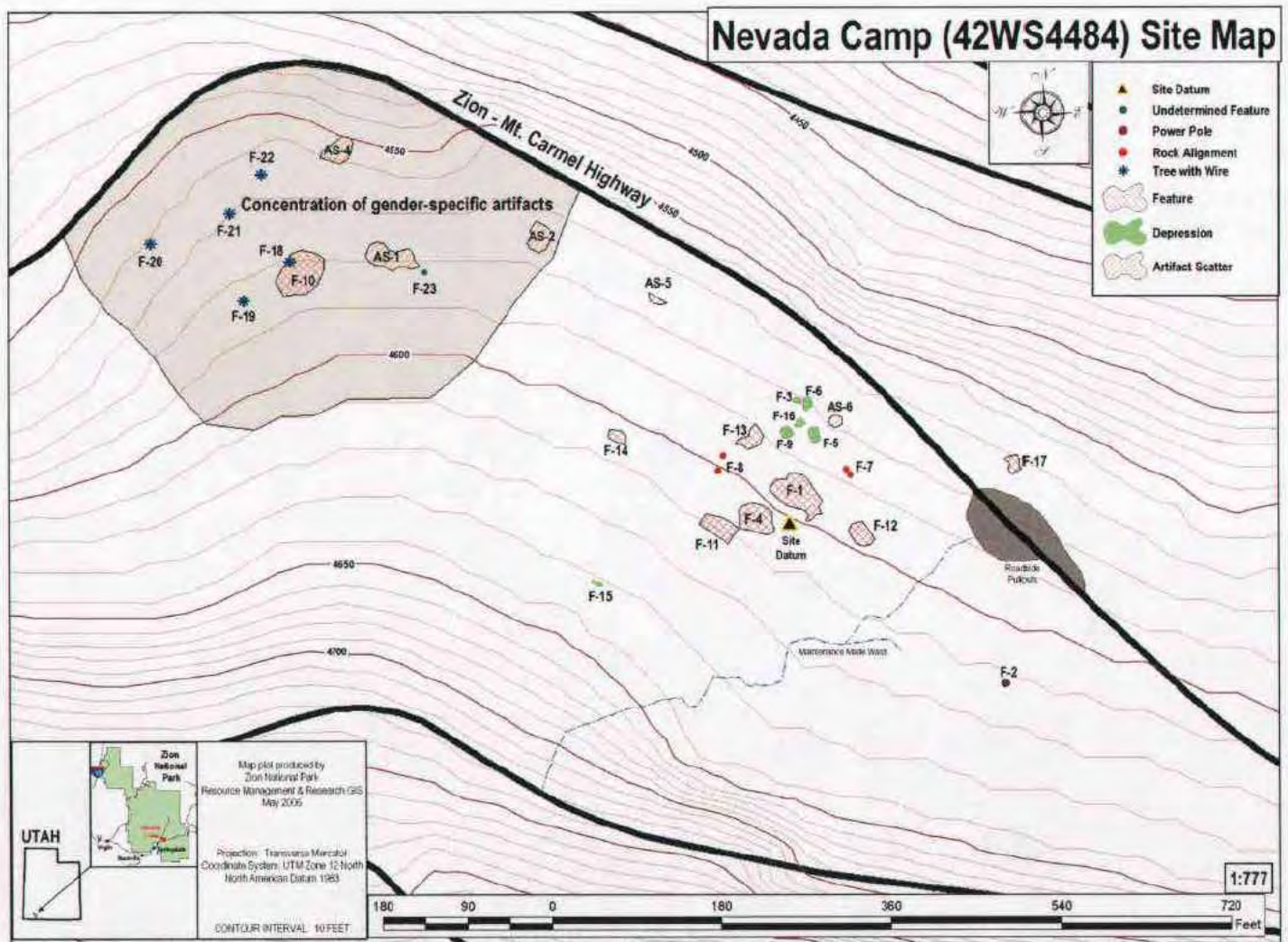


Figure 5.5: Location of concentration of gender-specific artifacts indicating families.

what few trees there were, the families received a modicum of shade, a precious commodity in the summer when temperatures reached the high 90s and low 100s. The trees also provided an element of privacy. Not only were the family cabins removed from the communal living areas, they were distanced from the continuous noise and activity resulting from the highway and tunnel construction. These subtle amenities imply a preferential treatment for workers with families.



Figure 5.6: Overview of Nevada Camp terrace circa 1932. (Courtesy National Park Service, ZION 13334 , Zion National Park Museum Collection)

**Question 3: What avenues of future research can, or should, be explored at the Nevada Camp and similarly dismantled temporary work camps?**

At the completion of the construction project, the Nevada Camp was subjected to massive cultural transformation processes as a result of the National Park Service landscape preservation policy. The camp was dismantled and the camp location raked and cleaned; yet, the archaeological site remains a viable source of information. The Nevada Camp, and similarly dismantled temporary work camps, have the potential to provide data within several thematic research domains.

First and foremost, many work camps, especially of the Civilian Conservation Corps (CCC) era, on National Park Service managed lands are “coming of age” archaeologically – becoming eligible for listing on the National Register of Historic Places. These sites should exhibit similar cultural transformation processes. Future research should continue to explore the ways in which management policies transformed the sites. With an increasing corpus of data concerning individual sites, comparative studies become feasible.

Comparative studies should include not only sites subjected to the landscape preservation policy, but also sites not subjected to the policy. Specifically at Zion National Park, a comparative study between the Nevada Camp and the collection of portable sawmills of similar age is warranted. As indicated by the above synthesis, the Nevada Camp was subjected to the National Park Service landscape preservation policy and site naturalization actions that eradicated obvious evidence of human occupation. The sawmills (specifically the Lemmon Sawmill) at Zion National Park,

which operated in the mid-1920s were not subjected to the same policy and actions. Many structures remain at the sawmill sites (Figure 5.7). A comparison of these sites could provide a more detailed understanding of site formation and cultural transformation processes.

Research at the Nevada Camp, as well as the CCC camp in Bandelier National Monument, indicates dismantled and “eradicated” sites are compatible with the thematic studies commonly researched at temporary work camps. Data recovered during the preliminary research at the Nevada Camp retains analytical potential regarding socio-economic diversity, distribution of commodities in work camps, and domestic divisions between married workers with families and single workers.



Figure 5.7: Extant structures at Lemmon Sawmill, Zion National Park, 2005. Note 50 cm scale.

## **CHAPTER 6: CONCLUSION**

In 1927, construction began on the Zion-Mt. Carmel Highway and the Zion Tunnel in Zion National Park. The completion of this three-year project ushered in a new era of tourism at Zion National Park. Park visitors could now marvel at the natural grandeur from previously inaccessible areas of the Park. Despite the inherently destructive nature of large-scale road construction, the National Park Service provided a route for visitor enjoyment while preserving the natural landscape. This was accomplished through strict adherence to a landscape preservation policy.

During the construction, approximately 200 employees of the Nevada Contracting Company lived at the contractor's camp, known today as the Nevada Camp. This was a temporary work camp, constructed for the sole purpose of housing workers and their families for the duration of the project. At the completion of the construction project the camp was dismantled and the site cleaned to National Park Service landscape preservation standards (Scoyen 1930).

In 2004, the archaeological site (42WS4484) was documented and preliminary research conducted. The primary research objective was to determine whether identifiable behavioral patterns existed archaeologically in temporary work camps that have been modified by substantial cultural transformation processes. The Nevada Camp was determined to be eligible for listing on the National Register of Historic Places under criterion "d", indicating the site has "yielded or may be likely to yield, information important in prehistory or history" (36 CFR60.4). This research

determined sites, such as the Nevada Camp, which have been subjected to cultural transformation processes resulting from the National Park Service landscape preservation policy are valuable not only for the information they provide on the systemic context of operation. They are also valuable for the information obtainable on the impact of management policies on the archaeological record. “Naturalized” or “eradicated” sites provide a unique research opportunity in the developing field of 20th century temporary work camps.

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**APPENDICES**

## Appendix A: Sample Unit Catalog

Unit	Feature	Material	Form	Type	Color	Decoration	Opening	Metric	Frag	MNI	Group	Class	Sub-Class	Description
SU-1	AS-1	Rubber	Hose	Cloth Covered					1	1	Unknown Personal	Material - rubber		
SU-1	AS-1	Glass	Jar	Cosmetic	Milk		External Thread		1	1	Items Personal	Grooming Medical and Health		
SU-1	AS-1	Glass	Bottle	Medicine	Cobalt Blue Solarized / Amethyst		External Thread		1	1	Items Personal	Grooming Medical and Health		
SU-1	AS-1	Glass	Bottle	Und.					1	1	Unknown Domestic	Material - glass		
SU-1	AS-1	Glass	Bottle	Beverage	Green		Crown cap		7	1	Items Personal	Consumption		25N embossed on the base
SU-1	AS-1	Comp.	Battery	Core					1	1	Items	Accessories	illumination	
SU-1	AS-1	Metal	Strap	Und					1	1	Unknown Domestic	Material - metal	Possible barrel band	
SU-1	AS-1	Metal	Lid	Canning Jar							Items	Housewares	Food Preservation	
SU-1	AS-1	Wood	Milled						2	1	Unknown Domestic	Material - wood		
SU-1	AS-1	Metal	Can	Food			Bayonet Opener	1 1/2"H x 3"dia			Items	Consumption		
SU-1	AS-1	Metal	Can	Spice Tin			External Friction	1/8"L x 1"W			Items	Consumption		
SU-1	AS-1	Glass	Jar	Canning Jar	Aqua				2	2	Domestic Items	Housewares	Food Preservation	embossed with "BA" (incomplete)
SU-1	AS-1	Rubber	Block	Und					6	1	Unknown Domestic	Material - rubber		
SU-1	AS-1	Metal	Spring	Cloths Pin					1	1	Items Domestic	Home Maintenance	Cleaning and Mending	
SU-1	AS-1	Metal	Bottle Cap	Crown							Items	Consumption		

SU-1	AS-1	Metal	Hook	Suspender						Personal Items	Clothing	
SU-1	AS-1	Metal	Nail	Wire						Architecture Domestic Items	Construction	Hardware
SU-1	AS-1	Ceramic	Cup			Underglaze Paint		1	1		Housewares	Tableware
SU-1	AS-1	Ceramic	Frag	Und.		None		10	1	Unknown	Material - ceramic	
SU-1	AS-1	Ceramic	Saucer		White	None		2	1	Commerce and Industry	Commercial Services	Food, Drink, Lodging
SU-1	AS-1	Metal	Can	Und.			Und.	3	1	Unknown	Material - metal	
SU-1	AS-1	Concrete	Frag	Und.				4	1	Unknown	Material - concrete	
SU-1	AS-1	Metal	Can	Beverage			Knife- Punched	1	1	Domestic Items	Consumption	
SU-1	AS-1	Metal	Can	Meat			Crushed 3 1/2"H x 3"L x 3 1/2"W			Domestic Items	Consumption	
SU-1	AS-1	Metal	Can	Beverage			Bayonet Opener			Commerce and Industry	Commercial Services	Food, Drink, Lodging
SU-1	AS-1	Metal	Can	Beverage			8"H x 6"dia				Material - metal	Possible hacksaw or meat saw
SU-1	AS-3	Metal	Saw Blade	Hack or meat				1	1	Unknown	Material - metal	Possible baking soda tin
SU-1	AS-1	Metal	Can	Dry Good			Pry Lid	4 1/2"H x 4 1/4"dia		Unknown	Material - metal	
SU-1	AS-1	Metal	Can	Food			Rotary	2 1/4"H x 3 1/2"dia		Domestic Items	Consumption	
SU-1	AS-1	Glass	Lid Liner	Canning Jar	Milk			1	1	Domestic Items	Housewares	Food Preservation
SU-1	AS-1	Metal	Can	Milk			Punched	2 1/2"H x 2 1/2"dia	1	1	Domestic Items	Consumption

SU-1	AS-1	Glass	Bottle	Beer	Amber			6	2	Personal Items	Indulgences
SU-1	AS-1	Glass	Bottle	Und.	Colorless			6	1	Unknown	Material - glass
SU-1	AS-1	Glass	Flat Glass	Window	Colorless			1	1	Architecture Personal	Construction Materials
SU-1	AS-1	Glass	Bottle	Alcohol	Colorless			2	2	Items	Indulgences
SU-1	AS-1	Glass	Bottle	Condiment	Colorless			2	1	Domestic Items	Consumption
SU-1	AS-1	Glass	Bottle	Wine	Olive Green			1	1	Personal Items	Indulgences
SU-1	AS-1	Glass	Flat Glass	Window	Aqua			1	1	Architecture	Construction Materials Possible
SU-1	AS-1	Glass	Flat Glass	Und.	Aqua			1	1	Unknown Domestic	Material - glass windowpane Food
SU-1	AS-1	Glass	Jar	Canning Jar	Aqua			2	1	Items	Housewares Preservation
SU-1	AS-1	Metal	Can	Tobacco		Hinged Lid	4 1/2"H x 3"L x 1"W			Personal Items Domestic	Indulgences
SU-10		Ceramic	Saucer			Decal		1	1	Items	Housewares Tableware
SU-10		Glass	Frag	Und.	Colorless			1	1	Unknown	Material - glass
SU-10		Ceramic	Frag	Und.		None Overglaze		2	1	Unknown Domestic	Material - ceramic
SU-10		Ceramic	Cup	Teacup		Paint		3	1	Domestic Items	Housewares Tableware
SU-10		Ceramic	Saucer			Decal Scalloped Edge		1	1	Domestic Items	Housewares Tableware
SU-10		Ceramic	Saucer					2	1	Domestic Items	Housewares Tableware Care and Maintenance
SU-2	AS-1	Metal	Can	Shoe Polish			2"H x 2 1/2" dia			Personal Items	Clothing
SU-2	AS-3	Glass	Light Bulb		Colorless - Frosted			1	1	Architecture	Illumination



SU-2	AS-3	Glass	Lamp	Chimney	Colorless			1	1	Domestic Items	Furnishings/Ap pliances	illumination	
SU-2	AS-3	Glass	Container	Jug	Colorless			14	7	Domestic Items	Consumption		
SU-2	AS-3	Glass	Bottle	Condiment	Colorless			1	1	Domestic Items	Consumption		mark on base 1920 - 1964
SU-2	AS-3	Glass	Lid Liner	Canning Jar	Milk			8	3	Domestic Items	Housewares	Food Preservation	
SU-2	AS-3	Glass	Lid Liner	Canning Jar	Milk			2	2	Domestic Items	Housewares	Food Preservation	with CAP - 10 BOYD'S
SU-2	AS-3	Glass	Bottle	Beer	Amber			1	1	Personal Items	Indulgences		
SU-2	AS-3	Glass	Jar	Cosmetic	Milk			1	1	Personal Items	Grooming Material - metal		Melted
SU-2	AS-3	Metal	Can	Und.		Und.		2	2	Unknown Items		Food Preparation	base of Pie Pan
SU-2	AS-3	Glass	Vessel	Pie Pan	Colorless			9	1	Domestic Items	Housewares	Food Preparation	Incomplete base mark
SU-2	AS-3	Ceramic	Saucer			Moulded		2	2	Domestic Items	Housewares	Tableware	
SU-2	AS-3	Metal	Can	Meat			4 1/4"L x 2 Key Wind 7/8"W			Domestic Items	Consumption Material - metal	Possible barrel band	
SU-2	AS-3	Metal	Strap	Und.				1	1	Unknown Personal Items			Heel with shoe nails
SU-2	AS-3	Rubber	Shoe	Heel						Architecture Personal Items	Construction Pastimes and Recreation	Hardware	
SU-2	AS-3	Metal	Nail	Wire						Domestic Items	Housewares	Tableware	
SU-2	AS-3	Comp.	Record	Phono.				5	1	Commerce and Industry Domestic Items	Commercial Services	Food, Drink, Lodging	
SU-2	AS-3	Ceramic	Saucer	Cup Saucer		Transfer		1	1	Domestic Items	Housewares	Tableware	
SU-2	AS-3	Ceramic	Cup		White	None Underglaze Paint		1	1	Domestic Items	Housewares	Tableware	
SU-2	AS-3	Ceramic	Cup					1	1	Domestic Items	Housewares	Tableware	

SU-3		Metal	Can	Und.			Und.	7	1	Unknown Domestic Items	Material - metal			
SU-3		Glass	Bottle	Condiment	Colorless			1	1	Items	Consumption			
SU-3		Glass	Bottle	Und.	Colorless			5	2	Unknown Commerce and Industry Domestic Items	Material - glass Commercial Services	Food, Drink, Lodging		
SU-3		Ceramic	Cup	Teacup	White	None		1	1	Architecture	Housewares Construction	Food Preservation Hardware	BOYD's lid liner	
SU-3		Glass	Lid Liner	Canning Jar	Milk									
SU-3		Metal	Nail	Wire										
SU-3		Metal	Can	Syrup			External Thread	4 3/4"H x 4 3/4"L x 3 1/2"W		Domestic Personal Items	Consumption Medical and Health		Cabin shaped can of Log Cabin Syrup	
SU-5	AS-5	Glass	Ampoule	Medicine	Colorless								"HINDS HONEY and ALMOND	
SU-5	AS-5	Glass	Bottle	Cosmetic	Colorless					Personal Items	Grooming			
SU-5	AS-5	Glass	Vessel	Pie Pan	Colorless			1	1	Domestic Items	Housewares	Food Preparation		
SU-5	AS-5	Glass	Jar	Canning Jar	Aqua		External Thread		4	3	Domestic Items	Housewares	Food Preservation	with "Perfect Mason"
SU-5	AS-5	Glass	Jar	Medicine	Cobalt Blue		External Thread	2 1/2"H x 1 7/8"dia		Personal Items	Medical and Health			
SU-5	AS-5	Glass	Vessel	Tableglass	Colorless	Etching		1	1	Domestic Items	Housewares	Tableware		
SU-5	AS-5	Glass	Container	Und.	Colorless			8	6	Unknown	Material - glass		embossed with "THIS BOTTLE IS LOANED BY LYRIC bottle - 2 oz size	
SU-5	AS-5	Glass	Bottle	Barber	Colorless					Personal Items	Grooming			
SU-5	AS-5	Glass	Vial	Medicine	Colorless					Personal Items	Medical and Health			

SU-5	AS-5	Metal	Can	Undet.			Und.	6 3/8"dia	1	2	Unknown	Material - metal		
SU-5	AS-5	Metal	Can	Lard Pail			Pry Lid	4 3/4"H x crushed			Domestic Items	Consumption Material - metal		Cap stamped with "SMAI"
SU-5	AS-5	Metal	Cap	Und.							Unknown Domestic Items	Housewares	Tableware	
SU-5	AS-5	Ceramic	Saucer	Cup saucer		Decal			1	1		Housewares	Tableware	
SU-5	AS-5	Metal	Coffee Percolator Stem								Domestic Items	Housewares	Food Preparation	
SU-5	AS-5	Ceramic	Frag	Und.		None			1	1	Unknown Domestic Items	Material - ceramic		Olive Wreath around the letter 'A'
SU-5	AS-5	Ceramic	Cup	Teacup		Transfer Decal/Shell			2	1	Domestic Items	Housewares	Tableware	
SU-5	AS-5	Ceramic	Bowl	Fruit Bowl	Yellow glaze	Edge			1	1	Domestic Items	Housewares	Tableware	
SU-5	AS-5	Metal	Can	Und.			Und.	2 3/4"dia	1	1	Unknown	Material - metal		
SU-6	AS-6	Glass	Bottle Stopper	Club Sauce							Unknown Commerce and Industry	Material - glass	Possible condiment bottle stopper	
SU-6	AS-6	Ceramic	Bowl	Cereal	White	None			2	2		Commercial Services	Food, Drink, Lodging	
SU-6	AS-6	Metal	Can	Beverage			Knife Sliced	6"dia x crushed			Commerce and Industry	Commercial Services	Food, Drink, Lodging	
SU-6	AS-6	Glass	Container	Und.	Colorless				9	2	Unknown Domestic Items	Material - glass		
SU-6	AS-6	Glass	Bottle	Beverage	Colorless		Crown cap		2	1	Domestic Items	Consumption		
SU-6	AS-6	Glass	Bottle	Condiment	Colorless				1	1	Domestic Items	Consumption		with H over A 6-205 of Hazel

SU-6	AS-6	Glass	Bottle	Condiment	Colorless				2	1	Domestic Items	Consumption		
													Possible condiment bottle	
SU-6	AS-6	Glass	Bottle	Und.	Aqua				1	1	Unknown Personal Items	Material - glass		
SU-6	AS-6	Glass	Bottle	Beer	Amber				8	2	Items	Indulgences		
SU-6	AS-6	Glass	Bottle	Beverage	Green				6	1	Domestic Items	Consumption		26N embossed on the base
SU-6	AS-6	Metal	Can	Beverage			Punched	4 1/2"H x 3"dia			Commerce and Industry	Commercial Services	Food, Drink, Lodging	
SU-6	AS-6	Ceramic	Platter	Serving	White	None			8	3	Commerce and Industry Personal Items	Commercial Services	Food, Drink, Lodging	
SU-6	AS-6	Metal	Can	Tobacco			Hinged Lid	4 1/4"H x 3"L x 1"W				Indulgences Material - rubber		
SU-6	AS-6	Rubber	Fragment	Und.					3	1	Unknown Architecture	Construction	Hardware	
SU-6	AS-6	Metal	Nail	Wire								Material - metal		
SU-6	AS-6	Metal	Wire	16 Gauge					1	1	Unknown Personal Items	Clothing		
SU-6	AS-6	Rubber	Shoe Serving Dish	Heel/Sole										
SU-6	AS-6	Ceramic	Dish		White	None			4	2	Commerce and Industry	Commercial Services	Food, Drink, Lodging	
SU-6	AS-6	Ceramic	Saucer		White	None			1	1	Commerce and Industry	Commercial Services	Food, Drink, Lodging	
SU-6	AS-6	Ceramic	Saucer		White	None			2	1	Commerce and Industry	Commercial Services	Food, Drink, Lodging	
SU-6	AS-6	Metal	Can	Lid			External Friction				Unknown	Material - metal		
SU-7		Metal	Can	Milk			Knife- Punched	Crushed			Domestic Items	Consumption		

SU-7		Metal	Saw Blade	Hack or Meat					12 1/2"L x 5/8"W		Unknown	Material - metal	Possible hacksaw or meat saw
SU-7		Metal	Wire	15 gauge				2		1	Architecture	Landscaping	
SU-7		Glass	Button	Sew-through									
SU-7		Metal	Lid	Und.					Internal Friction		Unknown	Material - metal	OPEN PLACE COIN INTO EDGE OF COVER AND
SU-7		Metal	Can	Beverage					Punched		Domestic Items	Consumption	
SU-7		Glass	Jar	Canning Jar	Aqua			1		1	Domestic Items	Housewares	Food Preservation
SU-7		Glass	Bottle	Beer	Amber				Crown cap		Personal Items	Indulgences	
SU-7		Glass	Vessel	Tableglass	Colorless						Domestic Items	Housewares	Tableware
SU-7		Metal	Nail	Wire						2	Architecture	Construction	Hardware
SU-8	F-5	Metal	Can	Food					Bayonet Opener		Commerce and Industry	Commercial Services	Food, Drink, Lodging
SU-8	F-5	Glass	Bottle	Condiment	Colorless						Commerce and Industry	Commercial Services	Food, Drink, Lodging
SU-8	F-5	Glass	Container	Und.	Colorless						Unknown	Material - glass	
SU-8	F-5	Metal	Can	Beverage					Knife Sliced		Commerce and Industry	Commercial Services	Food, Drink, Lodging
SU-8	F-5	Metal	Can	Beverage					Punched/K nife Sliced		Commerce and Industry	Commercial Services	Food, Drink, Lodging
SU-8	F-5	Metal	Can	Tobacco					Hinged Lid		Personal Items	Indulgences	
SU-8	F-5	Ceramic	Bowl	Cereal	White	None					Commerce and Industry	Commercial Services	Food, Drink, Lodging

SU-8	F-5	Metal	Can	Und.			17	5	Unknown	Material - metal	food or beverage	
SU-8	F-5	Ceramic	Platter		White	None	3	1	Commerce and Industry	Commercial Services	Food, Drink, Lodging	
SU-8	F-5	Ceramic	Plate		White	None	1	1	Commerce and Industry	Commercial Services	Food, Drink, Lodging	Illinois China Co. 1917-1946
SU-8	F-5	Ceramic	Vessel Serving	Oval Baking		None	4	2	Commerce and Industry	Commercial Services	Food, Drink, Lodging	
SU-8	F-5	Ceramic	Dish	Shallow	White	None	1	1	Commerce and Industry	Commercial Services	Food, Drink, Lodging	Illinois China Co.
SU-9		Glass	Flat Glass	Window.	Colorless		13	1	Architecture Group	Construction	Materials Communication	
SU-9		Ceramic	Insulator	Donut-style			1	1	Services	Utilities	/Power	
SU-9		Metal	Nail	Wire					Architecture	Construction	Hardware	
SU-9		Metal	Nail	Wire					Architecture	Construction	Hardware	
SU-9		Metal	Can	Milk					Domestic Items	Consumption		
SU-9		Metal	Lid	Canning Jar					Domestic Items	Housewares	Food Preservation	Kerr Mason Pat 8-3...

## Appendix B: Collected Artifact Catalog

Catalog	Unit	Level	Feat.	Material	Form	Type	Metric	Frag	MNI Group	Class	Sub-Class	Description	
ZION15002	Unit 4	6	F-5	Metal	Bottle Cap	Crown				Commerce and Industry	Commercial Services	Food, Drink, Lodging	
ZION15003	Unit 4	6	F-5	Metal	Nail	Wire				Architecture	Construction	Hardware	
ZION15004	Unit 4	6	F-5	Metal	Can				1	Commerce and Industry	Commercial Services	Food, Drink, Lodging	Bulk Bag
ZION15005													
ZION15006	Unit 4	6	F-5	Glass	Bottle	Alcohol		5	1	Personal Items	Indulgences		Melted flask
ZION15007	Unit 4	6	F-5	Plastic	Unk.			3	1	Unknown	Material - plastic		
ZION15008	Unit 4	6	F-5	Faunal	Button	Sew-through		9	1	Personal Items	Clothing		Two- hole sew-through shirt button
ZION15009	Unit 4	6	F-5	Faunal	Bone					Commerce and Industry	Commercial Services	Food, Drink, Lodging	
ZION15010	Unit 4	6	F-5	Metal	Tin Foil	Ball		2	1	Unknown	Material - metal	Possible Food Preparation Heating/Cooking	Used tin foil ball.
ZION15011	Unit 4	7	F-5	Mineral	Coal/Charcoal	Slag			1	Unknown	Appliances		Bulk Bag
ZION15012	Unit 4	7	F-5	Metal	Wire	15 Gauge		1	1	Architecture	Utilities		Rubber insulated copper wire

ZION15013	Unit 4	7	F-5	Metal	Nail	Wire		4	3	Architecture	Construction	Hardware	
ZION15014	Unit 4	7	F-5	Metal	Can				1	Commerce and Industry	Commercial Services	Food, Drink, Lodging	Bulk Bag
ZION15015	Unit 4	7	F-5	Glass	Bottle	Beer		1	1	Personal Items	Indulgences		
ZION15016	Unit 4	7	F-5	Faunal	Bone				7	Commerce and Industry	Commercial Services	Food, Drink, Lodging	
ZION15017	Unit 4	8	F-5	Mineral	Coal/Charcoal	Slag		1	1	Unknown	Appliances	Heating/Cooking	Bulk Bag
ZION15018	Unit 4	8	F-5	Metal	Nail	Wire				Architecture	Construction	Hardware	
ZION15019	Unit 4	8	F-5	Metal	Can				1	Commerce and Industry	Commercial Services	Food, Drink, Lodging	Bulk Bag
ZION15020	Unit 4	8	F-5	Ceramic	Cup			2	2	Commerce and Industry	Commercial Services	Food, Drink, Lodging	Two undecorated whiteware fragments.
ZION15021	Unit 4	8	F-5	Faunal	Bone				5	Commerce and Industry	Commercial Services	Food, Drink, Lodging	
ZION15022	Unit 4	8	F-5	Faunal	Button	Sew-through	5/8" dia	4	1	Personal Items	Clothing		Four-hole sew-through shirt button
ZION15023	Unit 4	8	F-5	Comp.	Battery	Core	2 3/8" L x 5/16" dia	1	1	Personal Items	Accessories	Illumination	Possible flashlight
ZION15024	Unit 4	8	F-5	Metal	Staple					Architecture	Construction	Hardware	



ZION15025	Unit 4	9	F-5	Metal	Can	Spice	3 1/8" h x 1 1/2" d x incomp.			Commerce and Industry	Commercial Services	Food, Drink, Lodging	
ZION15026	Unit 4	9	F-5	Copper	Wire		1/25" dia	1	1	Architecture	Utilities		
ZION15027	Unit 4	9	F-5	Metal	Nail	Wire		3	2	Architecture	Construction	Hardware	
ZION15028	Unit 4	9	F-5	Metal	Can				1	Commerce and Industry	Commercial Services	Food, Drink, Lodging	Bulk Bag
ZION15029	Unit 4	9	F-5	Ceramic	Vessel	Oval Baking	2 5/8" D x 4 5/8" W x incomp.	3	1	Commerce and Industry	Commercial Services	Food, Drink, Lodging	Mark: Poxon China Vernon California; All fragments cross- mend 1912-1931
ZION15030	Unit 4	9	F-5	Faunal	Thong			1	1	Personal Items	Accessories		
ZION15031	Unit 4	9	F-5	Faunal	Bone				1	Commerce and Industry	Commercial Services	Food, Drink, Lodging	Bulk bag of saw-cut bone.
ZION15032	Unit 4	9	F-5	Comp.	Battery	Flashlight	2 5/8" L x 1" dia.	2	1	Personal Items	Accessories	Illumination	Label: "Unit Cell for flashlight" and core element.
ZION15033	Unit 4	10	F-5	Metal	Nail	Wire				Architecture	Construction	Hardware	
ZION15034	Unit 4	10	F-5	Metal	Can				1	Commerce and Industry	Commercial Services	Food, Drink, Lodging	Bulk Bag

ZION15035	Unit 4	10	F-5	Ceramic	Vessel	Oval Baking	2	1	Commerce and Industry	Commercial Services	Food, Drink, Lodging	
ZION15036	Unit 4	10	F-5	Glass	Lamp	Globe	1	1	Domestic Items	Furnishings/Appliances	Illumination	
ZION15037	Unit 4	10	F-5	Faunal	Bone				Commerce and Industry	Commercial Services	Food, Drink, Lodging	
ZION15038	Unit 4	10	F-5	Fabric	Cloth	Course-weave	3	1	Personal Items	Clothing		
ZION15039	Unit 4	11	F-5	Metal	Nail	Wire			Architecture	Construction	Hardware	
ZION15040	Unit 4	11	F-5	Comp.	Tar Paper		11	1	Architecture	Construction	Materials	
ZION15041	Unit 4	11	F-5	Faunal	Thong		1	1	Personal Items	Accessories		
ZION15042	Unit 4	11	F-5	Metal	Can			1	Commerce and Industry	Commercial Services	Food, Drink, Lodging	Bulk Bag
ZION15043	Unit 4	11	F-5	Metal	Spoon	Teaspoon 6" L		1	Commerce and Industry	Commercial Services	Food, Drink, Lodging	
ZION15044	Unit 4	11	F-5	Glass	Flat Glass	Windowpane	2	2	Architecture	Construction	Materials	
ZION15045	Unit 4	11	F-5	Ceramic	Vessel	Multiple	2	2	Commerce and Industry	Commercial Services	Food, Drink, Lodging	

ZION15046	Unit 4	11	F-5	Faunal	Bone				1	Commerce and Industry	Commercial Services	Food, Drink, Lodging	
ZION15047	Unit 4	11	F-5	Comp.	Battery	Flashlight	2 3/8"L x 1 1/2" dia		1	Personal Items	Accessories	Illumination	Unit cell flashlight battery
ZION15048	Unit 4	11	F-5	Paper	Newspaper	Burnt		1	1	Personal Items	Reading and Writing		
ZION15049	Unit 4	12	F-5	Metal	Can					Commerce and Industry	Commercial Services	Food, Drink, Lodging	
ZION15050	Unit 4	12	F-5	Metal	Wire	15 Gauge		1	1	Architecture	Utilities		Rubber insulated copper wire
ZION15051	Unit 4	12	F-5	Faunal	Bone				1	Commerce and Industry	Commercial Services	Food, Drink, Lodging	Bulk Bag
ZION15052	Unit 4	South side wall	F-5	Glass	Vial	Medicine				Personal Items	Medical and Health		Absorbine, Jr. 4fl ounces Base Marks: W.F. Young Inc. Springfield, Mass. USA
ZION15053	Unit 4	South side wall	F-5	Glass	Bottle	Soda		1	1	Commerce and Industry	Commercial Services	Food, Drink, Lodging	
ZION15054	Unit 4	South side wall	F-5	Glass	Bottle	Undetermined		1		Unknown	Material - glass		
ZION15055	Unit 5	1	F-14	Comp.	Tar Paper			7	1	Architecture	Construction	Materials	Heating/Cooking
ZION15056	Unit 5	1		Mineral	Coal/Charcoal	Slag		1		Unknown	Appliances	ng	Bulk Bag

ZION15057	Unit 5	1	F-14	Metal	Nail	Wire		Architecture	Construction	Hardware
ZION15058	Unit 5	1	F-14	Metal	Clasp			Personal Items	Reading and Writing	
ZION15059	Unit 5	1	F-14	Metal	Button	Sew-through	1/2" dia	Personal Items	Clothing	
ZION15060	Unit 5	2	F-14	Rubber	Shoe	Heel		Personal Items	Clothing	
ZION15061	Unit 5	2	F-14	Mineral	Coal/Charcoal	Slag		1 Unknown	Appliances	Heating/Cooking Bulk Bag
ZION15062	Unit 5	3	F-14	Mineral	Coal/Charcoal	Slag		1 Unknown	Appliances	Heating/Cooking Bulk Bag
ZION15063	Unit 5	4	F-14	Mineral	Coal/Charcoal	Slag		1 Unknown	Appliances	Heating/Cooking Bulk Bag
ZION15064	Unit 5	5	F-14	Mineral	Coal/Charcoal	Slag		1 Unknown	Appliances	Heating/Cooking Bulk Bag
ZION15065	Unit 4	10	F-5	Glass	Bottle	Condiment		1 Commerce and Industry	Commercial Services	Food, Drink, Lodging Parrin's Worcestershire Sauce bottle and glass/cork stopper with partial paper label attached.
ZION15066	Surface		Surface	Glass	Stopper	Bottle	7/8" dia x 1 1/4" L	1 Unknown	Material - glass	
ZION15067	Surface		A.S.-5	Metal	Spigit		3/8" threads	Architecture	Plumbing	Water Supply Threaded copper spigit
ZION15068	Surface		Surface	Metal	Coin	Dime		Personal Items	Coins and Tokens	1923 U.S. Winged Liberty Dime - also called a Mercury Head Dime
ZION16426	Surface		Surface	Metal	Coin	Penny		Personal Items	Coins and Tokens	1903 U.S. "Indian Head" Penny

ZION16427	Surface	A.S.-5	Glass	Vial	Medicine	2" l x 1 1/8" w x 2 5/8" h		Personal Items	Medical and Health		label remaining. Embossed " BELL - ANS" on side panels.
ZION16428	Surface	Surface	Comp.	Record	Phonograph		1 1	Personal Items	Pastimes and Recreation		
ZION16429	Surface	Surface	Ceramic	Doll	Arm			Personal Items	Pastimes and Recreation		
ZION16430	Surface	Surface	Glass	Bead	Round	3/10" dia		Personal Items	Adornment		Blue glass bead.
ZION16431	Surface	Surface	Metal	Coin	Penny			Personal Items	Coins and Tokens		1918 U.S. "Wheat" penny.
ZION16432	Surface	A.S.-5	Ceramic	Cup	Teacup		1 1	Domestic Items	Housewares	Tableware	
ZION16433	Surface	A.S.-5	Ceramic	Saucer			1 1	Domestic Items	Housewares	Tableware	
ZION16434	Surface	A.S.-5	Ceramic	Cup	Teacup	2 1/4" H X 1 7/8"D X 4" mouth	2 1	Domestic Items	Housewares	Tableware	Two pieces cross-mend to form a complete cup, with blue transfer print.
ZION16435	SP-1	Surface	Metal	Button	Sew-through	5/8" dia		Personal Items	Clothing		4-hole sew through button.
ZION16436	SP-1	1	Mineral	Charcoal			3	Unknown	Appliances	Heating/Cooking	
ZION16437	SP-1	2	Mineral	Coal/Charcoal	Slag		1	Unknown	Appliances	Heating/Cooking	Bulk Bag
ZION16438	SP-1	3	Mineral	Coal/Charcoal	Slag		1	Unknown	Appliances	Heating/Cooking	Bulk Bag
ZION16439	SP-1	4	Mineral	Charcoal			5	Unknown	Appliances	Heating/Cooking	

ZION16440	Surface	F-10	Metal	Jewelry	Pin			Personal Items	Adornment	Metal/enamel art-deco lapel pin.	
ZION16441	Unit 1	Surface e	F-10	Mineral	Coal/Charcoal	Slag	2	Unknown	Appliances	Heating/Cooking	
ZION16442	Unit 1	Surface e	F-10	Plastic	Comb	Pocket	1	1	Personal Items	Grooming	Black plastic - possible Bakelite or hard rubber - hair comb fragment.
ZION16443	Unit 1	Surface e	F-10	Metal	Nail	Wire			Architecture	Construction	Hardware
ZION16444	Unit 1	1	F-10	Mineral	Coal/Charcoal	Slag	1	Unknown	Appliances	Heating/Cooking	Bulk Bag
ZION16445	Unit 1	1	F-10	Comp.	Tar Paper		1	Architecture	Construction	Materials	Bulk Bag
ZION16446	Unit 1	1	F-10	Metal	Can		1	Domestic Items	Consumption		Bulk Bag
ZION16447	Unit 1	1	F-10	Metal	Screw	Flat Head			Architecture	Construction	Hardware
ZION16448	Unit 1	1	F-10	Metal	Nail	Wire			Architecture	Construction	Hardware
ZION16449	Unit 1	1	F-10	Metal	Jewelry	Pendant	2	1	Personal Items	Adornment	of a woman figure, with a metal frame and red film backing.
ZION16450	Unit 1	1	F-10	Glass	Bead	Seed	1/10" dia		Personal Items	Adornment	
ZION16451	Unit 1	1	F-10	Glass/shell	Button	Sew-through	1/2" dia (glass)		Personal Items	Clothing	One shell two-hole sew through button, and one white glass two-hole sew through button.
ZION16452	Unit 1	1	F-10	Graphite	Pencil Lead		1	1	Personal Items	Reading and Writing	Graphite pencil lead tip.

ZION16453	Unit 1	1	F-10	Ceramic	Insulator	Spool	1	1	Group Services	Utilities	Communication/Power
ZION16454	Unit 1	1	F-10	Glass	Bottle	Undetermined	6	2	Unknown	Material - glass	Possible soda bottles
ZION16455	Unit 1	1	F-10	Wood	Milled		8	1	Unknown	Material - wood	
ZION16456	Unit 1	1	F-10	Metal	Hardware	Assorted			Architecture	Construction	Hardware
ZION16457	Unit 1	1	F-10	Lithic	Flake	Shatter			Unknown	Material - lithic	Chert debitage - possible prehistoric component
ZION16458	Unit 1	2	F-10	Mineral	Coal/Charcoal	Slag	1	1	Unknown	Appliances	Heating/Cooking Bulk Bag
ZION16459	Unit 1	2	F-10	Composite	Tar Paper		1	1	Architecture	Construction	Materials Bulk Bag
ZION16460	Unit 1	2	F-10	Metal	Nail	Wire			Architecture	Construction	Hardware
ZION16461	Unit 1	2	F-10	Metal	Can			1	Domestic Items	Consumption	Bulk Bag
ZION16462	Unit 1	2	F-10	Metal	Bottle Cap	Crown	7	2	Domestic Items	Consumption	
ZION16463	Unit 1	2	F-10	Metal	Rivet		2	2	Architecture	Construction	Hardware possible lead/zinc pieces.
ZION16464	Unit 1	2	F-10	Mineral	Chalk	Marking	2	1	Personal Items	Reading and Writing	
ZION16465	Unit 1	2	F-10	Glass	Frag.	Assorted	11	5	Unknown	Material - glass	

ZION16466	Unit 1	2	F-10	Assorted	Bead	Multiple			Personal Items	Adornment		blue glass faceted bead - 1, white ceramic mold pressed round bead - 1, yellow glass round bead - 1, and dark red ceramic mold pressed
ZION16467	Unit 1	2	F-10	Ceramic	Vessel	Rim	2	2	Domestic Items	Housewares	Tableware	
ZION16468	Unit 1	2	F-10	Metal	Ammunition	Shot			Personal Items	Hunting		Possibly lead
ZION16469	Unit 1	2	F-10	Wood	Milled		19	1	Unknown	Material - wood		
ZION16470	Unit 1	2	F-10	Faunal	Bone		4	2	Domestic Items	Consumption		
ZION16471	Unit 1	2	F-10	Lithic	Flake				Unknown	Material - lithic		Jasper shatter and jasper tertiary flake. Possible prehistoric component
ZION16472	Unit 1	3	F-10	Mineral	Coal/Charcoal	Slag		1	Unknown	Appliances	Heating/Cooking	Bulk Bag
ZION16473	Unit 1	3	F-10	Glass	Unknown		1	1	Unknown	Material - glass		
ZION16474	Unit 2	1	F-10	Mineral	Coal/Charcoal	Slag		1	Unknown	Appliances	Heating/Cooking	Bulk Bag
ZION16475	Unit 2	1	F-10	Comp.	Tar Paper			1	Architecture	Construction	Materials	Bulk Bag
ZION16476	Unit 2	1	F-10	Metal	Saw blade	Hacksaw	1	1	Unknown	Material - metal		Possible hacksaw or meat saw
ZION16477	Unit 2	1	F-10	Metal	Wire	16 Gauge	2	1	Architecture	Landscaping		



ZION16478	Unit 2	1	F-10	Metal	Nail	Wire			Architecture	Construction	Hardware	
ZION16479	Unit 2	1	F-10	Metal	Cap			1	Unknown	Material - metal		Non-ferrous metal cap with center slot.
ZION16480	Unit 2	1	F-10	Glass	Vessel	Assorted		3	3	Domestic Items	Consumption	
ZION16481	Unit 2	1	F-10	Ceramic	Bead	Oblong	1/8" dia. X 3/8" long			Personal Items	Adornment	
ZION16482	Unit 2	1	F-10	Faunal	Bone			1	1	Domestic Items	Consumption	
ZION16483	Unit 2	2	F-10	Mineral	Coal/Charcoal	Slag			1	Unknown	Appliances	Heating/Cooking
ZION16484	Unit 2	2	F-10	Composite	Tar Paper				1	Architecture	Construction	Materials
ZION16485	Unit 2	2	F-10	Fabric	Cloth	Fine Weave		1	1	Personal Items	Clothing	
ZION16486	Unit 2	2	F-10	Metal	Bottle Cap	Crown				Domestic Items	Consumption	
ZION16487	Unit 2	2	F-10	Metal	Nail	Wire				Architecture	Construction	Hardware
ZION16488	Unit 2	2	F-10	Metal	Nail	Wire				Architecture	Construction	Hardware
ZION16489	Unit 2	2	F-10	Glass	Light Bulb			1	1	Architecture	Utilities	Illumination
ZION16490	Unit 2	2	F-10	Glass	Spectacles	Lens				Personal Items	Medical and Health	
ZION16491	Unit 2	3	F-10	Mineral	Coal/Charcoal	Slag			1	Unknown	Appliances	Heating/Cooking
												Eye-glass lens with beveled edge.
												Bulk Bag

ZION16492	Unit 2	3	F-10	Composite	Tar Paper			1	Architecture	Construction	Materials	Bulk Bag
ZION16493	Unit 2	3	F-10	Metal	Nail	Wire			Architecture	Construction	Hardware	
ZION16494	Unit 2	3	F-10	Metal	Unknown			1	Unknown	Material - metal		
ZION16495	Unit 2	3	F-10	Wood	Milled			15	1	Unknown	Material - wood	
ZION16496	Unit 2	3	F-10	Metal	Safety Pin		1 5/8" L		Domestic Items	Home Maintenance	Cleaning and Mending	
ZION16497	Unit 2	3	F-10	Plastic	Bead	Round	1/5" dia		Personal Items	Adornment		Bakelite, mold pressed round, green bead.
ZION16498	Unit 2	3	F-10	Comp.	Record	Phonograph		1	1	Personal Items	Pastimes and Recreation	
ZION16499	Unit 2	4	F-10	Mineral	Coal/Charcoal	Slag		1	Unknown	Appliances	Heating/Cooking	Bulk Bag
ZION16500	Unit 2	4	F-10	Comp.	Tar Paper			1	Architecture	Construction	Materials	Bulk Bag
ZION16501	Unit 2	4	F-10	Metal	Nail	Wire			Architecture	Construction	Hardware	
ZION16502	Unit 2	5	F-10	Mineral	Coal/Charcoal	Slag		1	Unknown	Appliances	Heating/Cooking	Bulk Bag
ZION16503	Unit 2	5	F-10	Composite	Tar Paper			1	Architecture	Construction	Materials	Bulk Bag
ZION16504	Unit 2	5	F-10	Metal	Nail	Wire			Architecture	Construction	Hardware	
ZION16505	Unit 2	5	F-10	Metal	Can			1	Domestic Items	Consumption		Bulk Bag
ZION16506	Unit 2	5	F-10	Glass	Light Bulb			1	1	Architecture	Utilities	Illumination

ZION16507	Unit 2	5	F-10	Rubber/Plastic	Hose		1	1	Architecture	Utilities		
ZION16508	Unit 2	5	F-10	Mineral	Coal/Charcoal	Slag		1	Unknown	Appliances	Heating/Cooking	Bulk Bag
ZION16509	Unit 2	6	F-10	Comp.	Tar Paper			1	Architecture	Construction	Materials	Bulk Bag
ZION16510	Unit 2	6	F-10	Metal	Nail	Wire			Architecture	Construction	Hardware	
ZION16511	Unit 2	6	F-10	Metal	Can			1	Domestic Items	Consumption		Bulk Bag
ZION16512	SP-2	1		Comp.	Tar Paper			1	Architecture	Construction	Materials	Bulk Bag
ZION16513	SP-2	1		Metal	Can			1	Domestic Items	Consumption		Bulk Bag
ZION16514	SP-2	1		Metal	Nail	Wire			Architecture	Construction	Hardware	
ZION16515	SP-2	1		Glass	Bottle	Assorted	4	3	Domestic Items	Consumption		
ZION16516	SP-2	1		Metal	Can	Dry Good h			Domestic Items	Consumption		
ZION16517	SP-2	2		Mineral	Charcoal			3	1	Unknown	Appliances	Heating/Cooking
ZION16518	SP-2	2		Comp.	Tar Paper			1	Architecture	Construction	Materials	Bulk Bag
ZION16519	SP-2	2		Metal	Can Opener	Key-wind			Domestic Items	Consumption		Key-wind can opener with strip
ZION16520	SP-2	2		Metal	Can			1	Domestic Items	Consumption		Bulk Bag
ZION16521	Unit 3	1	AS-2	Metal	Nail	Assorted			Personal/Architecture	Clothing/Construction		
ZION16522	Unit 3	1	AS-2	Glass	Bottle	Soda	1	1	Domestic Items	Consumption		Light green bottle neck fragment.
ZION16523	Unit 3	1	AS-2	Wood	Milled		2	1	Unknown	Material - wood		

ZION16524	Unit 3	1	AS-2	Comp.	Tar Paper		3	1	Architecture	Construction	Materials Heating/Cooking	
ZION16525	Unit 3	1	AS-2	Mineral	Coal/Charcoal	Slag		1	Unknown	Appliances		Bulk Bag
ZION16526	Unit 3	2	AS-2	Comp.	Tar Paper		7	1	Architecture	Construction	Materials	
ZION16527	Unit 3	3	AS-2	Comp.	Tar Paper		4	1	Architecture	Construction	Materials Heating/Cooking	
ZION16528	Unit 4	1	F-5	Mineral	Coal/Charcoal	Slag		1	Unknown	Appliances		Bulk Bag
ZION16529	Unit 4	1	F-5	Metal	Nail	Wire			Architecture	Construction	Hardware	
ZION16530	Unit 4	1	F-5	Metal	Bottle Cap	Crown			Commerce and Industry	Commercial Services	Food, Drink, Lodging	
ZION16531	Unit 4	1	F-5	Metal	Button	Rivet	3	2	Personal Items	Clothing		
ZION16532	Unit 4	1	F-5	Metal	Can			1	Commerce and Industry	Commercial Services	Food, Drink, Lodging	Bulk Bag
ZION16533	Unit 1	1	F-10	Metal	Nut				Architecture	Construction	Hardware	
ZION16534	Unit 4	1	F-5	Metal	Can				Commerce and Industry	Commercial Services	Food, Drink, Lodging	
ZION16535	Unit 4	1	F-5	Metal	Can	Beverage			Commerce and Industry	Commercial Services	Food, Drink, Lodging	Crimped seam, nail punch opened can fragment.

ZION16536	Unit 4	1	F-5	Metal	Can	Beverage	4 3/8" h	2	1	Commerce and Industry	Commercial Services	Food, Drink, Lodging
ZION16537	Unit 4	1	F-5	Ceramic	Vessel	Multiple		4	3	Commerce and Industry	Commercial Services	Food, Drink, Lodging
ZION16538	Unit 4	1	F-5	Glass	Bottle	Condiment		3	2	Commerce and Industry	Commercial Services	Food, Drink, Lodging
ZION16539	Unit 4	1	F-5	Faunal	Bone				8	Commerce and Industry	Commercial Services	Food, Drink, Lodging
ZION16540	Unit 4	2	F-5	Mineral	Coal/Charcoal	Slag			1	Unknown	Appliances	Heating/Cooking Bulk Bag
ZION16541	Unit 4	2	F-5	Metal	Bottle Cap	Assorted		5	4	Commerce and Industry	Commercial Services	Food, Drink, Lodging
ZION16542	Unit 4	2	F-5	Metal	Can		3" dia x 2 1/2" h			Commerce and Industry	Commercial Services	Food, Drink, Lodging
ZION16543	Unit 4	2	F-5	Metal	Can	Lid	2 3/4" dia	2	1	Commerce and Industry	Commercial Services	Food, Drink, Lodging Ferrous metal, bayonette opened can lid 2 3/4" diameter.
ZION16544	Unit 4	11	F-5	Metal	Wire	15 Gauge		1	1	Architecture	Utilities	

ZION16545	Unit 4	2	F-5	Metal	Can		1	Commerce and Industry	Commercial Services	Food, Drink, Lodging	Bulk Bag	
ZION16546	Unit 4	2	F-5	Glass	Bottle	Soda	4	1	Commerce and Industry	Commercial Services	Food, Drink, Lodging	Crown-cap bottle with cap attached
ZION16547	Unit 4	2	F-5	Ceramic	Vessel	Multiple	3	3	Commerce and Industry	Commercial Services	Food, Drink, Lodging	whiteware custard cup (cross-mends with two fragments in ZION16557), undecorated whiteware footed bowl with an Empire China makers mark.
ZION16548	Unit 4	2	F-5	Metal	Button	Multiple			Personal Items	Clothing		sew-through button and one ferrous metal rivet-style button.
ZION16549	Unit 4	2	F-5	Faunal	Bone		6	Commerce and Industry	Commercial Services	Food, Drink, Lodging		
ZION16550	Unit 4	3	F-5	Metal	Bottle Cap	Crown	3	3	Commerce and Industry	Commercial Services	Food, Drink, Lodging	
ZION16551	Unit 4	3	F-5	Metal	Nail	Wire	3	2	Architecture	Construction	Hardware	
ZION16552	Unit 4	3	F-5	Metal	Button	Rivet			Personal Items	Clothing		

ZION16553	Unit 4	3	F-5	Metal	Can			1	Commerce and Industry	Commercial Services	Food, Drink, Lodging	Bulk Bag	
ZION16554	Unit 1	1	F-10	Metal	Rivet			1	Architecture	Construction	Hardware		
ZION16555	Unit 4	3	F-5	Glass	Bottle	Condiment		4	1	Commerce and Industry	Commercial Services	Food, Drink, Lodging	Maker's Mark: P C
ZION16556	Unit 4	3	F-5	Glass	Bottle	Alcohol	1/2" x 1 3/4" Height: 7			Personal Items	Indulgences		Flask with cork stopper fragments: undecorated whiteware plate, two custard cups (two fragments cross-mend with ZION16547)
ZION16557	Unit 4	3	F-5	Ceramic	Vessel	Multiple		7	3	Commerce and Industry	Commercial Services	Food, Drink, Lodging	
ZION16558	Unit 4	3	F-5	Faunal	Bone				1	Commerce and Industry	Commercial Services	Food, Drink, Lodging	Bulk Bag
ZION16559	Unit 4	3	F-5	Fabric	Cloth	Burnt Sew-through		1	1	Personal Items	Clothing		Burnt and very dry and fragile.
ZION16560	Unit 4	3	F-5	Faunal	Button			14	1	Personal Items	Clothing		
ZION16561	Unit 4	3	F-5	Wood	Label			1		Unknown	Material - wood		
ZION16562	Unit 4	4	F-5	Mineral	Coal/Charcoal	Slag			1	Unknown	Appliances	Heating/Cooking	Bulk Bag

ZION16563	Unit 4	4	F-5	Metal	Bottle Cap	Crown	3	2	Commerce and Industry	Commercial Services	Food, Drink, Lodging	
ZION16564	Unit 4	4	F-5	Metal	Buckle		1	1	Personal Items	Clothing		type buckle - possible suspender buckle
ZION16565	Unit 4	4	F-5	Metal	Can			1	Commerce and Industry	Commercial Services	Food, Drink, Lodging	Bulk Bag Embossed with "BABY"
ZION16566	Surface		AS-1	Metal	Cup	Child's			Personal Items	Child Care		
ZION16567	Unit 4	4	F-5	Metal	Tack	Upholstery 7/10" dia	2	1	Domestic Items	Furnishings/Appliances		
ZION16568	Unit 4	4	F-5	Glass	Bottle	Alcohol	7	1	Personal Items	Indulgences		
ZION16569	Unit 4	5	F-5	Mineral	Coal/Charcoal	Slag		1	Unknown	Appliances	Heating/Cooking	Bulk Bag
ZION16570	Unit 4	5	F-5	Metal	Bottle Cap	Crown			Commerce and Industry	Commercial Services	Food, Drink, Lodging	
ZION16571	Unit 4	5	F-5	Metal	Nail	Wire			Architecture	Construction	Hardware	
ZION16572	Unit 4	5	F-5	Metal	Can			1	Commerce and Industry	Commercial Services	Food, Drink, Lodging	Bulk Bag
ZION16573												
ZION16574	Unit 4	5	F-5	Glass	Bottle	Alcohol	5	2	Personal Items	Indulgences		



ZION16575	Unit 4	5	F-5	Faunal	Bone		3	Commerce and Industry	Commercial Services	Food, Drink, Lodging Heating/Cooking
ZION16576	Unit 4	6	F-5	Mineral	Coal/Charcoal	Slag	1	Unknown	Appliances	Bulk Bag