

THE SOD HOUSES OF CUSTER COUNTY, NEBRASKA

by

ANDREA R. KAMPINEN

(Under the Direction of Mark Reinberger)

ABSTRACT

The sod house is a significant vernacular building type associated with the settlement of the Great Plains, but little is known due to the dearth of investigative studies and the disappearance of the earthen resource. Custer County, located in central Nebraska, asserts itself as the “Sod House Capital of the World,” due to its abundance of extant sod houses and a rich photographic history documented by Solomon Butcher. This paper establishes a context for sod houses on the Great Plains by examining their evolution, location, and construction methods. In Custer County, I conducted an intensive field study of sod construction to document and accurately inventory surviving examples. Combining the historical photographs of sod houses from the Butcher Collection and the results of the field study, I identify five common sod building types in Custer County. In conclusion, I offer guidance for the physical conservation of these resources.

INDEX WORDS: Sod Houses, Great Plains, Nebraska, Solomon Butcher, Frontier and Pioneer Life

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CHAPTER 1. OVERVIEW OF PROBLEM

INTRODUCTION

The American preference for building with wood is evident by the dominance of wooden construction systems in the early eastern United States. However, as the country expanded west across North America into an area labeled the Great American Desert, impoverished settlers found themselves at a loss for this familiar building material and were forced to use the only abundant material at hand – the grassy sod of the prairie. Propelled by the opportunity of free land in the decades following the Civil War, settlers swelled the semi-arid and unfamiliar landscape and turned the Great Plains from desert into a farming phenomenon that enhanced the agricultural economy of the United States into one of the greatest in the world. Just as the log house facilitated settlement across the eastern United States, the sod house facilitated settlement across the Great Plains beginning in the mid-nineteenth century. Inexpensive and sturdy, sod may have been the earliest common building material on the Great Plains.

The sod house was a type of earthen architecture that was primarily built in the Great Plains, a region covering parts of Colorado, Kansas, Montana, Nebraska, New Mexico, North Dakota, South Dakota, Oklahoma, Texas, and Wyoming, in addition to the Canadian provinces of Alberta, Manitoba, and Saskatchewan (Figure 1). To date there has yet to be a comprehensive study to determine the precise extent of sod construction in North America, both geographically and chronologically. It can be

speculated that sod houses were built wherever grasses were the dominant vegetation and timber was scarce, but it is known that sod houses were built outside of the Great Plains.¹ There are records of sod houses as far east as western Minnesota, Iowa, and Missouri, and as far west as Utah and Nevada, but it can be safely assumed that the greatest concentration occurred on the Great Plains.

The origins of sod buildings are widely disputed, but it generally can be agreed that the building type emerged sometime in the mid-nineteenth century. The first known record of sod walls appears in late 1846, but the trend really did not seem to explode until the 1870s. Journals as early as the 1890s were already noting the disappearance of this housing trend, but it appears to have continued well into the late 1910s. During the Great Depression, the sod house experienced a brief resurgence as hard hit farmers lost significant capital and needed a form of affordable shelter. The resurgence did not last long, and the last known sod house was built in 1940.

The use of earth for shelter was not an innovative concept, as it had been used by many different cultures all over the world for thousands of years. However, there is a distinct difference between sod and other forms of earthen architecture. Common earth-building techniques found throughout North America include adobe, puddle-clay walls, and rammed earth. Each technique involves mixing the earth with another material, whether it is water, other earthen soils such as clay, or binding agents such as straw, in order to promote durability. Sod required no material processing or mixing. The difference lies in the idea of cutting uniform blocks directly from the soil and using them

¹ Allen G. Noble, *Wood, Brick, and Stone: The North American Settlement Landscape*, vol. 1 (Amherst: The University of Massachusetts Press, 1984), 71.

to build a permanent shelter. Its availability and expediency established it as the material of choice where other materials were not at hand.

Sometimes called “Nebraska marble” or “Kansas brick,” sod blocks were heavy and bulky, and construction was laborious. Literature refers to the rather temporary and primitive nature of these dwellings, but these homes were hardly temporary structures. Temporary structures are meant more for nomadic people and need to be light and easy to quickly erect. A sod house could be constructed quickly, but it was not a process that many settlers wanted to repeat often. The houses are low, squat, and with just enough roof slant to shed rain and melting snow. A prime example of pioneer ingenuity and determination, the sod house is the iconic symbol for homesteading in America. It became a regional vernacular building type that continued to be built long after the need for the material expired.

REALM OF VERNACULAR ARCHITECTURE

In studies of architectural history, the sod house fits quite neatly into the realm of vernacular architecture. Defining vernacular, however, is not so easy. “Vernacular” in the American sense generally refers to a type of architecture that emphasizes the relationship between everyday objects and culture, and between ordinary buildings and people, according to Thomas Carter and Elizabeth Cromley. In Eric Mercer’s 1975 book *English Vernacular Houses*, vernacular is defined as the common building of a given place and time. Vernacular architecture is common in the numerical sense of quantity, but not quality. Architecture addresses specific problems of shelter, work, social identity, cultural affiliation, and aesthetic taste. Pervasive, vernacular architecture is the architecture most people build and use, comprising buildings that are commonly

encountered, in other words, buildings that most closely satisfy the everyday needs of people.²

These definitions of vernacular architecture are important to keep in mind when discussing the sod house, since ultimately it was a common building type across the Great Plains. The relationship between geography, building materials, and cultural background plays a significant role in the emergence of sod buildings on the Plains and their continued construction into the early twentieth century. Log, timber frame, and lumber, the chief building materials of North America, were used in this region, but mostly along forested waterways and later along the railroads. The “soddie,” as it was affectionately called, was built by settlers of all backgrounds and once heavily dotted the Great Plains.

Questions about building materials and technologies are fundamental in the study of vernacular architecture, particularly in the context of pre-industrial settlement of new land. When dealing with the Great Plains region of North America, David Murphy, senior research architect at the Nebraska State Historical Society, mentions that a student must face issues of origins, diffusion, and adaptation that are rationally similar to those of the eastern United States, but cast in a western context. It is not enough to say that a Plains vernacular developed out of the use of sod in place of logs. Vernacular architecture grows from decisions people make from what they know how to do, what is available, and what the finished building must do. These decisions are evident in the use of sod on the Plains frontier.³

² Thomas Carter and Elizabeth Collins Cromley, *Invitation to Vernacular Architecture: A Guide to the Study of Ordinary Buildings and Landscapes* (Knoxville: The University of Tennessee Press, 2005), 7-9.

³ David Murphy, “Building in Clay on the Central Plains,” in *Perspectives in Vernacular Architecture, III*, ed. Thomas Carter and Bernard L. Herman (Columbia: University of Missouri Press, 1989), 74.

By some accounts, the sod house was a phenomenon on the Great Plains and interest in the subject began at the time of its building boom in the 1870s. Curious authors in home building journals wrote small excerpts about a strange building trend occurring out west. The most revealing and accurate account of this phenomenon was the work of an itinerant photographer, Solomon Butcher. Intrigued by the westward migration and the resulting settlement along the way, he set out to capture the families, homesteads, and landscapes of the prairie.

After Butcher's death in the early twentieth century and the cessation of building in sod, interest in the building type commenced once again by several authors during the 1930s with the awareness that many of these early buildings were beginning to melt back into the earth. Their books briefly discussed typical questions raised in vernacular studies such as origins and construction methods, but nothing extensive or comparative in nature. Roger Welsch launched contemporary investigations, possibly spurred by the preservation movement in the 1960s, in the mid-to-late 1960s with the publication *Sod Walls: The Story of the Nebraska Sod House*. Following this book, interest began to grow surrounding sod houses, and several articles and books were published on various aspects of the subject.

FRAGILE AND VANISHING

Sod blocks are made up of loamy, clayey earth held together by dense roots of grass, and when used as a building material they are fairly sturdy but inherently fragile. If not maintained or sheltered, the earthen fabric will easily melt back into the soil once abandoned. An 1894 article in *American Architect and Building News* mentions that many sod houses were already being downgraded to stables for horses and cattle, while

others were slowly crumbling away.⁴ In an article written in 1933, David Gates claims that “although there are sod houses still occupied and even built, the rapid decline in the surviving members of this emblem of settlement of the lands suggests the attempt to gather the essential facts about their construction.”⁵

It is unknown how many sod houses stood on the Great Plains at the peak of their construction, therefore the rate of decline is not quantifiable. But the sheer difficulty in actually locating one makes it exceedingly clear that there are very few left. Their disappearance across the Plains results from a variety of factors. The sod house is virtually obsolete because modern standards of living have improved and other more durable building materials are affordable and readily available. Rehabilitation is difficult since most sod houses are not big enough to meet modern conveniences, and the very nature of the material and how it was constructed is hard to replicate, thus making repairs challenging. Many of the houses are located in remote rural areas that are not easily visible, therefore the adage “out of sight out of mind” stands true. As a result, most property owners are reluctant to maintain a sod house and would rather utilize the land for agricultural production. Some houses are entirely demolished, while others are left untouched and open to the elements. Exposure greatly accelerates the weathering of the earthen material, which leads to erosion and weakening of the structure, eventually resulting in collapse.

It is rare to find a sod house that is still inhabited in 2008, although there are a few. In Nebraska, it was estimated that between 150 and 200 individuals or families still

⁴ “The Prairie Sod House,” *American Architect and Building News* Vol. 43 (February 17, 1894): 84.

⁵ Donald S. Gates, “The Sod House,” *The Journal of Geography* Vol. XXXII, no. 9 (December 1933): 353.

lived in sod houses in the mid-1960s.⁶ Many of these people were likely longtime inhabitants of the home that was built either by a relative or themselves, and they were reluctant to leave their beloved soddie. After these individuals moved or passed away, the sod house was vacated and either plowed into the earth or left to deteriorate when a new frame or brick home was built nearby. By the 1970s and 1980s, the number of inhabited sod houses diminished even more quickly as modern living standards further improved and inhabitants died. Most of the examples that do remain are in various stages of severe deterioration primarily due to neglect and are threatened with destruction.

LITTLE INFORMATION AVAILABLE

Even though the sod house is readily recognized and made popular through American folklore and novels, there is relatively little knowledge surrounding this building type in the context of vernacular architectural history. There are fictional accounts of sod house life portrayed through books such as Laura Ingalls Wilder's *On the Banks of Plum Creek* (1953) and Willa Cather's *O Pioneers!* (1913) and *My Antonia* (1918). Sod houses also have been written about in mythical terms such as the work of Cass G. Barns, a pioneer physician, who wrote about frontier and pioneer life in his memoirs, entitled *The Sod House* (1930). In his memoirs and autobiographies *Sod and Stubble* (1936), John Ise described sod houses, and Everett Dick also mentioned them in his social history of the northern plains, *The Sod House Frontier 1854-1890* (1937). Authors who had experienced frontier life wrote these accounts, and the books serve as excellent introductions to the subject. But these "studies" do not put the sod house into the larger framework of settlement patterns on the Great Plains, nor do they provide

⁶ Roger Welsch, *Sod Walls: The Story of the Nebraska Sod House* (Lincoln: J & L Lee Company, 1991), n.p.

detailed information on the origins, construction methods, or various forms of sod houses as a building type.

Slightly more detailed studies of the sod house as a building type appeared in several articles and books published during the 1970s and 1980s. Barbara Oringderff's book *True Sod: Sod Houses of Kansas* (1976) gives a fairly detailed investigation of sod buildings by looking at historical photographs and conducting fieldwork on remaining examples. Other works published in the 1970s recall personal memories and stories of sod house life, such as Frances Jacobs Alberts' *Sod House Memories* (1972). Allen G. Noble includes a short section on sod house construction in his two-volume work *Wood, Brick, and Stone: The North American Settlement Landscape* (1984), where he describes the many different types of shelters built across the country. Andrew Guilliford hypothesizes about the origins of sod houses in his article in *The Midwest Review*, "Earthen Architecture of the Prairie Pioneer" (1986). Ronna Lee Widner gives a very detailed analysis of five specific sod houses built by Czech immigrants in her master's thesis, *The Sod Houses of Rawlins County, Kansas* (1988), where she includes floor plans and investigates the sod house archetype.

Most of the books and articles written during the 1970s and 1980s, however, would not have been possible without the work of Roger L. Welsch. Published in 1967, his book, *Sod Walls: The Story of the Nebraska Sod House*, is well known as the best source available on sod house construction. His book is a blend of the personal and objective views of the sod house as a form of architecture and a way of life. Welsch conducted an analysis of Butcher's photograph collection as well as extensive personal interviews, letters, and a small amount of fieldwork, which he does not elaborate on or

write about in his book. Half of his book deals with origins and construction methods, revealing his initial attempt at a scientific analysis of sod construction. He states, however, that he found it difficult to remain objective in his study and reverted to his area of expertise in folklore. The second half the book discusses sod house life with a subjective treatment of pioneer Plains culture.

While Welsch's 1967 study of Nebraska sod houses is reasonably thorough, he is ultimately a folklorist and his study is based on oral history. His study had advantages and disadvantages relative to the time he conducted his investigation. Researched in the mid-1960s, his study was conducted before the preservation movement really gained momentum and before the Internet and modern technology opened so many doors for researchers later in the century; however, his study also occurred before the death of many of the sodbusters who were able to give these detailed accounts through oral history.

While not discrediting Welsch's book, much has changed in the realm of architectural history since *Sod Walls* was published. Guides and methodologies to the study of vernacular buildings, which is generally the agreed upon context into which the sod house fits as a building type, have been refined. Welsch repeatedly refers to the sod house as a type of folk architecture. Investigated under this context, this would mean that the sod house was built as a tradition among a common group of people. But since the origins are disputed and there has not been enough research to determine why people of many different backgrounds continued building in sod long after the material was no longer necessary, sod houses cannot be classified as folk architecture. In order to further understand how the sod house fits into the cultural and building history on the Great

Plains, one must translate frontier myth into historical fact and investigate the sod house as an American form.

NEED AND PURPOSE

The sod house is a significant vernacular building type associated with the pre-industrial settlement of the Great Plains, but there is limited research available due to the dearth of investigative studies as well as the rapid disappearance of the house itself. The sources that are available contradict each other and often give misconceptions about various aspects of sod houses. While these studies provide some interpretation, a comprehensive historical analysis and field documentation is needed to determine the historical fact about this building type.

Due to the nature of the earthen material, there is an innate difficulty in dating these types of buildings. Predominantly constructed in rural areas, there were fortunately land claims, but they were not always, if rarely, “proved up” exactly five years after the house was built, as was required by the Homestead Act. Further complicating the issue, sod houses continued to be built long after a land claim had been filed, and many families built multiple houses on the same site over a period of time. Therefore, a house existing today may be a much later version of what was originally built on the property. Nonetheless, any remaining sod houses are significant and warrant study for the simple fact that they are still standing.

With a characteristic prairie landscape and serving as a major transportation route for westward pioneers, Nebraska was chosen for this study because of its role in the origins of sod construction and the many historical photographs of sod houses across the state. Most importantly though, the state likely contains the greatest number of extant

sod houses on the Great Plains, since few sod houses remain standing in most counties of central and western Nebraska. Custer County, located in central Nebraska, asserts itself as the “Sod House Capital of the World,” due to its abundance of extant sod houses and a rich photographic history documented by Solomon Butcher (Figure 2). His early photographs depict the families, homesteads, and landscapes of the Nebraska prairie, in particular those of Custer County. For these reasons, Custer County, Nebraska provided the perfect foundation for a field study of sod house construction.

In 2005, I was part of a team that conducted a limited study of sod houses in Custer County, Nebraska. Our efforts utilized over 1,800 Butcher photographs of sod houses located at the Nebraska State Historical Society and included a reconnaissance survey of remaining examples in Custer County. In the realm of cultural resource documentation, a reconnaissance survey identifies which resources appear to be eligible for listing in the National Register of Historic Places. It is a basic approach to documentation and is only the first step. An intensive survey is an important subsequent step that is necessary to evaluate the properties that are identified in the reconnaissance survey. Custer County’s moniker implied the copious existence of these resources, but the 2005 reconnaissance survey did not thoroughly document these fragile and quickly diminishing icons of the Great Plains. Due to limitations imposed during the survey, many sites were inaccessible by researchers and thus not recorded.

Building upon the reconnaissance survey and research gathered in 2005, I conducted an intensive level survey in July 2007 to gain an accurate inventory and to more fully document the surviving examples of sod houses in Custer County. Following the *Nebraska Historic Buildings Survey Manual*, my purpose was to provide data on sod

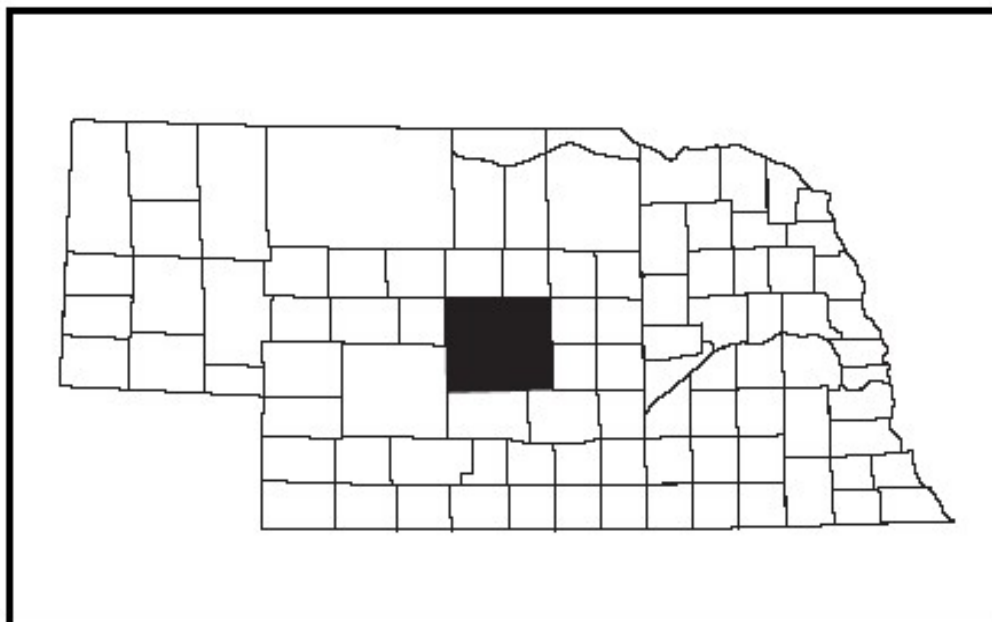


Figure 2. Map of Nebraska showing Custer County

houses through research, documentation, and evaluation. The survey area included all properties within the boundaries of Custer County. The survey verified the location and evaluated the status of previously surveyed properties as well as identified additional properties. Properties were documented with digital photographs, a physical description, a geographic location that was plotted on a survey map, and a measured floor plan. Conditions and integrity of each previously surveyed and newly identified property were also examined.

From a vernacular architectural perspective, my thesis characterizes the use of sod as a building material on the Great Plains through a field study in Custer County, Nebraska. It focuses on the use of sod in massive wall structural systems. Utilizing as many published sources as I could gather, combined with my field research, I attempt to clarify the misconceptions about sod houses that have been perpetuated in literature, such as Roger Welsch's book *Sod Walls*.

Welsch's study was based almost entirely on oral history, and his conclusions on sod construction were not verified with surviving physical examples of sod houses in the field. Although he states that he conducted a small amount of fieldwork for his book, he fails to mention the results. Furthermore, his book *Sod Walls* is not analyzed or organized in a manner that is helpful to the architectural historian trying to evaluate a sod house. My thesis further refines Welsch's research by confirming or disproving Welsch's conclusions. I use the historical photographs from Butcher's collection of Custer County, in addition to the results of my intensive survey, to identify the common building types. Unlike Welsch, with a background in architectural history I take a more scientific approach and use existing sod houses to explain construction methods and

determine common building trends. This thesis is also organized in a manner that is helpful to an architectural historian. Finally, since so many sod houses are severely deteriorated, I offer guidance for the physical conservation of these resources.

Chapters 1 through 3 include a comprehensive overview of sod construction in America. I explore the evolution and location of sod houses as well as construction methods. Common theories of origins are discussed. Were sod construction techniques unique to the American Plains? Basic questions of context are explained such as the who, what, when, where, and why of sod house building on the Great Plains. To understand how the sod house became a regional vernacular architectural style, construction techniques and material are examined. Since Roger Welsch is a folklorist and devoted two detailed chapters to sod house life and the folklore that surrounds it, I do not discuss the living conditions of sod house life.

Chapters 4 through 6 deal specifically with the sod houses of Custer County. I analyze Solomon Butcher's photographs, discuss the intensive survey, and combine the results of each to develop a typology of sod house forms. My analysis of Butcher's photographs comes directly from Welsch's analysis of the same photos. In his book *Sod Walls*, Welsch already made a detailed examination of every photograph in the Butcher collection and noted significant features of construction, arrangement, and ornamentation. He limited his analysis to houses in Custer County and processed the data for characteristics. Rather than recreate Welsch's investigation, I use his results in addition to my own conclusions from Butcher's photographs to analyze sod house building types.

The general methodology and results of the intensive survey are discussed in Chapter 5. My results are compared with Welsch's conclusions in *Sod Walls*, since it is

to date the best source on sod construction, but the book is primarily based on oral history. My fieldwork both concurs and contradicts Welsch's study in the mid-1960s. A detailed description and evaluation of each house was too lengthy to include, especially since my fieldwork yielded over twenty remaining examples of sod houses; therefore I only highlight several houses in the county.

Chapter 6 presents a typology of sod houses in Custer County. For the architectural historian, when discussing a building type, the question of variation is fundamental. Welsch states, "...there is no correct style of sod house, only common forms." Welsch attempts to describe these forms, but his suggestions are not executed in a manner that is helpful to an architectural historian needing to make an evaluation. In cultural resource documentation, in order to evaluate a building, one must be able to compare it against other examples. Limiting my study to sod houses only in Custer County and using Butcher's photograph collection of houses only in the county, I can gain a better understanding of typical and unusual building plans of sod houses within a concentrated historic context. Analyzing the architectural form, which is the floor plan plus height, I determine whether there is conformity in building design, regardless of financial and ethnic status of the builder.

Chapter 7 briefly discusses the preservation of sod houses. Typical preservation problems and common threats are discussed relative to the resource itself, such as physical deterioration, as well as to the larger policy of preservation, such as the protection of rural resources in Nebraska. I then give rehabilitation advice for sod houses, and offer potential preservation strategies for communities interested in preserving their sod houses.

Sod construction is an important theme not only in Custer County, but also to the state of Nebraska and the entire Great Plains. The Nebraska State Historical Society and county residents express considerable interest in the subject and hold great pride in the “soddies” that remain on their land. This document will not only give the Nebraska State Historical Society a thorough history and an accurate inventory of sod houses in Custer County, but also will give the community a document that chronicles these resources that are so important to their past. For the preservation community, my typology of sod houses will allow other preservationists to more easily identify and evaluate these resources in future surveys of other counties in Nebraska and throughout the Great Plains.

CHAPTER 2. EVOLUTION AND LOCATION ENVIRONMENT

The environment played an important role in the development of sod houses in America. The Great Plains is a vast, generally high plateau, extending from northwestern Canada southward through the United States into sections of Montana, North and South Dakota, Minnesota, Wyoming, Nebraska, Kansas, Colorado, Oklahoma, New Mexico, and Texas. Stretching from southwestern Texas to the Mackenzie River delta in Canada, the Great Plains average between 300-700 miles in width. Covering fifteen percent of the land in the United States, the region has a semi-arid climate, where the temperature range is extreme and the rainfall is sparse.⁷ Precipitation is less than 20 inches a year and primarily comes in the spring. Summer temperatures can climb to 110 degree Fahrenheit and winter temperatures can drop to forty degrees below zero with the wind chill factor.

The climate of the Great Plains generally does not give enough rainfall to produce trees. Forests cover only a very small percentage of the land area. In the nineteenth century, before the large scale planting of screens and shelter belts, trees were primarily deciduous and found along rivers and streams. Cottonwoods commonly grew out of the sandy soil along the Platte, Missouri, and Arkansas Rivers. Coniferous trees of pines and red cedars were also found in the breaks of riverbeds and streams.

Without ample trees, grassland is the natural vegetation.⁸ Areas of grassland with

⁷ "Great Plains," *Microsoft Encarta Online Encyclopedia 2007*, <<http://encarta.msn.com>> (accessed 10 December 2007).

⁸ Andrew Guilliford, "Earth Architecture of the Prairie Pioneer," *The Midwest Review* Vol. VIII (Spring 1986): 5-6.

low topography are generally termed the “prairie.” Grasslands are not subject to great soil erosion, since the deep, interconnected root systems of the prairie grasses firmly hold the soil in place and prevent run-off. The extensive prairies provide an excellent range for cattle to graze, while the soil beneath is fertile and supports grain agriculture. The region is periodically subjected to extended periods of drought, and high winds can cause devastating dust storms.

Nearly three quarters of Nebraska lies within the Great Plains, excluding the major cities of Omaha and Lincoln. Within the state, the land consists of several smaller regions, including the Loess Hills, the Sand Hills, and the High Plains. Each of these areas exhibits different soils, topography, and climates, making Nebraska a relatively diverse state geographically.

SETTLEMENT

Once the United States acquired the central portion of North America through the Louisiana Purchase, explorers were sent into the region to assess the area for settlement. In 1820, government surveyor Major Stephen Long produced a map that labeled the treeless region west of the Missouri River the “Great American Desert” (Figure 3). The area was deemed a wasteland and in the report accompanying the map, Edwin James wrote of the region, “...it is almost wholly unfit for cultivation, and of course, uninhabitable by a people depending upon agriculture for their subsistence. Although tracts of fertile land considerably extensive are occasionally to be met with, yet the



Figure 3. Portion of Long's Map showing the Great American Desert

scarcity of wood and water, almost uniformly prevalent, will prove an insuperable obstacle in the way of settling the country.”⁹

Edwin James could not have been more wrong. Twenty-five years later, the Nebraska prairie became a highway for pioneers traveling west. Following a trail regularly used by fur traders, missionaries, and military expeditions, travelers set out along the Platte River in 1841 and established a route that was to be used by millions.¹⁰ The Oregon Trail led thousands of people, seeking free land on the west coast, across Nebraska and the Great Plains. Numerous other trails followed the Oregon Trail for part of its length, including the Mormon Trail in 1846 and the California Trail in 1848. Those who failed in the west returned to the prairie near the trails, sometimes to join those who were unable to make the six-month journey and never made it to the west coast. Once the grasslands were broken, the soil proved to be entirely suitable for farming. Forts and settlements sprang up along the routes to provide supplies and protection from the Native Americans.

In light of the population growth that began to slowly trickle into the region, the Preemption Act of 1841 legalized the Plains early inhabitants. The United States federal law permitted squatters on government land as long as they purchased their tract. Purchasers could be heads of households, widows, or single men over 21 years of age. They also had to be citizens, or at least with the intent to become naturalized, and had to have lived on the land for at least fourteen months. Only then could they purchase up to

⁹ D.W. Meinig, *The Shaping of America: A Geographical Perspective on 500 Years of History*, vol. 2 (New Haven: Yale University Press, 1993), 76.

¹⁰ Welsch, *Sod Walls: The Story of the Nebraska Sod House*, 12.

160 acres for \$1.25 per acre, before the land was offered to the public for sale.¹¹ Since settlement was still prohibited by the United States government, this act was not widely utilized until the territories were officially opened in the mid-1850s.

Moravian Church missionaries in 1851 described their spring journey into Nebraska in a journal. On April 26th, they wrote, “Timber is very scarce, and so is stone.... The settlers are obliged to resort to ditching and mud-fencing.” Two days later, while in Iowa, just east of Council Bluffs, they noted, “...traveled all day through extensive prairie country, broken, very fertile, but lacking timber. The country here has been but lately settled, but it would be more thickly inhabited if timber were more plenty. This is all ‘claimed,’ and the claims are held at an enormous price.” They continued this entry with a mention of sod buildings, saying, “Today we saw many houses covered with prairie-sod, on account of the scarcity of board timber; the day previous we had already passed many houses, the chimneys of which were made of prairie-sod which seems to be quite durable. The further north we proceeded the scarcer the timber became along the watercourses.”¹²

In 1854 the Kansas-Nebraska Act authorized the creation of the Kansas and Nebraska territories west of the states of Missouri and Iowa. The act opened up what had been Native American country for white settlement west of the Missouri River. In passing the act, Congress hoped to facilitate the construction of a transcontinental railroad through the middle of the country. After 1854, settlers utilizing the Preemption

¹¹ Pioneers often settled on public lands before they could be surveyed and auctioned by the U.S. Government. Congress passed this act in response to the demands of Western states that squatters be allowed to preempt lands. After the Homestead Act, preemption claims declined and the practice became a tool for speculators. Congress repealed the Preemption Act in 1891. “Preemption Act of 1841,” *Microsoft Encarta Online Encyclopedia 2007*, <<http://encarta.msn.com>> (accessed 24 January 2008).

¹² Richard E. Jensen, ed., “A Visit to the Pawnees,” *Nebraska History* 87, no. 4 (Winter 2006): 147.

Act could expect treatment as citizens, rather than aliens living in the wilderness.

Although the population was still very sparse, stagecoach lines expanded their services, sending new routes north and west, and telegraph lines made communications with remote areas.¹³

Perhaps the most important incentive for settlement was the Homestead Act of 1862, which turned over vast amounts of public domain to private citizens unable to afford land. The act gave freehold title to 160 acres, one-quarter section, of undeveloped land in the American west. It provided that anyone who was either the head of a family, 21 years old, or a veteran, and who was a citizen or had filed a declaration of intent to become a citizen, could acquire a tract of federally owned land not exceeding 160 acres. To acquire title to the land, the homesteader was obliged to settle on the homestead under a few conditions. They must build a house that was at least 12 by 14 feet in size, cultivate at least 10 acres of land, dig a well, and remain on the land for five years.¹⁴ After the Homestead Act, Preemption claims sharply decreased.

Since the act's provisions were lenient, in addition to white Anglo-American males, the act attracted newly arrived immigrants, farmers without land in the east, single women, and former slaves (Figure 4). At the end of five years, a settler was expected to "prove up" on their land claim. This meant returning to the land office and showing evidence that they had abided by all of the requirements of the act. Often this involved only having a neighbor serve as a witness and attest to the honesty of the homesteader who filed the claim. After the claim was proved, the homesteader paid ten dollars and

¹³ Welsch, *Sod Walls: The Story of the Nebraska Sod House*, 17.

¹⁴ "Homestead Laws," *Microsoft Encarta Online Encyclopedia 2007*, <<http://encarta.msn.com>> (accessed 11 December 2007).



Figure 4. Pioneers arriving on the prairie in their covered wagon, circa 1886

received the patent to the land, signed with the name of the current president of the United States. A homesteader could prove up on his claim at any time by paying \$1.25 an acre, but most chose to occupy their land because they lacked the means of buying it for that amount.¹⁵ The total expense of filing on a 160-acre tract of government land and proving up after five years amounted to about 10 cents an acre, but many homesteaders could not even pay these fees. Sometimes someone else filed on the tract a settler chose and held the land as a squatter.¹⁶ Other federal homestead laws, enacted by subsequent congresses, were essentially modifications of the 1862 act. The laws provided an incentive in the form of easily obtainable land for the settlement of the west.

The intent of these acts was to grant land for agriculture since it allowed settlers without capital to acquire land but only if they grew crops. However, many farmers and laborers filed for a claim only to find that they could not afford to build a proper farm or acquire the necessary tools, seed, and livestock. The acts were framed so ambiguously that they invited fraud, and most of the land went to speculators, cattlemen, miners, lumbermen, and railroads. Of some 500 million acres dispersed by the General Land Office between 1862 and 1904, only 80 million acres went to homesteaders.¹⁷ But the marketing efforts of cheap land continued to lure settlers who at first followed the established trails until the construction of the railroads invited a much larger wave of pioneers to the west.

In 1860, there were already 30,600 miles of railroad tracks in the United States.¹⁸

Two years later that number began to grow considerably after Congress approved the

¹⁵ Cass G. Barns, *The Sod House* (Lincoln: University of Nebraska Press, 1930), 53.

¹⁶ Barns, *The Sod House*, 64.

¹⁷ "Homestead Act (1862)," The National Archives and Records Administration, <<http://www.ourdocuments.gov>> (accessed 11 December 2007).

¹⁸ Barns, *The Sod House*, 125.

Pacific Railway Act of 1862. The act authorized the creation of a transcontinental railroad and telegraph line extending from the Missouri River to the Pacific Ocean, which would connect the extensive railway system of the east with the west coast. The Union Pacific Railroad began construction in Omaha, Nebraska and followed the Platte River Valley, almost parallel with the Oregon, Mormon, and California Trails, and then left the traditional routes to cross the Rocky Mountains in Wyoming only to cut down into Utah and Nevada before ending in California. The Burlington Railroad soon followed by constructing tracks through the same area beginning in 1869. By 1870, there were 52,856 miles of railroads in the United States.¹⁹

The Railway Act also allowed the railroads to receive extensive land grants in the western United States directly from the federal government in order to subsidize the construction of lines into uninhabited territories on the Great Plains. Nebraska achieved statehood in 1867 and the government granted nearly 17% of the state's land to various railroad companies.²⁰ The Union Pacific Railroad was given alternate sections on a strip of land extending across the length of the state lying ten miles on each side of the right-of-way. The Burlington and Missouri Railway Company was given a land grant of alternate sections lying along their right-of-way in the southeastern part of the state, but did not find enough land to make their quota and were permitted to go north of the Union Pacific grant and take alternate sections in counties north of the Platte River.

The railroad companies, through substantial advertising campaigns, then sold the land grants to the settlers. Boasting of the fertile farmland, the campaigns used posters, pamphlets, and representatives from the railroad company to lure people in the eastern

¹⁹ Barns, *The Sod House*, 125.

²⁰ "Nebraska," *Microsoft Encarta Online Encyclopedia 2007*, <<http://encarta.msn.com>> (accessed 11 December 2007).

United States and even Europe (Figure 5). The marketing efforts resulted in an influx of settlers that swelled the area's population, and the last third of the nineteenth century was a period of growth and adaptation for the Great Plains, especially Nebraska.

Settlement during the 1870s looked very promising. The Timber Culture Act of 1873 offered settlers yet another incentive for land ownership. Like the Homestead Act, this piece of legislature allowed settlers the opportunity to acquire a land title by following certain conditions. Due to the obvious lack of trees on the Plains, land could be taken without residence as long as forty acres of timber were planted. Only one-quarter of land in each section could be taken under this act with a minimum of eight years compliance. As a benefit, land that was planted with trees was free of taxes.²¹ Unfortunately, a series of disasters and misfortunes hit the region that deterred many settlers. In 1873 a financial panic dropped the prices for farm products, and farmers lost their market. In Nebraska, a massive spring blizzard that same year killed most of the livestock and crops, only to be followed by three years of drought and grasshopper invasions. Many homesteaders left the Plains during this decade and returned east.²² By the 1880s, the economy had recovered and strong advertisement campaigns by the railroad companies, combined with the federal land policies, brought swarms of families from the eastern states and European countries. The decade saw the greatest extension of railroad mileage and the largest growth in population. Crop and livestock production rapidly increased in addition to the building of homes and the establishment of towns, churches, and schools. Unfortunately, in some cases settlers were lured to the prairie under false pretenses. Land speculators and promoters advertised cities in elaborate

²¹ Barns, *The Sod House*, 53.

²² Bruce H. Nicoll, *Nebraska: A Pictorial History* (Lincoln: University of Nebraska Press, 1967), n.p.

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Copyright 1890 by Burlington & Missouri River R.R. Co.

Figure 5. Poster distributed by the Burlington and Missouri River Railroad Company, date unknown

pamphlets that described tree lined avenues, large university campuses, and extravagant churches. Many settlers arrived only to find a sea of grass and a few stakes in the ground.²³

The prosperity and growth continued into the 1890s as railroads expanded allowing more settlers to easily reach the Plains states. Towards the end of the decade another severe drought and economic depression decreased the flow, sending many residents either back east or into larger cities. But by the turn of the century, renewed rail construction and improved agricultural conditions resumed the settlement patterns in the Great Plains. In Nebraska, the Kincaid Act of 1904 triggered a population boom, especially in the Sand Hills area of the state. This law superseded the Homestead Act and allowed homesteaders in western Nebraska counties to settle 640 acres instead of 160 acres.²⁴

By the early twentieth century, substantial sections of the Great Plains had been largely settled. Uninhabited pockets remained, but were rapidly filled before World War I. In the 1920s, the use of railroads for local passenger traffic had declined with the increased use of the automobile. Prospective farmers were no longer coming in waves by way of the railroad, and much of the suitable farming land had already been claimed. Many communities and rural areas on the Plains saw a peak in population around 1920, followed by slow decline. Once crop prices plummeted in the 1920s, many families

²³ Welsch, *Sod Walls: The Story of the Nebraska Sod House*, 17.

²⁴ In 1903 Moses Kincaid, US Representative from Nebraska, introduced legislation in Congress to increase the size of homesteads in Nebraska from 160 acres to 640 acres. Passed in April 1904, settlers filing under the new law became known as Kincaiders. Tim Turner, "Sod Houses in Nebraska," *APT* 6, no. 4 (1975): 22-23.

vacated their farms on the Plains once again. Remaining public lands were withdrawn from homesteading in 1935 due to the extreme reduction in supply of land.²⁵

ORIGINS

Settlers arriving on the Plains were anxious to establish a farm of their own, complete with a comfortable home, but they found themselves isolated in an unfamiliar environment that lacked conventional building materials. Surrounded by a sea of prairie grass, there was typically not a tree or town to be seen for miles. Naturally, the prairie sod seemed to be a viable alternative to timber. But is necessity the mother of invention, as the old saying goes? Are sod houses a unique American adaptation to the Great Plains as Roger Welsch states, or are their origins rooted in some other country or some other culture?

The use of earth for shelter was not an innovative concept. The earthen structure was likely common as far back as Neolithic times, and was also used in Great Britain, Scandinavia, and Northern Europe during the Viking period. The difference between American sod houses and other forms of earthen shelter, however, lies in the cutting of uniform blocks of sod in order to build a permanent shelter and the invention of special tools to accomplish this.²⁶ But where exactly did settlers get the idea to build with sod and who used it first?

Among most scholars, the origins of sod construction are disputed and ultimately unknown. Many early encounters with earthen buildings in the region were untutored, resulting in accounts that were often vague and unreliable. This particularly poses a problem when discussing origins because the confusion over the definition of the word

²⁵ "Homestead Laws," *Microsoft Encarta Online Encyclopedia 2007*, <<http://encarta.msn.com>> (accessed 11 December 2007).

²⁶ Barbara Oringerff, *True Sod: Sod Houses of Kansas* (North Newton: Mennonite Press, Inc., 1976), 15.

“sod” has muddled the historical accounts of using the material in building. Since the focus of this thesis was not to determine the origins of building in sod, the following discussion briefly elaborates on the common theories of origin.

The most popular theory is that the inspiration for building in sod came from the Native Americans. The Pawnee tribe historically occupied a large portion of central Nebraska along the present-day Platte, Loup, and Republican Rivers. Through various treaties made between 1818 and 1892, the Pawnee ceded most of their land in Nebraska to the United States. Mainly farmers, the Pawnee lived in semi-permanent earth lodges.²⁷ Since the river valleys were thick with cottonwood trees that provided building materials, the lodges were usually round in plan and dome shaped with a log framework. According to early nineteenth century descriptions, the domed lodge could measure 40 feet or more in diameter and could accommodate multiple families.

Construction began by digging out and leveling the floor, which lay below grade. A tall central structure was built of four or more stout cottonwood trees. A post and beam structure was then dug into the earth floor, which was surrounded by another smaller post and beam structure. Smaller poles leaned against the outer ring and across the top to form the roof, while a post and beam tunnel-like passage formed an entrance. The circular lodges had walls about eight feet high and the entrance generally faced east (Figure 6). Branches were bound crosswise to the posts and topped with a heavy thatch of coarse grass. Finally, a thick coating of earth was packed over the entire structure in a battered fashion.²⁸

²⁷ “Nebraska,” *Microsoft Encarta Online Encyclopedia 2007*, <<http://encarta.msn.com>> (accessed 11 December 2007).

²⁸ “Native American Architecture,” *Microsoft Encarta Online Encyclopedia 2007*, <<http://encarta.msn.com>> (accessed 10 December 2007).

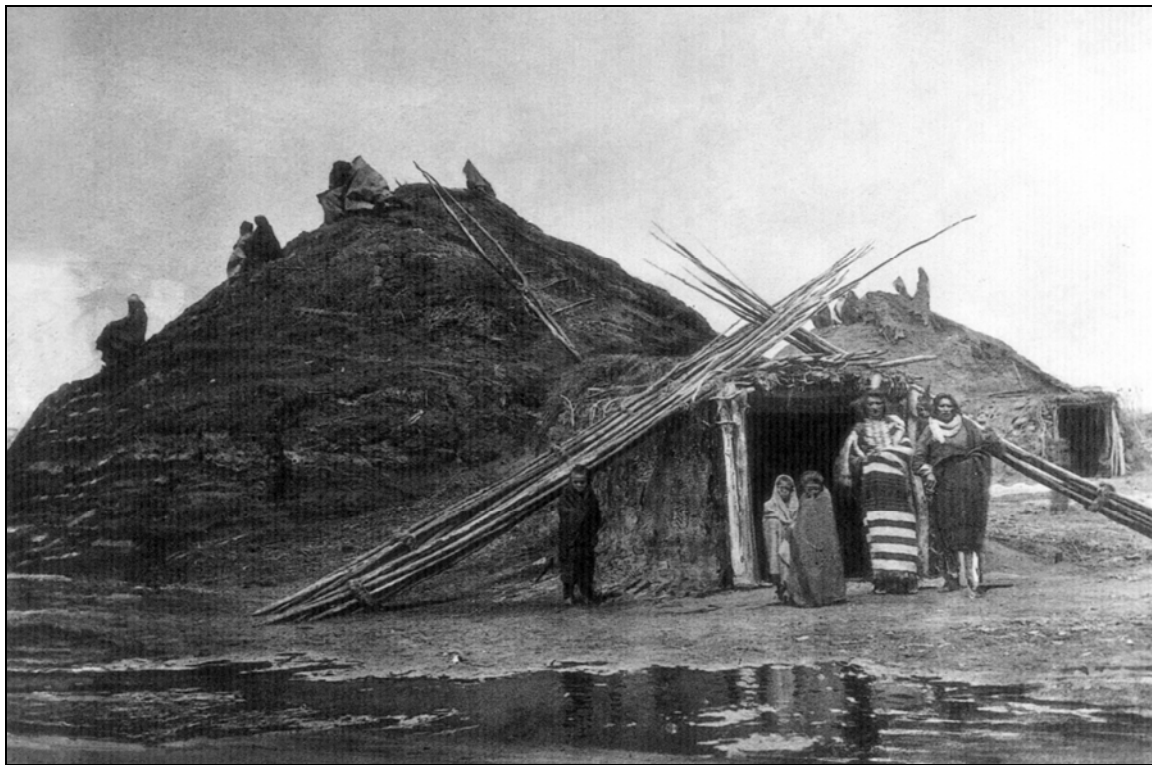


Figure 6. Pawnee Earth Lodge

During the cold winters of the Plains, the thick earth covering of the lodges prevented heat loss, and in the summers the earthen walls kept the interior relatively cool. Generally built as clustered communities, these dwellings were typical of the Pawnee as well as other tribes including the Ponca and the Osage. It is known that there were American missionaries sent to the Pawnee as early as 1834.²⁹ Although there are clear differences between the earth lodge and the sod house, there are enough similarities to suggest that some venturing pioneer, possibly a missionary, attained the idea by observing the Pawnee lodges and adapting the technique.

Another popular theory suggests the Mormons were the first to employ sod construction because of the lack of supplies during their westward migration in the 1840s. Led by Brigham Young, roughly 70,000 Mormons traveled along the Mormon Trail from 1846 to 1869 in order to escape religious persecution. The initial group, known as the Pioneer Company of 1846-1847, established a route from Nauvoo, Illinois, to Salt Lake City, Utah, which included the construction of new ferries, bridges, and shelters to help mark the trail for others to follow. After beginning their trek in February 1846, the Company faced difficulties and paused in their journey for nearly a year once they reached the Missouri River in June 1846. Some stayed in Council Bluffs, which was renamed Kanesville, while others crossed the river and established Winter Quarters at present-day Omaha.³⁰

Winter Quarters was the first Anglo-American settlement in the future Nebraska Territory. Located approximately six miles north of present downtown Omaha, the community was laid out on a grid pattern. A record logged by the Mormons in December

²⁹ Jensen, ed., "A Visit to the Pawnees," 148.

³⁰ National Park Service. "The Mormon Pioneer National Historic Trail." <<http://www.nps.gov/mopi>> (accessed 27 January 2008).

1846 noted that there were 538 log cabins and 83 sod houses or sod caves erected for the 3,483 inhabitants of Winter Quarters.³¹ Cass Barns suggests that the Mormons continued to build sod shelters on their trek across the prairie, including stopping posts along the Loup and Platte River Valleys for those on their way to Utah.³² The Winter Quarters settlement was nearly vacated by 1848 when Brigham Young led his Mormon followers to Utah the previous spring.

It is widely concurred that the Mormons indeed built sod houses at Winter Quarters. However it is unknown whether or not these were the first sod houses built in Nebraska and on the Great Plains. If they were, where did the Mormons learn their techniques? And did these sod houses resemble the ones later constructed on the prairie, or were they another form of earthen shelter, such as rammed earth, that were labeled “sod houses” for lack of a better term? There are no photos, and as to date, no further description of these houses.

A less popular theory proposes that Fort Kearney in central Nebraska was the first recorded use of sod walls. The Platte River Valley, running through the center of Nebraska, has long served as a major transportation route to the west coast. Explorers initially traveled it after the Louisiana Purchase, and fur traders used it in the 1820s and 1830s. The Oregon Trail system, which included a part of the Mormon Trail, also followed the Platte River. Each year after 1841, thousands of emigrants headed west through the Platte River Valley and on to the west coast. In order to protect travelers from Native American attacks, the U.S. government built Fort Kearney on the Missouri River in 1846, but it was vacated shortly thereafter due to the low number of wagon

³¹ Guilliford, “Earth Architecture of the Prairie Pioneer,” 11.

³² Welsch, *Sod Walls: The Story of the Nebraska Sod House*, 14, and Barns, *The Sod House*, 28.

trains passing by. Another Fort Kearney was constructed on the Platte River, 187 miles west of the previous fort.³³

Many of the American forts on the Great Plains in the early-to-mid nineteenth century used adobe or wood for construction. In December 1847, the Platte River fort was ordered to be built using local materials and volunteer soldier labor. Construction began in spring 1848 using bricks, adobe, timber, and sod. Fort Kearney rapidly developed into one of the most frequented stops on the Oregon Trail.³⁴

David Murphy, senior research architect at the Nebraska State Historical Society, believes that Fort Kearney was the first recorded use of sod walls in the United States. He goes on to say that since so many settlers were going through Fort Kearney on their way out west, the idea was diffused into domestic structures on the Plains.³⁵ The Mormon records of sod buildings at Winter Quarters are nearly two years before construction of the Platte River Fort Kearney even began; therefore it is not likely that the fort was the first recorded use of sod walls. However, Murphy's idea of diffusion is plausible since so many wagon trains did pass through the fort on their way out west, but by that time there were already sod shelters on the Plains if one agrees with Cass Barns theory.

The last commonly held theory holds that the idea for building in sod was brought to America by Europeans. Many early settlers on the Great Plains were European immigrants. Attracted to the Plains by the Homestead Act and the advertisements of railroad companies, immigrants flowed into the region from Germany, Great Britain, Scandinavia, and the Czech Republic. According to John Hudson and Andrew

³³ "Nebraska," *Microsoft Encarta Online Encyclopedia 2007*, <<http://encarta.msn.com>> (accessed 11 December 2007).

³⁴ "The History of Fort Kearney," <<http://www.sandi.net/kearny/history/swk/fk.html>> (accessed 27 January 2008).

³⁵ Interview with David Murphy in Lincoln, Nebraska, 2 July 2007.

Guilliford, these immigrants built the type of house they had lived in before moving to the prairies and were among the first to build sod houses.

John Hudson's research into frontier housing in North Dakota indicates that cultural preference was more important than necessity in the selection of building materials. In other words, immigrant homesteaders built sod houses because they wanted to and knew how to, not because of the lack of supplies.³⁶ However, Hudson's research was based on Works Progress Administration photos and no fieldwork. Other authors mention that sod house origins are specifically attributed to Russian-German immigrants because rammed-earth homes were a building type constructed by this ethnic group on the prairie during roughly the same time period. Although rammed-earth buildings and sod buildings are both forms of earthen architecture and to many the buildings may appear to be the same, the material and construction process are quite different.

Andrew Guilliford ponders the origins of sod houses in his essay, "Earth Architecture of the Prairie Pioneer," published in 1986. He concludes that the origins are likely European for two reasons. First of all, English, Irish, and Welsh settlers in the Great Lakes region built turf or sod houses in the style of earth houses used as temporary shelters in Great Britain. More specifically, he argues that sod houses show strong Irish traditions because Irish folk houses and American sod houses were extremely similar. For example, both had gable and hipped roofs with windows and doors mounted in similar places. Both supposedly used cut sod, which measured from two to six inches thick and two to three feet in length. And both were exclusively rectangular in shape and room width, with additional rooms added at either end by extending the gable.³⁷ The

³⁶ John Hudson, "Frontier Housing in North Dakota," *North Dakota History* Vol. XLII (Fall 1975): 12.

³⁷ Guilliford, "Earth Architecture of the Prairie Pioneer," 9.

second reason builds on the Mormon theory of origin. Guilliford states that the Mormons were British born and must have learned the basic techniques of sod construction in their homeland. The settlers, therefore, did not adapt to the Great Plains, since it was a landscape they were familiar with already.³⁸

In her book *True Sod*, Barbara Oringderff investigated the origins of building in sod. Although Oringderff published her book nearly ten years prior to Guilliford's essay, she mentions that many claim similar houses were built in early Great Britain, but she did not find any clear descriptions of these buildings that pointed to a relation. Therefore Guilliford's speculation that the Mormons were British born may be true, but it is not possible to prove that they knew sod building techniques upon arrival in the Great Plains. Guilliford's assertion of similarities between the two building types is suspect, because the Irish cottages were turf houses, and turf houses were not sod houses. Turf was a building tradition where there was commonly a stone foundation, on which a frame was built to hold the load of the turf, which was laid grass side up (Figure 7). Turf was sometimes fitted around the frame in blocks, but they were laid sometimes in a herringbone style. This building tradition was very different from that of American sod houses.

Language barriers in written accounts resulted in many home descriptions being called sod, when it might have been rammed earth, clay brick, or even turf. German-Russians used and still loosely use terms to refer to sun-dried brick, rammed earth, or sod. It is possible that many applied the term "sod house" broadly to include earthen

³⁸ Guilliford, "Earth Architecture of the Prairie Pioneer," 11-12.



Figure 7. Example of a turf house

houses of all kinds whether or not cut sod was used. Finally, many of the settlers from Europe did not begin arriving until the 1870s, which would have been too late for bringing the idea of building in sod to the United States.

Overall, the origins of building in sod are possibly a combination of all these theories, and a wide variety of influences likely diffused the architectural ideas of sod construction. The Mormon houses at Winter Quarters may be the first recorded use of sod walls in America, but it is very likely some ingenious pioneer or missionary before them spawned the idea who had seen the earth lodges of the Pawnee. The lack of money for building materials was a sincere problem since lumber was many times too expensive for a farmer to purchase or haul from a distant wooded area when he could scarcely afford the filing fee for the homestead claim, and the money he did typically have went towards the farming equipment needed to secure his land and his family. The earth was free, abundant, and required minimal tools to manipulate. Unable to construct a building as large as the earth lodge and with the same materials, the pioneer modified the technique to resemble a brick wall, something he was familiar with. After other settlers saw the sturdy sod buildings and how well they served their purpose on the Great Plains, they decided to build one for themselves. The construction practices came out of the bare Plains and the hope and ingenuity of the people, but in effect, no one has been able to identify the “first” American sod house or to discover the background of its builder.

SOD HOUSE BUILDERS

It is possible that many of the initial settlers were anchored by fate to the treeless Plains, but most settlers, American and European, came by choice and built with sod out of necessity. They generally came from lower economic levels and were primarily under

the age of forty, with a few over sixty years of age.³⁹ Some had been engaged in trade, mechanics, and educational work back home, but were attracted to the region by the farming and agricultural opportunities, in addition to the prospect of land ownership.

Sod construction is typically associated with those who did not have any money, which holds true to a degree. Everyone was poor, but few were utterly destitute, and some were fairly prosperous, though not according to the standards of the east coast. In 1874, the *American Agriculturist* published an illustrated article about sod houses. It described this type of house as a subsistence shelter suitable for pioneers carrying culture to the wilderness. The journal's editors described sod houses as the home of "a hardy, industrious, worthy representative of the spirit of adventure and enterprise, who carves a home for himself out of the wilderness. The settler is poor of everything but hope and determination to succeed, but yet in each we have seen a home where an intelligent family has lived in comfort and has enjoyed the many advantages of what is called civilized life." The illustrations portray an idealized image of the sod house and its occupants involved in domestic labors and cultural pursuits. Compared with the accounts of struggle for survival emanating from the settlers themselves, the views of east coast editors appear inaccurate and overly positive.⁴⁰

Sod construction in America was not a building tradition determined by color, creed, or ethnicity. Hoping to secure an affordable home, both American and European settlers of varying religious faiths built with sod on the prairie. The settlers came from diverse backgrounds and were accustomed to their traditional home building techniques. Emigrants from urban areas of the eastern United States were used to brick, stone, and

³⁹ Barns, *The Sod House*, 135.

⁴⁰ Fred W. Peterson, *Homes in the Heartland: Balloon Frame Farmhouses of the Upper Midwest, 1850-1920* (Lawrence, Kan.: University Press of Kansas, 1992), 54.

frame houses of careful craftsmanship and solid construction. Those from rural areas of the east and the Midwest lived in log or frame houses roofed with wood shingles. Some Europeans knew half-timbered construction methods, which used a heavy framework with a filling of mortar or brick, while others came from all brick or all stone construction with thatched or tile roofs.⁴¹

The sod house was affordable, effective, and widely popular for a period of time in the late nineteenth century for settlers of all nationalities. Therefore, in order to determine who was building with sod, it may be more logical to start with who was settling on the Great Plains. Frederick Leubke's analysis of nineteenth century census data in his essay "Ethnic Group Settlement on the Great Plains," demonstrated that a majority of the frontier population of the Great Plains was foreign-born, with the greatest numbers of foreign-born located in the westernmost fringes of the Plains. Prior to the 1840s, settlement was primarily Anglo-American across the frontier. By the 1840s, immense numbers of Irish, Germans, and English entered the country and many went to the frontier territories of Michigan, Wisconsin, Iowa, and Texas. Immigration dipped during the Civil War, but almost immediately afterwards a flood of European immigrants inundated the United States. The numbers peaked in the 1880s, which were the precise years when the Plains were being most heavily settled, and decreased in the 1890s. At the turn of the century, the flow steadily increased and reached its largest annual total in 1907.⁴² Relatively few immigrants came to the Plains in the twentieth century.

Not all of the immigrants who settled in the west came directly from Europe. Many lived in the eastern United States before migrating to the Plains. Just like

⁴¹ Welsch, *Sod Walls: The Story of the Nebraska Sod House*, 21.

⁴² Frederick Luebke, "Ethnic Group Settlement on the Great Plains," *Western Historical Quarterly* Vol. 8, no. 4 (1977): 405-407.

American settlers, Europeans were attracted to the region by the Homestead Act, but even more so by the advertisements of railroad companies. Railroads attracted immigrants through pamphlets and posters distributed by agents that were dispatched to Europe by the companies. Some of these pamphlets were published in the respective language and even illustrated sod houses within the marketing context called “Six Years to Prosperity.” Railroad companies knew that if immigrants came, their friends and relatives would as well.⁴³ They often traveled in family units and summoned relatives and neighbors to follow once they became established. Formal colonization was important for some ethnic groups, but they were not able to recreate a village setting due to government land policies. Coming to escape poverty and oppression, sometimes the departure of one individual or family spurred “America fever” with other relatives and neighbors.

Land ownership had great symbolic value for the newcomer to the Plains. In Europe, respect and honor were paid to land owners. The larger the tract, the greater the prestige, and a 160-acre tract was immense. By contrast, the typical American viewed land ownership as a means to wealth, rather than wealth itself. As a result, there was often no sentimental attachment to the land on which the house was built, and one might leave without regret. If the land value was forced up, the Americans might sell for a profit and move elsewhere.⁴⁴ This may be the reason why many remaining sod houses have an ethnic background; the family was just not willing to leave the land.

The four largest groups of immigrants that settled in the Great Plains were those from Germany, Great Britain, Scandinavia, and Slavic countries. Germans were the most

⁴³ Luebke, “Ethnic Group Settlement on the Great Plains,” 410.

⁴⁴ Luebke, “Ethnic Group Settlement on the Great Plains,” 410.

numerous. They tended to settle in rural areas and could be found in almost every county on the Plains. The second largest group came from Great Britain and was formed by a combination of English, Scottish, Welsh, Irish, and English Canadians. These groups usually congregated in towns and more urban centers. The Scandinavians, mostly Norwegian and Swedish, were the third largest group and commonly formed rural enclaves. The fourth largest group was the Slaves, but they largely came in the twentieth century, after much of the Great Plains was settled. Engaged in agriculture, only the Czechs and the Poles settled in significant numbers on the Great Plains.⁴⁵

While Luebke's analysis may lead some to the conclusion that sod house construction was an ethnic tradition, one must realize that the greatest immigration wave into the Great Plains did not really begin until the 1870s. By this time, sod construction had already existed for nearly twenty-five years and was utilized by settlers who were not European. Interestingly enough, sod house construction appeared to really balloon beginning the 1870s, which was right at the time the railroads and the immigration wave came through the west. The housing trend continued into the early twentieth century by American and European settlers alike, but by this time, the builders were second generation American born.

⁴⁵ Luebke, "Ethnic Group Settlement on the Great Plains," 411-418.

CHAPTER 3. CONSTRUCTION METHODS

SOD AS AN EARTHEN BUILDING MATERIAL

Construction methods in earthen architecture have often seemed inferior to other methods of building. Near the peak of their construction on the Plains, an 1876 *Home Building* journal noted that this prolific building type was constructed due to the “barbaric laziness” of the settlers.⁴⁶ This bias inherent in urban or more educated cultures may be the reason so many believe the sod house was only a primitive and temporary structure. On the contrary, sod construction was a quite resourceful and ingenious solution to the urgent need for shelter and the lack of means to provide it.

When discussing building technology, earthen clay is a general term that refers to the use of the material in a pre-industrial state. The clay is processed for different building techniques: rammed earth, a mixture of clay, grass, or straw and constructed in a slip form; batsa brick, clay formed in a brick mold, sun dried, and then constructed in a mud mortar; or adobe, a mixture of clay, sand, and straw formed in a brick mold, sun dried, and constructed in an adobe mortar which is then plastered.

Sod is also a form of earthen clay, but it is quite different from the other forms of clay in that it required no material processing. It did not need to be mixed with any binding agents or even molded or dried in the sun. It was simply cut in uniform blocks directly from the prairie soil and ready to use for building walls, thereby making it less expensive and technically less demanding than other forms of clay construction. Since

⁴⁶ E.C. Hussey, *Home Building: A Reliable Book of Facts, Relative to Building, Living, Materials, Costs, at about 400 places from New York to San Francisco* (New York: no publisher, 1876), n.p.

the mixing and drying process of other forms of clay-building techniques were too time consuming and settlers lacked the furnaces and the fuel to manufacture bricks, sod construction was the most expedient means of housing technology available.⁴⁷

It takes a certain type of soil and climate to make a durable sod house. The loamy, clayey earth and semi-arid climate found throughout the Great Plains allowed for the successful use of the building material. Sod is essentially grass turf, but when used as a building material it includes the soil directly beneath the grass that is held together by roots. Buffalo grass (*buchloe dactyloides*) was the most popular due to its density and superior root strength. It grew short and tough, and in the autumn its roots were wiry and woody. Big blue stem (*andropogon gerardii*) and slough grass (*spartina pectinata*), also called prairie cordgrass, were also widely used. Big blue stem grass grew the highest, but was devoid of weeds. Slough grass grew higher than buffalo grass and was desired for its ability to retain moisture. Wheat grass (*thinopyrum*), Indian grass (*sorghastrum nutans*), and wiregrass (*aristida oligantha*) were also used in sod construction, but were not as popular as the other three.⁴⁸

Free from stones or brush, the density of virgin sod (that is sod that has never been plowed or burned) slows the erosion process and adds to sod's structural potential. The grass was mowed, but usually not completely removed so that the blocks would fit firmly together. Often laid with the grass side facing down, the blocks would root to each other and lock the system together. The time of year was crucial for building in sod since the earth needed to be moist to allow for firm building blocks. The blocks, however, could not be cut if the ground was partially frozen, because after they thawed, they would

⁴⁷ Murphy, "Building in Clay on the Central Plains," 85.

⁴⁸ There are multiple scientific names for wheat grass. It is unknown which type of wheat grass Welsch was referring to. Welsch, *Sod Walls: The Story of the Nebraska Sod House*, 31-33.

be likely to settle and cause the collapse of the house. The best season for building was in autumn, when the grasses had acquired strong roots, and the best day for building was after a heavy rain or snow melt, which left the sod moist and firm; nevertheless, settlers could seldom choose their time to build.

SOD CONSTRUCTION PROCESS

Location, material, and technology determined the strength and duration of a sod house, while individual craftsmanship added style and comfort. Sod construction practices taught settlers how to build with scale and proportion commensurate with natural materials. Each sod house was constructed differently, which reflected the resources, skill, and background of the builder. According to Roger Welsch and my research, the communication of sod construction techniques was strictly oral.

Construction plans were communicated orally from relative to relative or neighbor to neighbor. There did not appear to be scaled drawings or even written instructions.

Many settlers were not familiar with how to construct a sod house and seldom had the proper construction equipment. It was common for neighbors to help each other in the building process, and raising a sod house could be community effort. Sometimes neighbors were even hired to cut the sod if they had the proper plow. If they were not helping build the house, neighbors would also stop by and suggest techniques. Four or five experienced people could build a sod house in a few days, but it would take two people a week or more depending on the size of the house and the location of the blocks. In John Hudson's article "Frontier Housing in North Dakota," he found that fewer than

10% of all houses were built with any acknowledged help besides that of family and friends.⁴⁹

Even if settlers were unfamiliar and inexperienced, there must have been some planning involved in the construction process. Personal accounts speak of others going to town, or a site near a river, to pick up enough lumber for a roof and a certain number of windows and doors. A builder needed to think about what he was capable of building and what he could afford. For example, he needed to consider the location and size of his house, where he wanted his windows and doors and if his budget could afford them, and most importantly what kind of roof he could build. Therefore a builder must have had some form of a building plan to work from, whether it was drawn in his mind, on paper, or in the dirt.

Just like any permanent shelter, a house constructed of sod required careful preparation, whether or not the builder was working from a plan. Construction techniques have been examined extensively and nearly every work on the subject of sod houses discusses the mechanics of making a house from blocks of earth. Most authors are in agreement as to the tools, techniques, and trade secrets of sod construction. The following is an outline of the construction process divided into six steps: finding a building site; preparation of the site; material preparation; wall construction; windows and doors; and roofs.

Once a settler arrived on the Plains with his prairie schooner that contained his family and his personal property, he located a quarter section of government land that he might file a homestead claim upon. Some land offices helped settlers hire land locaters who guided them to their quarter of land, or sometimes an accommodating settler

⁴⁹ Guilliford, "Earth Architecture of the Prairie Pioneer," 25.

directed him to a desirable tract.⁵⁰ Rich, dark soil on relatively flat acreage near a valley and a good water source, evidenced by timber or a creek, were ideal locations. If possible, he hoped to settle near a community for convenience, or at least near a good trail or railroad.

After filing the claim, a settler located a building site for his house. A convenient source of water was essential. Valleys or ravines were popular locations since they yielded a nearby water source and oftentimes a small amount of timber, a bonus for any sod house builder (Figure 8). These locations also protected the house from strong prairie winds, and the higher water table in these locales provided moist sod, which was ultimately the best for building. Furthermore, these hollow areas held the toughest and thickest grasses that were rooted in a firmer clay soil, which contrasted with the looser, sandy soils of the top lands. However, if the area was too low, settlers could be faced with a drainage problem as flash floods or winter snow melts, which could ruin the home.⁵¹

Once a location was selected, a settler dug his well to an appropriate water source and prepared the site for his house. It was at this time that the floor plan and size of the house was designed. The corners were staked off and the area was cleared of weeds and brush. The grass was removed and the ground was leveled off with a sharp spade. Sometimes the grade was excavated a foot or two below ground, thus shortening the height of the walls and the amount of sod that needed to be cut. Snake and gopher holes were filled with loose dirt and tamped solid. The floor area was dampened and packed with a fence post to create a hard, flat surface. A sod craftsman rarely prepared footings

⁵⁰ Barns, *The Sod House*, 234.

⁵¹ Guilliford, "Earth Architecture of the Prairie Pioneer," 18.



Figure 8. Locating a site: hills protected a sod house from prairie winds

since many could not afford or locate the necessary materials. When footings were prepared, a builder drove wooden posts into the ground, poured concrete footings, or laid a brick or stone base, especially under corners where the weight of the walls was the heaviest.⁵²

As soon as the building site was prepared, a settler sought out a nearby tract of land from where he would cut his sod. The ground needed to be level in order to cut uniform blocks, and moist enough with a dense root system to hold the soil firmly to the sod bricks when they were lifted to the wagon. A builder only cut the amount of sod that could be laid in one to two days, since sod blocks dried quickly after they were removed from the ground, and they needed to remain moist during the construction of the walls.⁵³ Therefore, builders chose cutting sites as near to their building site as they could.

Prior to cutting, the grass was mowed to a short length or even burned off completely, and the sod was occasionally scored with a cutter or disc on the surface. Once prepared, the sod could then be cut in one of two ways. For earlier houses, the sod was generally cut with a spade. The metal spades were typically squared nosed with an eight-inch wide straight blade.⁵⁴ Sod blocks that were cut with spades can sometimes be determined in the field since the blocks were typically thick and roughly cut. Later sod houses could also be comprised of blocks that were cut with a spade if the builder did not have access to a plow, but it was fairly uncommon.

Most commonly, sod was harvested with a plow, but only certain plows could do the job. A regular breaking plow could be used to cut sod blocks as long as the cutter was very careful to keep his furrows straight and of even width and depth. This plow had

⁵² Welsch, *Sod Walls: The Story of the Nebraska Sod House*, 39.

⁵³ Oringderff, *True Sod: Sod Houses of Kansas*, 55.

⁵⁴ Oringderff, *True Sod: Sod Houses of Kansas*, 108 and Gates, "The Sod House," 354.

a sloping mould board that would usually cut a furrow twelve to fourteen inches wide and required two or three horses to pull it. Frequently, however, the plow would destroy the sod since it cut deep and tumbled the furrow. Even if the cutter was skilled enough to operate the plow and not destroy the sod, the blocks were not uniform and a lot of leveling had to be done as the walls were laid up.⁵⁵

The prolific building of sod houses prompted the development of a new plow specially designed for the purpose of cutting sod blocks. Sometime in the late nineteenth century, the “grasshopper” plow, also known as a rod-plow or cutting plow, emerged on the Plains and rapidly spread throughout the region as the ideal tool for builders. In place of the breaking plow’s mould board, the grasshopper plow was lighter and had a set of adjustable rods that allowed the sod to be carefully cut into long ribbons three to six inches deep and one to one-and-one-half feet wide.⁵⁶ With a team of horses, the capacity of a day’s breaking could be doubled, but oxen were preferred because their slow pace permitted straight furrows, which produced the most uniform blocks (Figure 9). After the sod was plowed, a sharp spade was used to cut the strips into blocks of varying lengths depending on the preference of the builder. Sod blocks cut by the plow are significantly more uniform and slightly thinner with cleaner edges than those cut with just a spade.

The grasshopper plow was a significant development in sod house construction practices as it greatly accelerated and enhanced the ease at which houses were built, but its inventor and origins are unknown. Some believe John Deere developed it in the 1850s, but that is likely too early, since sod houses did not really proliferate on the Plains

⁵⁵ Oringderff, *True Sod: Sod Houses of Kansas*, 52.

⁵⁶ Welsch, *Sod Walls: The Story of the Nebraska Sod House*, 39.



Figure 9. Material preparation: grasshopper plow and its use in cutting the sod by a team of horses

until the 1870s and there has yet to be any recorded evidence of the plow as early as that time. An 1874 *Knight's American Mechanical Dictionary* published in New York lists a sod plow as, "a plow long in the share and mold-board, adapted to cut and overturn sod." This definition is too vague to determine which type of plow it is referring to, but it seems to better describe the common breaking plow rather than the grasshopper plow. By 1897, a grasshopper plow with a sharp blade that would cut a twelve-inch strop of sod was advertised in a Sears, Roebuck, and Company catalog for \$6.50.⁵⁷ Other personal accounts speak of builders who made their own grasshopper plows that were patterned on commercial models.

No matter which method was used, once the blocks were cut they were loaded onto a wagon or sled and transported to the building site. The final size of the blocks depended on the thickness of the sod, the strength of the builder, and the moisture content of the soil. Six inches of wet sod could weigh fifty pounds per square foot, therefore the thicker and damper the blocks were, the smaller they tended to be so a builder could more easily lift them into the wagon and later construct his walls.⁵⁸ But many agree that sod blocks cut with a grasshopper plow were typically four inches high, twelve inches thick, and twenty-four to thirty-six inches long.

The construction of the walls began by laying one layer of sod blocks to form the perimeter of the house. Devoid of a foundation, stretcher blocks were laid in at least two parallel rows directly on the ground. If the walls were to be battered, an extra row or two was added to the initial layer of blocks. The next layers were laid just like bricks in a structural bond, but without mortar and usually placed grass side down. Typically, rows

⁵⁷ Oringderff, *True Sod: Sod Houses of Kansas*, 50-52.

⁵⁸ Guilliford, "Earth Architecture of the Prairie Pioneer," 18.

of stretchers were laid at least two wythes deep with a one course or three course common bond (Figure 10).⁵⁹ It is possible that a bond higher than a three course common bond was employed; however, if the height of the stretcher courses was raised too high without a binding header course, the stability of the wall would be at risk. English bonds were also used.

Wall construction generally began in the corner and extended out the length of the wall. Ensuring the corners were secure, each course was completed before moving to the next. The outside walls were sometimes tapered, but the interior walls remained straight. Care was taken to keep the center line of the wall vertical, since a completed wall was so heavy, any lean would cause a collapse. Builders would sometimes hang a string to ensure that the walls were constructed in a straight line.⁶⁰ Another method was to drive small, wooden stakes vertically into the sod at intervals to prevent the blocks from shifting (Figure 11).⁶¹ Some walls were laid up rough, while others were hewed down smooth with a spade for uniformity and consistency.

Walls were rarely laid more than one story high, and different sources note heights as between six and ten feet. There is evidence of one-and-one-half story and two-story sod houses, but more commonly walls were only laid higher than one story on a few elevations, for example when a gable roof was constructed and sod was laid in the gable end. Since a majority of these earth structures lacked a foundation, the walls were inherently weak and easily susceptible to settling. To alleviate this situation, barbed wire

⁵⁹ Gates, "The Sod House," 354 and Noble, *Wood, Brick, and Stone: The North American Settlement Landscape*, 73.

⁶⁰ Interview with Junior Biefenbaugh. Merna, Nebraska, 9 July 2007.

⁶¹ Interview with Charles Foran, Arnold, Nebraska, 4 July 2007.

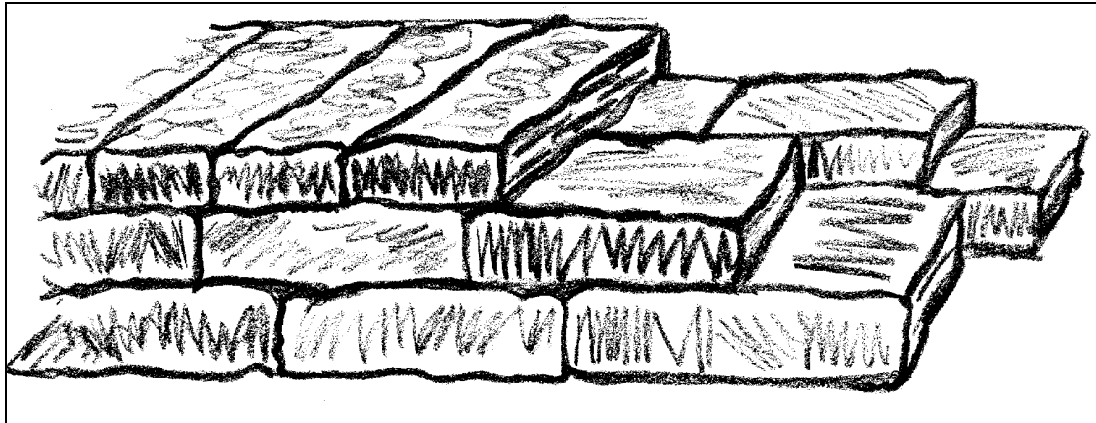


Figure 10. Wall construction: blocks laid two wythes deep with alternating headers and stretchers



Figure 11. Wall construction: blocks laid grass side down, and sometimes included wooden stakes driven through the blocks

was sometimes used at the corners for reinforcement.⁶² Other builders locked the corners with boards so that the walls would not pull apart when the house settled and wandering cattle would not rub against them. Once the walls were completed, reinforcement around the base of the structure was frequently added. This was accomplished either by placing several horizontal planks along the foot of the structure, laying another layer of sod to the outside wall, or pouring a short retaining wall to discourage erosion by dripping eave water or digging rodents.⁶³

Windows and doors were nearly always made of lumber and among the most expensive elements of a sod house. Each opening had to be carefully planned and installed so the voids would not weaken the wall and the weight of the sod would not crush the frames. When construction commenced on the walls, spaces were left for the doors. As soon as the blocks were several layers high, a lumber door casing was set into the opening and a window casing was placed at its desired location along the wall. The walls were then built around each casing until it reached the top of the frame. One or two planks, boards, or even cedar posts were laid along the top of the wall and across the casings, which served as a header. It was not uncommon to find headers nearly three times the length of the casing. Several inches of space, often filled with paper or cloth, was left between the header and the casing.⁶⁴ The headers supported the heavy weight of the sod above and the void allowed the house to settle without compressing the frames, which could warp and break the glass or jam the window or door (Figure 12).

Windows and doors were generally simple open boxes constructed of one or two inch boards that were nailed together to form the casing. After the walls were completed,

⁶² Gates, "The Sod House," 354.

⁶³ Welsch, *Sod Walls: The Story of the Nebraska Sod House*, 47.

⁶⁴ Welsch, *Sod Walls: The Story of the Nebraska Sod House*, 46.

each casing was pegged, nailed, or drilled into the sod to prevent separation and hold the frame firmly in place.⁶⁵ Doors were commonly vertical boards or wood paneled, and windows were single or double hung with light configurations varying from one-over-one to six-over-six. Alternatives to glass windows included animal skins, blankets, oiled paper, and wooden shutters. Doors were frequently recessed behind the walls to leave an enclosed entryway. Sometimes a screen door was added to the exterior as a means to keep out insects. Windows could be nearly flush with the exterior of the wall, or recessed, which left a large ledge on the exterior, which was often filled with flower boxes. Since the interior of sod houses tended to be dark and the deep window and door wells reduced the amount of incoming light, the casing was often beveled to permit light to enter at a much broader angle (Figure 13).

Among the most important and usually the most expensive elements of a sod house was its roof. The strength of the walls, and hence the durability of the house, depended on keeping the sod dry, and the roof allowed a builder a wide range of choices in terms of shape, construction methods, and materials. The higher the sod walls were constructed, the easier it was for them to become unstable and collapse, unless the builder was extremely skilled. Since steeper roof pitches could weaken end walls and demanded longer lumber, low roof pitches were more feasible. The shorter and more stout a house was built, the stronger it was for a less skilled builder.

There were five common roof shapes built on sod houses in the Great Plains: the gable roof, hipped roof, pyramid roof, rounded roof, and shed roof. Gable roofs were comprised of a ridge that terminated in a gable at each end of the house. This was the

⁶⁵ Oringderff, *True Sod: Sod Houses of Kansas*, 62.

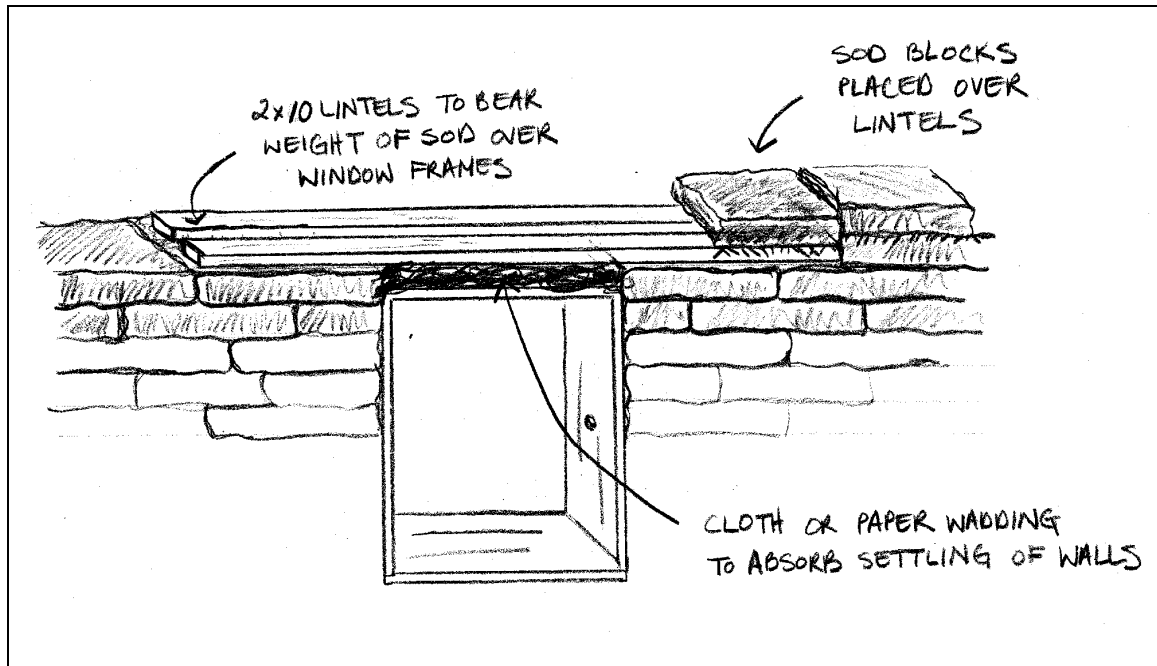


Figure 12. Windows: Sketch illustrating window construction

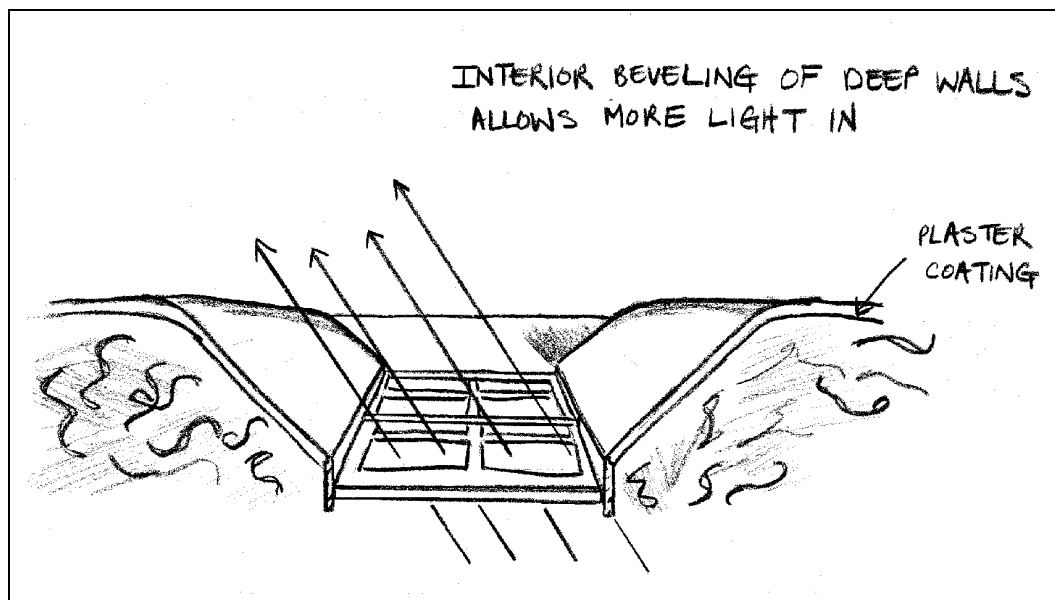


Figure 13. Windows: Sketch illustrating the beveled walls on the interior to allow more light

easiest type of roof to construct and required the shortest lengths of lumber. It could be constructed using one or multiple beams that were often left exposed, either extending past the eaves or remaining flush with the end of the wall. The more beams a builder used, the fewer rafters and sheathing were needed, therefore there were many three beam and five beam gable roofs built on sod houses.⁶⁶ The beams could be rough logs, hand-hewn beams, or single and double pieces of cut lumber, which were sometimes broken and supported on the interior or exterior with a forked post. Cedar wood was preferred because it was lightweight, strong, and fairly resistant to rot, which was essential considering the beams were notched into the sod. The gables could either be built up to the peak with sod or constructed with wood frames.

The framing of gable roofs was either typically constructed of lumber rafters or frameless sheathing. In framed roofs, nominally cut rafters were usually nailed to the central ridge beam and spaced evenly along the length of the wall. If multiple beams were used, the rafters could rest on top of the other beams or be placed below them as in a principle rafter roof. Elaborate trussing systems were not typically used for these types of simple constructions, but if there was no framing in place on top of the sod walls, the weight of the roof created stresses that pushed outward on the walls. To alleviate this problem, a skillful builder would join the rafters together with joists lying across the top plate of the sod. The framing profile was then a triangular structural brace and the weight of the roof exerted a vertical stress straight down through the heavy earthen walls.

Frameless sheathing was a much cheaper and quicker method than constructing rafters,

⁶⁶ In discussing the construction methods of gable roofs on sod houses, the term “beam” is used throughout this paper to describe the long piece of wood spanning from one wall to another because it has been commonly used in other studies, articles, books, and discussions of sod construction methods. Strictly speaking, however, the members other than the central ridge beam would be called “purlins.”

but it was substantially less efficient. In this method, planks were simply run vertically from the central ridge beam to the top plate with no rafters (Figure 14). Unfortunately, the planks tended to warp and break if not properly sealed from moisture.⁶⁷

Hipped roofs were much more complicated to construct and required greater amounts of lumber. The roof consisted of four corner rafters extending to a central ridge beam, which was held by two vertical supports.⁶⁸ The framing may have been complex, but the roof system did not require excessively high sod walls, as in gable roof systems, and it allowed for a shorter central ridge beam. Once the initial framing was in place for a hipped roof, rafters typically comprised the remaining roof system instead of frameless sheathing. Hip roofs, however, became problematic once an addition to the house was desired. Gable roofs could be easily extended but a builder rarely wanted to disrupt the framing system of a hipped roof. As a result, shed roofs or a lean-to were common extensions of the hipped roof.

Pyramid roofs were also seen on sod houses as a variation of the hipped roof. Framed in similar ways, instead of a central ridge beam, the four rafters met at a single point in the middle of the house. A central vertical pole sometimes supported the roof on the interior of the house. This roof type was more common on smaller, square plan sod houses since long rafters were required to reach the center point from the corners of the house. It also more commonly utilized rafters instead of frameless sheathing.

Shed roofs were the simplest to construct, but only for very small sod houses. The system consisted of a single pitched roof with rafters sloping in only one direction. One of the walls had to be high enough in order to allow headroom at the back of the

⁶⁷ Welsch, *Sod Walls: The Story of the Nebraska Sod House*, 65-68.

⁶⁸ Oringderff, *True Sod: Sod Houses of Kansas*, 37.



Five beam gable roof with frameless sheathing and later supported with principle rafter roof



Attic joist placed directly into the sod

Figure 14. Roofs: Gable roof construction methods

house, and the rafters needed to be long enough to reach the other side. These disadvantages did not make this type of roof popular and it was used most often on sod additions.⁶⁹

Rounded roofs, also known as the barrel roof, resembled an inverted U-shape and required little support and minimal lumber. The end walls were built up to a rounded end, instead of a peak as in a gabled roof, and three or five beams were placed directly on them. Thick boards were then nailed down perpendicular to the beams and bent over the rounded end walls. These types of roofs were rarely, if at all, seen in Nebraska, and were much more common in Kansas (Figure 15).⁷⁰

A variety of materials were used for roofing on all shapes of roofs depending on the locality and finances of the builder. Earlier houses regularly used sod as a roofing material when standardized materials were either not available or not affordable by the builder. Only the wealthiest pioneers initially built shingled roofs. Boards, tarpaper, canvas, and metal were also used, but generally not until later generations of sod construction.⁷¹

Prior to the widespread availability of wood decking, an early roof construction method was similar to the Indian Earth Lodges of the Pawnee. A brush and pole roof was framed just like a gable roof, but instead of cut lumber, cedar poles were used for the central ridge beam and willow poles for the rafters. The poles were closely spaced and covered with brush, hay, and wild grass. A coating of fine clay was spread across the

⁶⁹ Welsch, *Sod Walls: The Story of the Nebraska Sod House*, 62-64.

⁷⁰ Oringderff, *True Sod: Sod Houses of Kansas*, 34.

⁷¹ Oringderff, *True Sod: Sod Houses of Kansas*, 93.

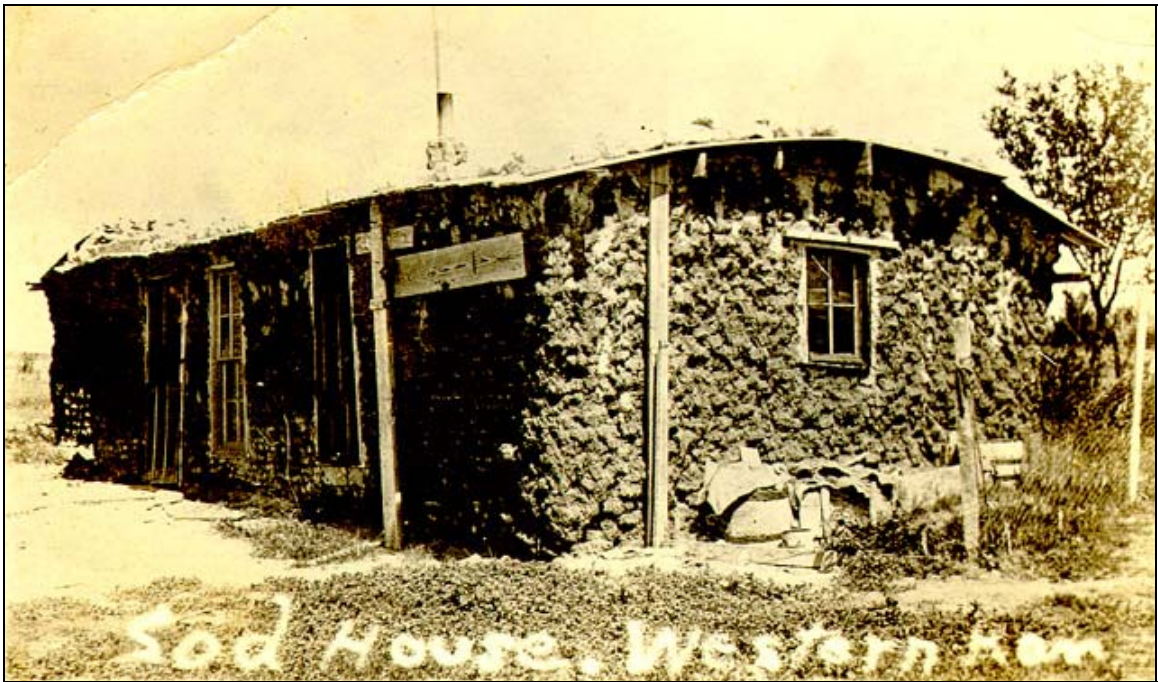


Figure 15. Roofs: Rounded roof example in Kansas

grass to prevent leaking before the layers of sod were placed grass side up (Figure 16). The sod was one to three layers thick, and could be rolled out in long strips, or cut like blocks, usually thinner than those used for walls, and lapped or butted together like shingles. Sometimes the sod was placed grass side down and covered with another layer of clay mixed with sand or ashes.⁷²

Solid wood decking was most often used as sheathing whether the house was framed with rafters or not. Placed vertically or horizontally, the planks could be lapped, butted, or rabbeted. The decking was often covered in tarpaper before the final roofing material was laid, regardless if it was sod, wood, or metal. If the roof was too steep, however, the sod would slip off the decking. Builders developed a few methods to remedy this problem such as inserting wooden pegs or pins into the ends of the rafters or building a wooden fascia that extended upright along the eaves (Figure 17).⁷³ However, the enormous weight of the sod roof quickly obliterated its use. It needed substantial wooden supports, and when it rained, the sod would often leak and then leak for the next few days, even if it was sunny outside.

The presence of eaves presented another dilemma in roofing on sod houses. The eaves protected the sod walls from rain erosion, but the strong force of the prairie winds often caught under the eaves and could easily flip a roof off from its walls. The weight of the sod roof helped with this anchoring problem, but not always, and lighter roofing materials were more susceptible. Some builders eliminated the eaves altogether and rounded the sod walls up to the plane of the roof, while others tied the roof down to the

⁷² Welsch, *Sod Walls: The Story of the Nebraska Sod House*, 70-71.

⁷³ Welsch, *Sod Walls: The Story of the Nebraska Sod House*, 72.

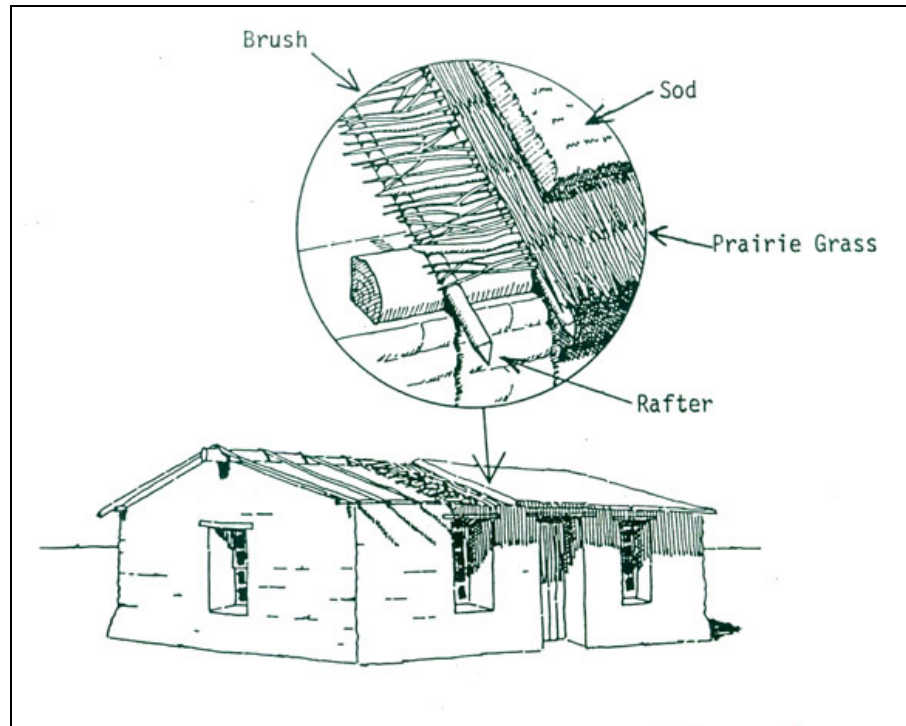


Figure 16. Roofs: Early brush and pole construction method



Figure 17. Roofs: To keep sod from slipping off roof, pegs were sometimes inserted into the ends of rafters



Figure 18. Roofs: Eaves eliminated and walls rounded up to the plane of the roof

ground with ropes or wires, or drove stakes down through the roof and into the sod walls (Figure 18).⁷⁴

Just like any other dwelling, sod houses were added to and altered over time. Additions could also be constructed of sod, but the difficulty in joining the sod walls caused many additions to be built of wood frame once it was available and affordable by a family. Additions could be small and extend the house along wall planes, or could be much larger and render the initial building into a kitchen or separate bedroom. It was not uncommon to see a larger frame house built adjoining the earlier sod house.

Contrary to popular belief, sod houses were not always built as temporary dwellings. The lifespan of a sod house was often reported as between seven and fifteen years, giving the impression that a house will disintegrate after several years. Alterations increased their lifespan considerably, yet the mere presence of improvements attests to the permanence of these dwellings. The roofs were most often replaced and reconstructed with lumber. Roofing materials quickly shifted from sod to wood shingles, metal, and asphalt once neighboring towns grew and were able to offer a wider variety of materials brought in by the railroad. The windows and doors were generally left intact due to the difficulty of removing and replacing them. If they were removed, the deep wells were often filled in to fit a smaller, standardized frame.

Perhaps the most important alteration for a sod house was exterior cladding. Sod cannot last indefinitely. Just like any other natural material, it breaks down with weathering and time. Yet if it is covered and shielded from the rain, wind, insects, and animals, the erosion process is slowed and the material will last much longer. There is evidence of early sod builders initially covering their houses in a coat of plaster.

⁷⁴ Welsch, *Sod Walls: The Story of the Nebraska Sod House*, 75.

However, if it is not properly applied to something other than the earthen blocks, it will quickly crack and weather away. Later builders continued to cover their sod with plaster, but also used clapboard and concrete. It is these houses that have lasted the longest and still exist today. According to Barbara Oringderff's book *True Sod*, if constructed well, a sod house will last fifty years. With exterior cladding, the house will last nearly eighty years.⁷⁵

Donald Gates' 1933 article, "The Sod House," notes that with proper living standards, there was every possibility of making the sod house clean, neat, and comfortable.⁷⁶ Far from primitive, interiors strived to meet current standards of living, but on a limited budget and with a few unfamiliar obstacles. Rooms could be divided by function if space permitted, or kitchens and living rooms were combined and bedrooms partitioned off. If the house was exceptionally small or the builder had a very tight budget, fabrics were hung as wall partitions. A larger house usually had wood partition walls, or even occasionally sod.

The interior of the sod walls were often shaved smooth with a spade, and plastered with sand and lime if a builder had access to these resources. Sometimes, just the inside or outside of doors and window frames were rounded off and plastered, even if the rest of the house was not. However, the walls were seldom plastered during the first three to six months after construction, in order to allow the house to settle.⁷⁷ Interior walls could also be covered in wallpaper or newspaper that was tacked directly to the sod. Any wall covering offered light to an interior, which could be very dark and dim, therefore ceilings could also be covered in canvas or strips of muslin. The fabrics helped

⁷⁵ Oringderff, *True Sod: Sod Houses of Kansas*, 130.

⁷⁶ Gates, "The Sod House," 536.

⁷⁷ Oringderff, *True Sod: Sod Houses of Kansas*, 62.

to catch the dirt and insects that might fall from the roof. Initially, floors were often dirt or covered in hay. Rough or planed split logs could also be used if a builder could afford them. Later generations installed wood tongue-and-groove floorboards, since a dirt floor did not meet the improved living standards of the twentieth century.

As a building material, sod was widely available and affordable not only to the initial settlers on the Plains, but also later generations of builders. It was easy to use, with only little more than average skill needed to build a dwelling. The finished house was relatively fireproof and could withstand the high winds, tornadoes, and severe thunderstorms that were common on the treeless Plains. But the most touted advantage of sod houses was their excellent insulating qualities. Cool in the summer, and warm in the winter, a sod house was efficient and comfortable during the climate extremes present on the prairie.

The disadvantages, however, eventually swayed most builders to convert to frame housing. The interior was often covered in dust and dirt. The natural material of the walls harbored insects, rodents, and snakes, and fleas and bedbugs were rampant. If the walls became wet, the weight of the roof might destroy them causing a complete collapse of the house, which was almost too difficult to repair. There was also trouble with settling, since there was rarely a foundation or footings to keep the walls stable. Furthermore, the direct contact of the wood members to the natural moisture in the soil would often cause warping which would then make the house shift. Despite these inconveniences, the sod house persisted due to its efficiency and according to Roger Welsch, the momentum of tradition.⁷⁸

⁷⁸ Guilliford, "Earth Architecture of the Prairie Pioneer," 19.

CHAPTER 4. SOLOMON BUTCHER'S PHOTOGRAPHY OF SOD HOUSES

CUSTER COUNTY GEOGRAPHY AND HISTORY

Custer County is located in central Nebraska, near the geographic center of the state. Nearly twice the size of Rhode Island, Custer County is the second largest county in Nebraska, occupying 2,576 square miles.⁷⁹ Broad valleys and rolling prairie plains characterize the county's landscape, but its central location places it right on the border between two distinct landforms in the state. The Loess Hills make up the eastern two-thirds of the county and consist of thick deposits of fertile soil which are conducive to crop production. Much of eastern Nebraska is composed of Loess Hills. The Sand Hills make up the western one-third of the county and are a unique geographic feature found in Nebraska (Figure 19). The hills were created by fine, wind-blown sand that accumulated into hills millions of years ago. The hills are essentially sand dunes, which rise and fall to almost mountainous canyons across the region and are partly covered by vegetation. The sandy soil makes the region unsuitable for the cultivation of crops, but excellent for grazing and cattle ranching. The South Loup and the Middle Loup Rivers, fed by springs in the Sand Hills, flow southeast diagonally across the county (Figure 20).

As early as 1869, the rich prairie grass and ample water supply of Custer County attracted the attention of ranchers from the South. Large herds of cattle were driven from Texas to Ogallala in western Nebraska and allowed to graze on the far surrounding ranges, including the South Loup Valley. Abundant grass, mild winters, and a free range

⁷⁹ Loup Basin Resource and Conservation Department, "Custer County," Valley Website Hosting and Design. <<http://www.loupbasinrcd.net/custer.html>> (accessed 26 February 2008).



Figure 19. Map showing the extent of the Sand Hills region in Nebraska

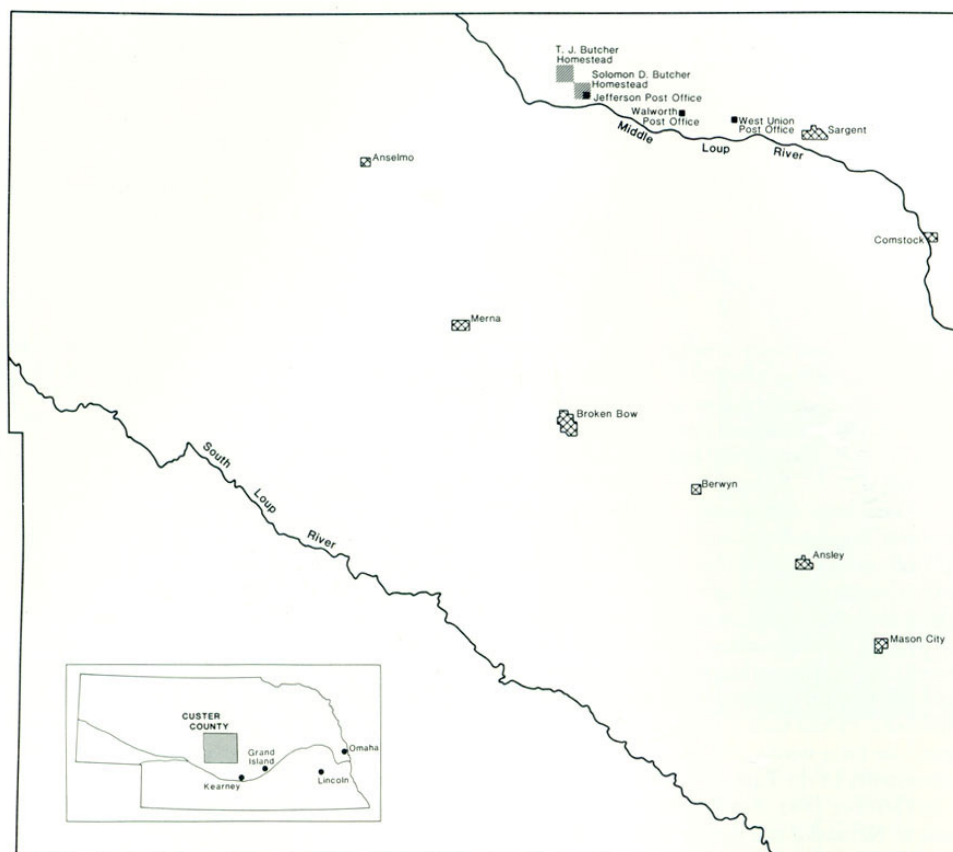


Figure 20. Map of Custer County

gave this area the title of the “Cattleman’s Paradise.” At the time Custer County was surveyed between 1869 and 1872, there was no record of homesteaders in the county, although squatters appeared along the river valleys. Among the county’s first permanent settlers, was Lewis R. Dowse, who arrived in the Middle Loup River Valley in August 1873. Another early settler, Frank Ohme, was among the earliest to file a homestead claim in January 1874. In the next several years, as more homesteaders filtered into the region, the open cattle range increasingly disappeared.

The county was officially established in February 1877 when the state legislature passed an act defining the boundaries. It was named in honor of General George Custer who died at the battle of Little Big Horn the year before.⁸⁰ Settlement gained momentum in the summer of 1880, which caused tension between the ranchers and the homesteaders. The harsh winter of 1880-1881 destroyed much of the cattle population and the rancher’s profits, which signaled the decline of the open range in Custer County and opened the door for widespread homesteading.⁸¹

Settlement in the county followed one of two patterns commonly found on the western prairie. Firstly, the establishment of towns and urban settlement visibly followed the rail lines (Figure 21). Beginning in the mid-1880s rail lines of the Burlington and Missouri River Railroad (B&MR) were constructed northwest through the county. The Lincoln Land Company worked with the B&MR to establish town sites at points designated as water stops and stations along the lines. Usually located nine to twelve miles apart, these towns followed a development pattern common along Nebraska

⁸⁰ Lorraine Smith, ed., *Seven Valleys Regional History 1872-1982* (Callaway, Nebr.: Loup Valley Queen, 1982), 7.

⁸¹ William L. Gaston and A.L. Humphrey, *History of Custer County, Nebraska* (Lincoln, Nebr.: Western Publishing and Engraving Company, 1919), 54-59.

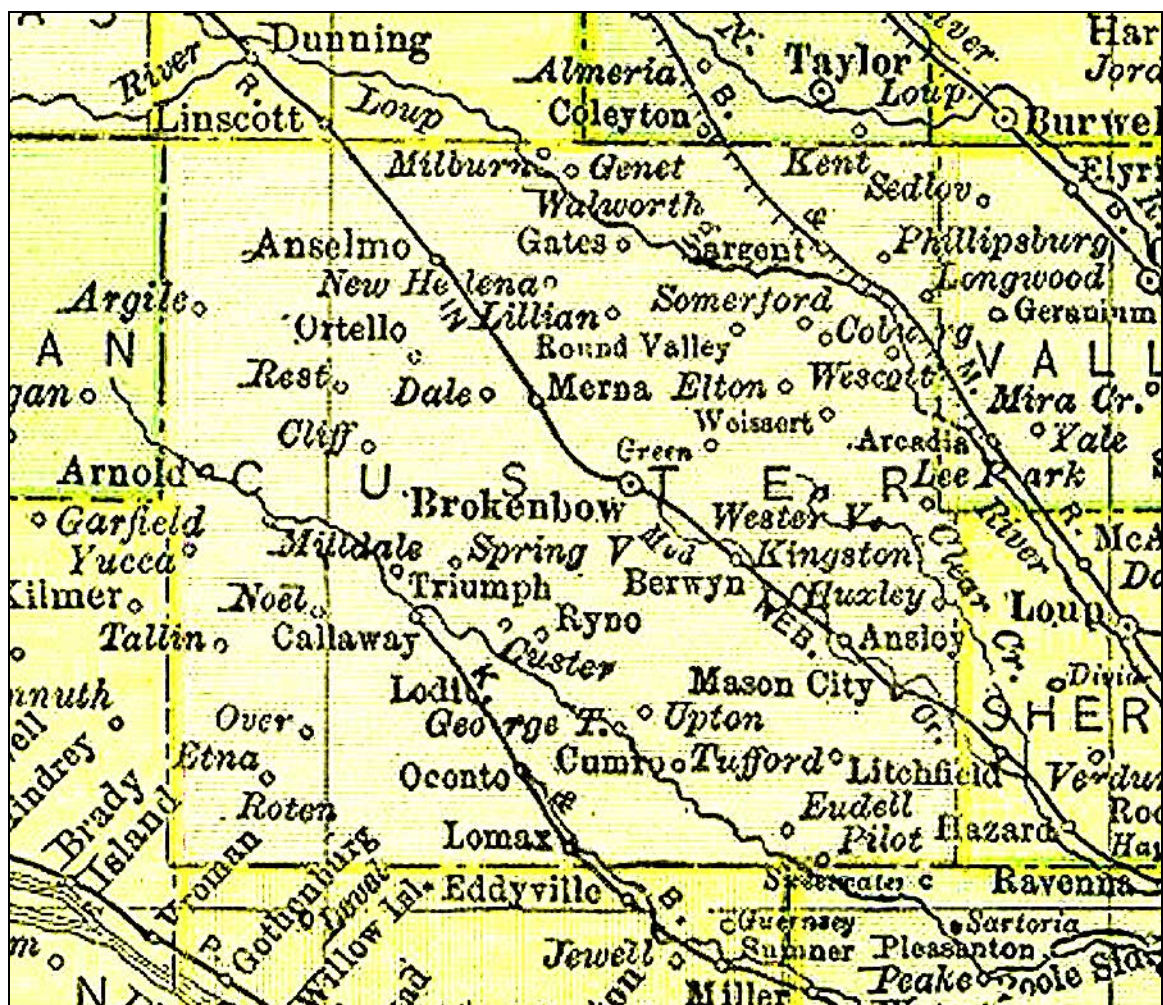


Figure 21. 1895 Atlas of Custer County showing towns along rail lines

railroads. The Union Pacific also constructed rail lines through the county and developed their respective towns following similar patterns, but did not arrive in the county until 1890.

Secondly, rural settlement generally followed the rectangular grid system imposed by the General Land Survey. Land holdings typically assumed the shape of squares and were measured in fractions or multiples of square mile sections, which physically divided the landscape. The quarter-section size farm of 160 acres became the standard Homestead Act unit and there were generally four homes established within a section. Farmsteads were interspersed across the landscape, and the clustering of houses was rare.

Throughout the late nineteenth and early twentieth centuries, the railroads expanded their lines across the county. Linking Custer County to eastern markets, the railroads greatly stimulated settlement, both urban and rural, and promoted economic growth. Grain elevators, water towers, commercial district, churches, public parks, and residential housing soon distinguished these growing towns, and homesteads stretched into the furthest corners of the county, including the Sand Hills. The population of Custer County increased from 2,211 in 1880 to 21,677 by 1890.⁸² A severe drought and economic depression in the 1890s decreased the population of the county by nearly 2,000 residents as settlers moved elsewhere in search of better opportunities. The turn of the century, however, brought improved agricultural conditions and high demand for livestock and crops, which once again sent farmers back to the land to benefit from the successful market. The Kincaid Act of 1904 allowed farmers to acquire more land, and as a result, much of the remaining land in the Sand Hills was claimed. In 1910, there was

⁸² MyFamily.com Inc., "Population of Counties – Nebraska 1860-1990," MyFamily.com Inc. <<http://www.ancestry.com/home/free/censtats/necens.htm>> (accessed 26 February 2008).

a family living on every 160-acre section in the county, and it is possible that there were as many as 8,000 sod houses that once stood in the county at a particular time.⁸³ The population of Custer County peaked at 26,407 in 1920.

Local passenger traffic on the rail lines declined with the increased use of automobiles that signaled a shift from railroad to highway transportation in the 1920s. The Depression of the 1930s greatly wounded Custer County's economy, and like the rest of the nation, its residents fled to larger urban areas, such as Omaha or Lincoln. The railroads were the lifeline of Custer County's economy. In addition to goods and services, they brought visitors who shopped in the local towns and sometimes decided to settle in the area, whether on farms or in towns. Although rail traffic increased slightly during World War II, it never fully regained its strong flow of passengers, as the automobile became the primary method of transportation. Custer County's economy and population slowly declined throughout the twentieth century, which left farms, businesses, and homes abandoned. According to the 2000 census, the population of Custer County was 11,793.⁸⁴

THE PHOTOGRAPHY OF SOLOMON BUTCHER

Many who have read an illustrated book on the development of the West or an American history textbook have likely seen a photograph by Solomon Butcher. Born in the eastern United States, Butcher himself was a pioneer who ventured west for the same reasons as thousands of other settlers in the late nineteenth century, but his foresight was remarkable. Photography was still experimental when he took up his apprenticeship, and when he arrived on the Plains he saw the sod houses and the gritty spirit of pioneer

⁸³ Guilliford, "Eath Architecture of the Prairie Pioneer," 19.

⁸⁴ U.S. Bureau of Census, "State and County Quickfacts – Custer County, Nebraska," U.S. Bureau of Census. <<http://quickfacts.census.gov/qfd/states/31/31041.html>> (accessed 26 February 2008).

survival by people just like him. Progressive, he realized the importance of the event that was occurring right before him and set out to capture images of the people, buildings, and landscapes that transformed the Great Plains. Custer County, the county of his first claim, was chosen by Butcher as the subject population for his documentary vision.

Solomon Butcher lived in Custer County during the late nineteenth century, but worked in many counties in Nebraska and other surrounding states. He traveled across the desolate prairie, making little money and sleeping and eating where he could. His photography in Custer County had a purpose. He envisioned a book that would chronicle the history of the county through photographs and individual stories. Ironically, the county's history was less than twenty years old.⁸⁵ But Butcher had a careful eye and a sensitivity to a passing way of life. His pictures recorded the changing frontier, showing the rapid progress from sod house to frame house to brick house, all in a few short years.

Butcher was not the first photographer to photograph the west. Within ten years of photography's development by Daguerre in 1839, photographers moved west to capture images of the fresh and uncharted landscape. When Butcher arrived on the scene in the 1880s with his idea for a pictorial history, he expected a market for his photographs back east where the idea of the frontier aroused romantic fantasies. But while other photographs, such as F.J. Haynes' views of Yellowstone and William Henry Jackson's Colorado vistas, gained notoriety, Butcher was largely ignored. The vernacular settings of the flat Nebraska landscape did not create as much excitement as snow capped mountains of the Rockies. No one saw much interest in an ordinary arrangement of families in front of a sod house. At the time of his death in 1927, Butcher feared his life's work would go unnoticed. Emphasis was on modernism and sophistication in the

⁸⁵ Welsch, *Sod Walls: The Story of the Nebraska Sod House*, x.

1920s, and no one wanted to see photos of their rustic past with humble beginnings. Slowly, his pictures worked their way almost anonymously into the fundamental thinking about the American West, and at the forefront of this impression was Custer County.

Solomon Devoe Butcher was born in Burton, West Virginia on January 24, 1856, the first child of Esther and Thomas Jefferson Butcher.⁸⁶ In 1860, the family moved to Winona, Illinois, where his father worked for the Illinois Central Railroad. After completing high school, Butcher apprenticed with a tin typist in 1874, where he learned the basics of photography. The following year he entered military school in Henry, Illinois, and in 1876 began work as a traveling salesman in Clyde, Ohio.

Butcher's father quit the railroad in 1880 and traveled to Custer County to file a homestead claim. Butcher followed, and after locating their two separate claims, they each constructed sod dugouts.⁸⁷ Unable to satisfy the requirements of the Homestead Act, the younger Butcher relinquished his claim after only two weeks and moved to Minnesota. From 1881 to 1882, he attended the Minnesota Medical College in Minneapolis. His education did not yield a medical career, but he met his wife Lillie Barber Hamilton, a local nurse.

Butcher returned to Nebraska with his wife in October 1882 and worked as a schoolteacher. He retained his interest in photography from his experience as an apprentice in Illinois, and during this time he saved enough money to acquire land and purchase photographic equipment. He built his first photography studio in Jefferson, located in northeastern Custer County, but moved it to Walworth in 1884. Unfortunately, financial troubles forced Butcher to sell his studio, but his interest in photography

⁸⁶ John E. Carter, *Solomon D. Butcher: Photographing the American Dream* (Lincoln, Nebr.: University of Nebraska Press, 1985), 1.

⁸⁷ John E. Carter, "Solomon Butcher's Pioneers," *Natural History* Vol. 94, no. 9 (September 1985): 44.

continued.⁸⁸ By 1885 the railroad came through Custer County and settlers were arriving in large numbers eager to file a homestead claim and construct a dwelling of their own, usually of sod.

Butcher did not care for the pioneer life himself but he respected it. While observing the rapidly growing population of the county, in 1886 Solomon Butcher developed a plan to produce a photographic history of Custer County. He proposed to photograph the families and homesteads of the county and record the biographies of each. Butcher was thoroughly excited by his idea and stated, "From the time I thought of the plan, for seven days and seven nights, it drove the sleep from my eyes."⁸⁹ Low on finances, Butcher's father gave him a horse and wagon to transport his photographic equipment. After only two weeks, Butcher had scheduled seventy-five family portraits for the history.

Between 1886 and 1892, Butcher journeyed many days across the hilly terrain of Custer County. He advertised in the *Custer County Chief* as follows:

FARMERS have your farm photos taken by Butcher & Ellwood for Butcher's Pioneer History of Custer County. A premium book offered for the best article from any part of the county, of 3000 words or less, of the early settlement and up to date. Address me at Callaway. S.D. Butcher.⁹⁰

He financed his endeavors through the sale of the photographs, subscriptions to the history book, and in-kind donations by residents. To help defray his costs, he often accepted food, lodging, and horse stabling in exchange for a photographic print.⁹¹ He photographed nearly everything that came before his lens including cattle, snakes, sod

⁸⁸ Carter, *Solomon D. Butcher: Photographing the American Dream*, 4.

⁸⁹ Carter, *Solomon D. Butcher: Photographing the American Dream*, 5.

⁹⁰ Harry Chrisman, introduction to *Pioneer History of Custer County, Nebraska*, by Solomon D. Butcher (Denver, Colo.: Sage Books, 1965), vi.

⁹¹ Carter, "Solomon Butcher's Pioneers," 46.

buildings, and pigs, but the majority of his photographs feature people posing in front of their property, like a family portrait. In some images, Butcher's subjects display their possessions, such as tables, cutlery, musical organs, and livestock. Other images depict the rolling hills and valleys throughout the county in an effort to record the vast landscape of the wild prairie (Figure 22).

According to Nebraska State Historical Society historian John Carter, author of *Solomon D. Butcher: Photographing the American Dream*, Butcher's work consisted of much more than portraits. Butcher documented the settlers' way of life by photographing the entire home, immediate environs, and valued possessions. His subjects face the camera directly and pose either sitting or standing (Figure 23). Most of Butcher's photographs do not capture an event or special occasion, but show families. Each photo provides primary evidence of the components of pioneer life, including the house, land, clothes, and objects that are displayed. Together, they render a compelling visual narrative of pioneer life.

A severe drought and nationwide depression in the 1890s forced Butcher to stop photographing in 1892, since residents no longer had the money to support his activities. A fire in Butcher's home in 1899 destroyed most of his photographs and pioneer biographies. Fortunately his glass plate negatives were stored in his granary and survived undamaged.⁹² In 1901, the *Pioneer History of Custer County and Short Sketches of Early Days in Nebraska* was published with the financial help of Ephraim Finch, a wealthy local rancher. The first edition of one thousand copies sold before delivery.⁹³

⁹² Carter, *Solomon D. Butcher: Photographing the American Dream*, 5-6.

⁹³ Carter, "Solomon Butcher's Pioneers," 47.



Figure 22. Butcher landscape photograph, circa 1901



Figure 23. Typical Butcher photograph showing family posing in front of sod house, circa 1887

The *Pioneer History* ran more than 400 pages and contained 80 reminiscences, illustrated with Butcher's photographs. His pictures staged a story with people in the foreground, soil, house, horizon and blank western sky, and from a portion of these stories, we can derive the built environment of this period.⁹⁴ The pictures deal with a state of existence and the sod house served as a mere studio backdrop.

The success of Butcher's *Pioneer History* inspired him to expand his efforts to surrounding counties in Nebraska, but he did not produce biographical histories similar to Custer County due to limited financial resources. In 1902, Butcher established a studio in Kearney, Nebraska. At this time he had expanded his practice to include work in other states such as Wyoming, Utah, and Colorado. Butcher had an interest in sod houses and in 1904 he published *Sod Houses of the Great American Plains*. The book was the idea of an attorney who wanted to use Butcher's photographs and sketches in a booklet to promote land sales in Nebraska. The two men even went to the Louisiana Purchase Exposition in St. Louis to attract buyers, but ultimately the plan failed. The booklet was later combined with the *Pioneer History* to provide a total of nearly 300 photographs.

During his career, Butcher photographed almost universally on six-and-one-half inch by eight-and-one-half-inch glass plate negatives. As his collection grew, the weight and volume of the plates became a burden during his frequent travels and he petitioned the Nebraska State Historical Society to purchase his negatives. In late 1911, Butcher and Addison Sheldon, head of the Legislative Reference Bureau of the Nebraska State Historical Society, signed an agreement for the purchase of the negatives. Unfortunately, in 1913 the legislature only approved funds for half of the agreed upon sum. In 1916, the

⁹⁴ J. Gifford and Melvin B. Shestak, "Solomon Butcher: A Photographer of the Great Plains Who Sought to Capture the Vanishing Pioneer," *American Photographer* Vol. 4, no. 1 (January 1980): 62.

Nebraska State Historical Society hired Solomon Butcher to document and annotate his collection. From memory, he added names and locations to the photos and wrote historical vignettes not included in his *Pioneer History*.⁹⁵ Butcher died on May 18, 1927 in Greeley, Colorado. At the time of his death, he had grown discouraged that his collection of photographs had not been recognized for its historical and artistic value.

Several of Butcher's pictures had been published outside of his book before his death, and for a long time only a few were credited to him. But slowly, the popularity of his unique images spread, and with this recognition, their significance emerged to hail Butcher as one of the most famed photographers of the American West. His photos are used in history texts, books, films, and exhibits to illustrate the families, homesteads, and landscapes of the pioneer era.

PHOTOGRAPH ANALYSIS

Today, the Solomon D. Butcher Collection comprises nearly 3,500 glass plate negatives. Nearly 1,500 were taken in Custer County and more than 1,000 show sod houses. While the setting, display of possessions, and poses of his subjects provide important information on the settlement of the West, the sod houses in his pictures are invaluable to the understanding of this building type in the late nineteenth and early twentieth century. The sod house is rarely the focus of any of his photographs, but one can derive a wealth of information from any one picture where the house is in clear view.

Taken between 1886 and 1912, Butcher's photos only contribute one piece of the puzzle in trying to develop a sod house typology. They illustrate the first generation of sod homes in Custer County. Since there were no construction plans or building permits, his pictures show what settlers were actually building when they first arrived on

⁹⁵ Carter, *Solomon D. Butcher: Photographing the American Dream*, 8-9.

the Plains. These were the sod houses that represent the wide variety of resources, skills, and design by a mixed group of people with different backgrounds. It is doubtful that any of the houses shown in Butcher's pictures still remain, but even if they did, they would likely look vastly different due to technological advancement and common maintenance over time. An evolution of form is difficult to determine purely from the Butcher Collection because most of his pictures in Custer County were taken prior to 1900, and sod construction continued in the county until the mid-1930s at the earliest. Therefore, Butcher's sod houses are the examples in their raw form, and from them one can analyze the predominant features, forms, and characteristics involved the design of these early structures.

In *Sod Walls*, Roger Welsch examined Custer County's sod houses in the Butcher Collection. Based on a total of 736 photographs of sod houses in Custer County, he quantified certain features of the homes such as plan, roof form, windows, doors, and additions.⁹⁶ It must be noted that Welsch conducted his study of the Butcher Collection in the mid 1960s, which was shortly before the collection gained its fame and further study and possibly explains some of the holes in Welsch's results. But since the Butcher Collection is not the focus of this thesis, it was not necessary to recreate Welsch's study for purposes of a thorough analysis. My analysis simply uses Welsch's results in addition to my own observations to note what can be learned about sod houses from Butcher's photographs.

The plan of a house is important in evaluating its form. Butcher's photos show the sod core plan, before additions and alterations changed the layout of the house.

⁹⁶ Welsch, *Sod Walls: The Story of the Nebraska Sod House*, 58.

Welsch states that most sod houses were simply rectangular in plan.⁹⁷ He does not give a sum for the number of rectangular houses found out of the 736 photos, but a general observation concurs with Welsch's statement. It appears that the majority of sod houses are rectangular, between one and three rooms wide, and one to two rooms deep. Square plans, L-plans, and T-plans were also built, the latter two of which do not appear often in Butcher's photos. Welsch notes that there are 57 L-plan houses and only three T-plan houses in Butcher's Collection, but does not give a number for square plan houses.⁹⁸ Sod houses could also be round in plan, as one of Butcher's photos reveal of a house in Cherry County, Nebraska. However, this appears to be the only round sod house ever identified in the United States (Figure 24).

There is not much variation in height among the sod houses in Butcher's pictures. A great majority of the dwellings are one story. Some are less than one-story as they are partially excavated below grade. There are a few one-and-one-half story houses, but the half-story is constructed of wood frame in all of the pictures. The most famous photograph in the collection is an example of a two-story sod house (Figure 25). Located in northeast Custer County, the Isadore Haumont Sod House was built in 1884 and consisted of two full-stories of sod walls complete with rounded turrets at the corners. Two-story sod houses were not unheard of, but very rarely seen due to the exceptional skill required to build them. The Haumont House is believed to be the only two-story sod house ever built in Custer County.

Wall construction displays the greatest visual variety in craftsmanship among sod house builders. Most pioneers had no idea how to build in sod when they arrived on the

⁹⁷ Welsch, *Sod Walls: The Story of the Nebraska Sod House*, 34.

⁹⁸ Welsch, *Sod Walls: The Story of the Nebraska Sod House*, 35.



Common rectangular plan, circa 1888



Rare example of a round plan sod house in Cherry County, circa 1904

Figure 24. Various plans found in Butcher Collection



Figure 25. Rare example of a two-story sod house, circa 1886

prairie and were in desperate need of shelter, but a few either came with building skills, such as Isadore Haumont, received assistance from neighbors who had already learned the methods, or merely possessed the talent for building with earth. Butcher's pictures show the spectrum of difficulty in laying sod blocks. Some houses show sharply cut blocks laid evenly with clean pointed corners and no evidence of any bowing or warping. This characteristic, however, may be attributed to a spade that was often used to shave down the exterior walls to get them clean and sharp looking. Other houses show blocks that are evenly laid, but the corners are slightly rounded, the long grass is exposed beneath each sod block, and there are slight cracks beginning to develop in parts of the wall. At the furthest end of the spectrum are the houses that appear to be rather poorly constructed. Settling was a major problem when laying sod walls, and a builder could never predict which way the ground might move. Many houses in Butcher's Collection show unevenly laid rows, projecting sod blocks that have shifted, large cracks and bulges, especially above window and door openings, and bowing walls. In one example from 1888, a family is using logs to brace the walls like a buttress (Figure 26).

Battered walls and plastered walls were other features found on the sod houses in Butcher's Collection. Not every builder battered his walls, and it is unknown why some chose to thicken the wall at the bottom and taper towards the top, while others did not. Battering was helpful especially if one chose to build thicker sod walls, but it was not always necessary if the walls were carefully laid. Butcher's photos show that some settlers built their walls with very pronounced battering, where a heavily angled profile is visible, and others chose a very slight angle where it is difficult to determine if the walls were battered at all. Welsch notes that he found battered walls in 27 of Butcher's photos



Figure 26. Spectrum of craftsmanship displayed in photograph collection, circa 1886 and 1888 respectively

in Custer County.⁹⁹ Exterior plastering was another feature found in the Butcher Collection. Builders frequently used interior plastering but exterior plastering was a feature more common in later generations of sod houses. Butcher's photographs show that this practice was used as early as the mid-1880s. Fully plastered walls were found in only a few photos, and each showed large portions that had eroded away. Most of the examples showed only small sections of the house that had been plastered such as a thin strip below the eaves, the corner of the house, or the exterior beveling of the window openings if the windows were recessed into the wall (Figure 27). The plaster helped hold the sod in place and it can be inferred that these selective parts of the house were chosen because they were either the most unstable or most drafty. Welsch does not quantify the number of photos with exterior plastering. He only notes that 265 houses show evidence of interior plaster.¹⁰⁰

Due to the austere simplicity of sod houses, windows and doors are an important characteristic. They were expensive and sometimes difficult to construct, thus making it likely that the more windows and doors a house had, the more wealthy the family. Windows and doors also allude to the interior plan of a house, and they give these simple structures a degree of character. The placement of windows and doors differ based on the plan of the house. Since so many of Butcher's photos show houses with a rectangular plan, window and door placement can be examined a little more closely. Overall, it appears that many of these houses either had a single-pen (one room) or a hall and parlor (two room) plan. This can be deduced from the placement of windows on each of the shorter elevations (the side elevations). The longer elevation of the house (the front

⁹⁹ Welsch, *Sod Walls: The Story of the Nebraska Sod House*, 45.

¹⁰⁰ Welsch, *Sod Walls: The Story of the Nebraska Sod House*, 94.



Figure 27. Photograph showing plaster on portions of exterior walls, circa 1890

elevation) usually contained a centrally placed door that was flanked by a window on either side (Figure 28). Other rectangular houses placed the doors on the shorter elevations and windows on the longer elevations, while some houses did not have windows at all on any of the elevations. It is possible that these houses also had single-pen or hall-and-parlor plans, but it cannot be determined. There are also a number of photographs that show houses with a possible double-pen plan. These houses show two entrances, sometimes side by side, on the longer elevation, and windows placed on the remaining elevations (Figure 29).

Roger Welsch made several calculations regarding the placement of doors on the houses. He used the form of a rectangular plan house with a gable roof to make his assessments. 71 houses placed the door in the center of the gable end of the house. He notes that this was less efficient since the opening removed a large portion of the supporting wall under the gable peak where weight and stress were the greatest. 58 houses put the door in the gable end, but placed it to one side instead of centering it. 385 houses had doors centered on the eave side of the house and 91 houses placed doors to one side of the eave wall. 256 houses placed doors on both the eave and gable ends.¹⁰¹ Welsch's calculations support the conclusion that most houses had a single-pen or hall-and-parlor plan based on a centrally placed door on the front elevation, although his calculations also show that many builders constructed multiple entrances.

The types of doors are difficult to see in many of Butcher's pictures since they are recessed so deeply into the entrance or were left open during the time that the photograph was taken, that is difficult to determine if the sod house had a door at all. Some photos show screen doors, while other show doors made of three or four vertical planks joined

¹⁰¹ Welsch, *Sod Walls: The Story of the Nebraska Sod House*, 85.



Figure 28. Single-pen or hall and parlor plan, circa 1886



Figure 29. Possible double-pen plan, circa 1886

by a crossbar. Only one Butcher photograph shows a door with a window in it.¹⁰² The types of windows, nonetheless, are much easier to see in Butcher's pictures. Double-hung windows are seen in nearly all of Butcher's photographs. The light configurations vary between two-over-two, four-over-four, and six-over-six. Welsch notes that 40 houses had window frames placed side by side.¹⁰³ Most of the windows were set nearly flush with the exterior of the walls. Several houses slightly recessed their windows within the sod walls, while other fully recessed the windows to be flush with the interior walls. These two features give the house a very different character, because recessed windows usually had objects placed in the exterior windows wells, such as flower boxes, and also alluded to the depth of the walls. Windows placed flush with the exterior gave the house a much more conventional appearance, where if it was to be completely plastered, it may even be difficult to tell if it was actually a sod house. Welsch does not quantify the comparison between these two features.

In addition to the plan, the roof is among the most character defining features of a sod house. As an important element contributing to the durability of the house, the form and sheathing materials of the roof show the variation in design and craftsmanship offered to a builder. A very large majority of Butcher's photographs showed gable roofs and Welsch's calculations support this observation by noting 564 gable roofs. The construction differences are also relatively apparent from the photographs. The gables were constructed with a number of beams set into the sod walls, which were then topped with a sheathing material. Ridge beams could be counted in 214 photographs. 51 houses contained one beam, 103 houses had three beams, 55 houses had five beams, and five

¹⁰² Welsch, *Sod Walls: The Story of the Nebraska Sod House*, 85.

¹⁰³ Welsch, *Sod Walls: The Story of the Nebraska Sod House*, 80.

houses had seven beams.¹⁰⁴ Obviously, three beam construction was the most common according to Butcher's photographs, but this method was more common for smaller houses, which did not require a larger roof.

Other roof forms found in the Butcher Collection were hipped roofs and pyramid roofs. There were other types of roofs constructed on sod houses, such as the rounded roof and the shed roof, but there are no photographs of these forms in the collection. Welsch notes that 139 houses had hipped roofs and four houses had pyramid roofs.¹⁰⁵ Since hipped and pyramid roofs required greater amounts of lumber and skill to construct, pioneers who typically lacked the finances in order to purchase the wood did not build them as often.

The sheathing materials of the houses built in Butcher's photographs vary between only a few types. Oddly enough, as expensive as lumber was during this period, a majority of the houses were sheathed with lumber, according to Welsch's calculation of 501 houses.¹⁰⁶ However, Welsch only notes that the houses were sheathed with lumber and does not differentiate between lumber shingles or lumber planks, which were often used beneath all types of sheathing whether it be sod, wood shingles, or metal. My observations reveal that a majority of the roofs were constructed with lumber planks topped with sod. Some houses contain wood shingle roofs, and it appears that many of the hip roofs are sheathed with wood shingles. A few houses do not contain planks at all, but of the ones that do, the planks are primarily placed vertically extending from the ridge beam to the top plate of the wall. The sod atop the planks is generally placed grass side up and varies between being rolled out like sheets or lapped like shingles (Figure 30).

¹⁰⁴ Welsch, *Sod Walls: The Story of the Nebraska Sod House*, 55.

¹⁰⁵ Welsch, *Sod Walls: The Story of the Nebraska Sod House*, 58-63.

¹⁰⁶ Welsch, *Sod Walls: The Story of the Nebraska Sod House*, 70.



Figure 30. Three beam gable roof using a brush and pole method on the left and using vertically placed wood planks on the right, circa 1886

Butcher's photos also show a few examples of brush and pole roofs, which are described in Chapter 3. This roofing method is more commonly found on houses that display a lower quality of craftsmanship, such as bowing walls and unevenly placed rafter poles.

Since the houses in Butcher's photograph collection represent the first generation of sod homes built on the prairie in Custer County, additions are not commonly expected. But Welsch notes that 242 houses contained additions.¹⁰⁷ Welsch, however, does not distinguish whether the additions were constructed of sod or frame. It appears that most of the additions were constructed of sod. They were either extensions of the original wall and roof planes, such as the extension of a gable, or they were small lean-to additions constructed on the sides or rear of the house. Some pictures even show a full one or two story frame house added onto the initial sod dwelling (Figure 31). These photographs show that a family was not always eager to demolish their sod house once they could afford to build one of frame.

Butcher's photographs are remarkably helpful in determining predominant features and characteristics in sod building, but they do not provide information such as size and floor plan, which are essential to the further understanding of this building type. They also do not chronicle what happened to these buildings over the next one hundred years, as families acquired wealth and either modified or destroyed their initial homestead. Butcher's legacy continues to be analyzed and his photographs remain the prized among the permanent collections of the Nebraska State Historical Society, the Custer County Historical Society, and the individual families who retain original prints.

¹⁰⁷ Welsch, *Sod Walls: The Story of the Nebraska Sod House*, 91.



Figure 31. Two-story frame dwelling added to initial sod house, circa 1888

CHAPTER 5. INTENSIVE SURVEY RESULTS

“SOD HOUSE CAPITAL OF THE WORLD”

Custer County was officially designated as the “Sod House Capital of the World” in October 1966 by a historical marker erected in Broken Bow by the Nebraska State Historical Society. The first settlers in Custer County in 1873 built in sod, and by the 1880s the sod house tradition was firmly established in the county. By 1890, the population of Custer County had increased to nearly ten times its size a decade before, and it is believed that a family lived on nearly every quarter section of the county from the 1890s through the 1920s. Older residents confirm in local histories that sod was by far the predominant building material on Custer County farmsteads during this period, even though popular literature claims that the building type died out near the turn of the century. Indeed in Custer County the sod house tradition carried well into the 1930s, although lacking the same momentum that it had fifty years prior. Several Nebraska newspapers described the pioneer spirit of Custer County residents who flaunted the hard times of the Depression by building a sod house.¹⁰⁸

It is estimated that nearly 8,000 sod houses were constructed in the county from 1870 to 1940.¹⁰⁹ Since sod was a prevalent building material in the county during this period, local historian Philip Gardner believes that more homes of sod were erected in Custer County than any other place in the country or even the world – hence the moniker given to the county and memorialized in 1966. While this statement is plausible, it has

¹⁰⁸ “Hard Hit Custerites Prove Pioneer Spirit Still Dominant,” *Custer County Chief*, 2 November 1933.

¹⁰⁹ Karen Wittwer, “Couples Call Sod Houses Homes,” *Grand Island Independent Newspaper*, 19 January 1980.

never been researched or confirmed. Custer County's association with sod comes largely from its extensive photographic history documented by Solomon Butcher. From his photographs simple and elaborate examples of sod houses became popular in history textbooks and films about the American West, which reveal the influence Custer County has had in illustrating the frontier. Unsurprisingly, the term "sod house" has grown almost synonymous with "Solomon Butcher," and with a little further research, the name "Custer County" turns up recurrently.

But what ever happened to the sod houses in Custer County that were so popular to build and that Butcher so diligently photographed? If they once dotted every quarter section of the very large county, surely there must be at least several still standing. Unfortunately, Custer County's sod houses have suffered much the same fate as sod houses in the rest of the country and are disappearing just as fast. The county holds great pride in the houses that remain on their land, but in 2007 there was still no accurate count or map detailing the locations of remaining sod houses.

Countywide historic building surveys, initiated by the Nebraska State Historic Preservation Office, have been conducted in Nebraska since the 1970s and are updated approximately every 30 years. Merely reconnaissance, these surveys identify and document properties retaining historic integrity, but surveyors only include properties that are visible from the public right-of-way, since permission is required to enter private property. Most sod houses predate the construction of roads in the county and therefore many of them are located beyond a visible distance from the public right-of-way. As a result, the reconnaissance surveys in Custer County did not yield a high number of extant sod houses and a complete inventory was never achieved.

Two reconnaissance surveys have been conducted in Custer County, one in 1976 and another in 2005 by the architecture/engineering firm Mead & Hunt, Inc. I was part of the Mead & Hunt team that conducted the second reconnaissance survey from August to October 2005. During this effort, properties were documented on U.S. Geological Survey maps, photographed, and entered into the larger Nebraska Historic Buildings Survey database. One property, the Dowse Sod House, was already listed in the National Register of Historic Places. The 1976 survey identified 12 sod houses, including the Dowse Sod House. The 2005 survey resurveyed five of these properties, but did not resurvey the others because their existence could either not be confirmed from the public right-of-way or they were no longer extant. The 2005 survey discovered an additional three sod houses that were not revealed during the 1976 survey. Thus when I prepared for survey in 2007, the locations of only eight extant sod houses in Custer County were confirmed.

Building upon the previous survey efforts undertaken by the Nebraska State Historical Society in 1976 and Mead & Hunt in 2005, I conducted an intensive level survey in July 2007. My objective was to gain an accurate inventory and more fully document the surviving examples of sod houses in Custer County. Properties meeting survey criteria were visited, documented, and researched. The remainder of this chapter outlines my methodology, highlights representative examples of Custer County sod houses found in the field, and analyzes the results of my survey.

SURVEY METHODOLOGY

In preparation for the survey, I investigated information about the history, culture, and settlement of Custer County at multiple repositories including the Nebraska State

Historical Society Library/Archives, Nebraska State Historic Preservation Office, the Custer County Historical Society, and the Custer County Courthouse. My site-specific histories largely come from the archives at the Custer County Historical Society and resident interviews. I collected information on previously surveyed properties from the Nebraska State Historic Preservation Office and contacted the owners to request permission to enter the property and examine the resource. I also issued several press releases to local newspapers within Custer County in an attempt to locate any resources that were missed during the 2005 study and to solicit interviews with residents that wanted to share their experiences with sod houses in the county.

The survey area included all properties within the boundaries of Custer County. The survey verified the location and evaluated the status of previously surveyed properties as well as identified additional properties. Properties that met the survey criteria were documented with digital photographs, a physical description, a geographic location that is plotted on a survey map, and a measured floor plan. Conditions and integrity of each previously surveyed and newly identified property were also examined.

Since there are varying stages of sod ruins in Custer County, identified properties needed to have some current evidence of sod construction in order to be surveyed. My survey criteria required that the resource must include at least one partial sod wall still standing. Since many sod houses were covered in concrete or stucco, if the plaster material showed the imprint of sod blocks and a floor plan could be made out, these properties were included in the survey. However, if the house was completely demolished and all that remained was a mound of dirt, the geographical location was noted and a photograph taken, but no further documentation efforts were completed.

A large attempt was made to document all remaining examples of sod houses in Custer County, fully standing or even with a partial wall standing. However, even though several previous reconnaissance surveys were conducted and residents notified me of other sod house locations, it was not possible to locate every remaining resource within the county. I am quite certain that there are more sod houses or partial sod walls that exist in Custer County, but they are either unknown to the property owner, or kept secret for reasons of privacy or threats of vandalism. There was only one sod house where I was denied permission to enter the property. This house was included in the survey since it was known that all four walls are still standing. But since this resource was not visible from the public right-of-way, it was not documented by any means other than general location information and historical research.

Upon conclusion of my fieldwork, I attempted to gather historical information on each surveyed property. Specific site files were gathered from the Nebraska State Historic Preservation Office, a deed search was conducted, current or previous owners were contacted for information, and the archives at the Custer County Historical Society were explored for any documents pertaining to the property such as plat maps, owner obituaries, and newspaper articles. Due to the difficulty in pinpointing the location of some surveyed properties on a map, the resulting deed searches may not always be accurate for each property. An attempt was made to reconcile a known historic owner of the house with a current owner in the deed search, but my findings were not always successful since the landowner of some properties was different from the actual inhabitant of the sod house.

Estimated construction dates for each surveyed property are based on deed records or owner information if available. Deed research provided the filing date of the initial claim for each quarter section of land. These filing dates, usually followed by a patent, were used as the circa date for each sod houses, even though it is known that the sod houses standing today were not always the same sod houses that were built by the initial homesteader. Another date was used if provided by some other form of research such as interviews, obituaries, local histories, or newspaper articles. This method of dating seemed the most plausible given the lack of historical documentation on these properties.

SURVEY RESULTS

In July 2007, I visited a total of 26 sites in Custer County that either had confirmed sod houses or yielded the potential of partial sod walls according to discussions with the property owner. 22 properties met my survey criteria, but only 21 properties were documented with photos and a measured floor plan in the field since one property was inaccessible. Five properties were not included in the survey because they were either completely demolished and lacked an identifiable floor plan or they were not in fact a sod house. One previously surveyed property had been demolished since 2005, but the remaining seven were resurveyed in 2007. One previously surveyed property from 1976 that was not resurveyed in 2005 due to accessibility issues, was included in the 2007 survey, but remained inaccessible due to the property owner's request (Table 1).

Since a total of 22 properties were surveyed, it is not reasonable to describe each one. Furthermore, there was a varying level of historical research available on individual properties. For a majority of the sites, it was only possible to trace the ownership through

Table 1. Custer County Sod Houses as Documented by Each Survey

NEHBS No./ Field No.	Current Status (2007)	1976 Survey	2005 Survey	2007 Survey/ Field No.
CU00-005	Nonextant	X	NO	NO
CU00-021	Extant	X	X	X (Sod-15)
CU00-023	Extant	X	X	X (Sod-16)
CU00-040	Nonextant	X	NO	NO
CU00-047	Nonextant	NO	NO	NO
CU00-048	Nonextant	X	NO	NO
CU00-049	Extant	X	NO	X (Sod-08)
CU00-051	Extant	X	X	X (Sod-11)
CU00-052	Nonextant	X	X	NO
CU00-053	Nonextant	X	NO	NO
CU00-054	Nonextant	X	NO	NO
CU00-055	Extant	X	X	X (Sod-10)
CU00-154	Extant	NO	X	X (Sod-07)
CU00-193	Extant	NO	X	X (Sod-01)
CU00-211	Extant	NO	X	X (Sod-17)
Sod – 02	Extant	NO	NO	X
Sod – 03	Extant	NO	NO	X
Sod – 04	Extant	NO	NO	X
Sod – 05	Extant	NO	NO	X
Sod – 06	Extant	NO	NO	X
Sod – 09	Extant	NO	NO	X
Sod – 12	Extant	NO	NO	X
Sod – 13	Extant	NO	NO	X
Sod – 14	Extant	NO	NO	X
Sod – 18	Extant	NO	NO	X
Sod – 19	Extant	NO	NO	X
Sod – 20	Extant	NO	NO	X
Sod – 21	Extant	NO	NO	X
Sod – 22	Extant	NO	NO	X

deed research. A handful of other properties had minimal amounts of background information on the owners, and sometimes the sod house itself. While each house that was discovered had different physical characteristics, there were some similarities among them. The similarities of the forms will be discussed in Chapter 6, but a spectrum of representative examples with the most background information available will be described below in chronological order by construction date.

SOD – 02: DUGOUT

One potential dugout was identified approximately six miles northeast of Arnold in the northwest quarter of Section 8, Township 17 North, Range 24 West.¹¹⁰ The site's exact location is questionable since the local guide was unsure as to where it was precisely located on the map. Positioned roughly 1.5 miles northeast of Powell Canyon, the site is only accessible by foot since it is surrounded by large grass covered Sand Hills and waist high prairie grass. The vacant dugout is excavated out of the side of a sandy hill and is roughly 10'-4" tall and 13'-6" long. Serving as the entrance to the dugout, a small arched tunnel opening faces east and measures 2'-8" tall by 4'-6" wide (Figure 32). One has to slide down a mound of eroded dirt about three feet to enter the cavity.

The interior of the dugout is small and consists of a central rectangular room flanked by four small alcoves that extend deeper into the cavern (Figure 33). The central room measures 14'-2" long and 5'-0" wide, and the alcoves measure about 2'-6" wide but vary in length from about 5' to 10'. The central room is tall enough to stand up in, measuring about 7'-1" in height, and contains an arched ceiling. The alcoves also have arched ceilings, but only measure 28" in height. There is no framing of any kind within

¹¹⁰ A dugout was commonly the first form of shelter constructed and consisted of a structure that was built below grade or into the side of the hill. Dugouts must be distinguished from sod houses, because they do not contain four erect sod walls. The dugout is discussed as a type of sod house in Chapter 6.

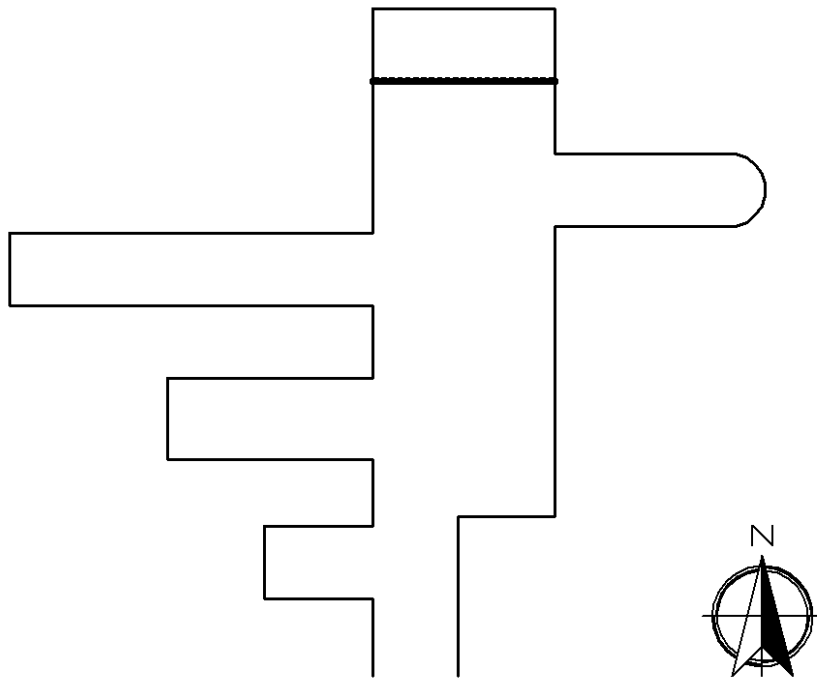


View looking west



Interior view looking east towards the entrance

Figure 32. Sod – 02: Dugout, ca. 1887



Scale: $\frac{3}{16}'' = 1'-0''$

Figure 33. Dugout floor plan

the dugout, and it does not contain any windows or doors. There is a 32” tall bench at the rear of the central room. The most interesting feature of this site is the plastered interior walls. Containing a high sand content, every wall of the dugout is plastered, including the ceilings and the alcoves. Nearly every square inch is inscribed with graffiti dating back to 1918.

If the location according to the guide is accurate, the deed record showed that Robert Shaw filed a Timber Claim on this property in 1895, and received the patent to the land in 1905. The property remained in the Shaw family until about 1957. However, the local guide mentioned that the “cave” was a popular but secret local attraction, which is evident from the graffiti on the interior. Based on this information, it is possible that this dugout is the Pine Canyon Cave mentioned in Norene Mills book *One Hundred Years on the South Loup: A History of the Arnold Community from 1883-1983*.¹¹¹ Located approximately six miles northeast of Arnold and 13 miles northwest of Callaway, the book talks about a cave located in Pine Canyon. Although nearby Powell Canyon is marked on the map, Pine Canyon is not. The description of the cave, however, is very similar to this dugout. The entrance is in the fold of a canyon wall gully, rain has eroded part of the entrance, and many of the inscriptions are missing. The book mentions a missing inscription that noted that a George Troyer discovered the cave on December 13, 1887. George Troyer did not build the dugout, but 1887 can be used as an estimated date of construction for this site; however, it is highly likely that the dugout was built much earlier.

¹¹¹ Norene H. Mills, *One Hundred Years on the South Loup: A History of the Arnold Community from 1883-1983* (Callaway, Nebr.: Loup Valley Queen, 1983), 286.

Dugouts are a very rare find. Not only are they difficult to locate, but most do not exist anymore. They were typically the first form of shelter constructed after a homestead claim was filed. Once a family was able to build their sod house, the dugout was either filled in or used as a root cellar. This dugout is exceptional due to its interior plasterwork and its relatively good condition. The entrance has filled with soil making the opening small and large portions of plaster are missing, but the interior walls are still fairly sharp.

SOD – 05: HERMAN SWANSON SOD HOUSE/SAMUEL FOSTER SOD HOUSE

The Herman Swanson/Samuel Foster Sod House is located nine miles east of Arnold on the northwest quarter of Section 24, Township 17 North, Range 24 West. The house is set in a thick grove of pine and deciduous trees atop a hill that slopes gently to the south. The house is completely obscured from the public right-of-way by a shelterbelt on the north. The one-story house is currently a T-plan consisting of a sod rectangular hipped roof structure joined with a sod square gabled wing on the east elevation. The sod walls have been clad in stucco and there are no frame additions on this dwelling.

The Swanson/Foster Sod House is composed of a circa 1892 gabled sod core with a circa 1902 larger hipped roof sod addition. The original gabled sod house was square in plan measuring 18'-3"x 17'-4" with 24" thick walls that extended up to the gable end. The house was set about 18" below grade. The grass was completely shorn off the blocks that measure 24" long by 13" wide by 3-1/2" thick and were laid in a one course common bond. The original windows have been replaced with one-over-one double-hung wood sashes, but the doors are original. The north and south elevations of the house featured

one centrally placed window that was recessed to be flush with the interior wall plane. The windows were beveled on the exterior with angled corners instead of being rounded like many other sod houses. The east and west elevation both contained one entrance. The east elevation entrance is missing its door. The west elevation entrance features a wood vertical board door placed flush with the exterior wall plane and beveled with rounded corners on the interior.

The hipped roof sod addition was rectangular in plan measuring 20'-3"x 30'-0" with battered walls ranging from 25" thick at the floor to 23" thick at the eaves. The house was not set below grade. The sod blocks measured 21" long by 10" wide and 4" thick. The grass was cut short to about 1/2" and the blocks were laid grass side down also with a one course common bond. The windows appear to be original one-over-one double-hung wood sash, but they are slightly narrower than the windows on the gabled portion of the house. Just like the gabled portion of the house, every window is recessed to be flush with the interior wall plane and contains angled bevels on the exterior. The one entrance door is also original. The north elevation contains only one window, while the west elevation features two that are evenly spaced. The south elevation displays one window and one entrance that contains a recessed four-paneled wood door with a historic screen door. The west elevation includes only the entrance that leads from the gabled portion of the house (Figure 34).

Both roofs are original to each portion of the house. The gabled portion of the house used a three beam construction method with frameless sheathing for the roof. Composed of sawn lumber, 2"x 12" beams, running east to west, were set directly into the sod, and hewn wood planks were placed vertically atop the beams extending from the

central ridge beam to the eaves. Ceiling joists running north to south were added later and notched into the ridge beams. Composed of sawn lumber, the roof on the hipped portion of the house used rafters that were set into the sod walls and extended to the ridge beams. Sawn wood planks were then placed horizontally atop the rafters that extended about 1' beyond the sod walls. The original roofing material of both roofs is unknown and each is currently sheathed with corrugated metal.

The interior of the gabled portion consisted of only one room, while the interior of the hipped roof portion was divided into three rooms (Figures 35 and 36). Sawn lumber partitions separated the three rooms in the hipped portion, and a sod wall separated the hipped portion from the gabled portion. All interior walls were plastered and both floors consisted of 3-1/2" wood tongue-and-groove boards. The house was updated with electricity at one time, but plumbing was never installed.

Herman Swanson filed a Timber Claim on the northwest quarter of Section 24 in 1892. It was at this time that the gabled portion of the house was built. In 1896, he sold the property to W.E. Warren, who sold the property to Samuel Foster in 1902. The claim was finally proved in 1910 and the patent to the land was issued to Herman Swanson, but Foster was the owner at the time. Local residents call this sod house the Foster Residence, and it is speculated that Samuel Foster built the hipped sod addition sometime around 1902 when he acquired the land. Foster remained on the property until 1928, when he sold the land, which had now grown to 240 acres, to Clemmie Foster. She remained on the property until 1964 when it was sold to Mabel Benefiel. Local residents claim the house was inhabited until the 1980s. The Beshaler's bought the abandoned property in 1996.



Gabled roof portion, view looking west



Hipped roof portion, view looking north

Figure 34. Sod – 05: Herman Swanson/Samuel Foster Sod House, ca. 1892/ca. 1902

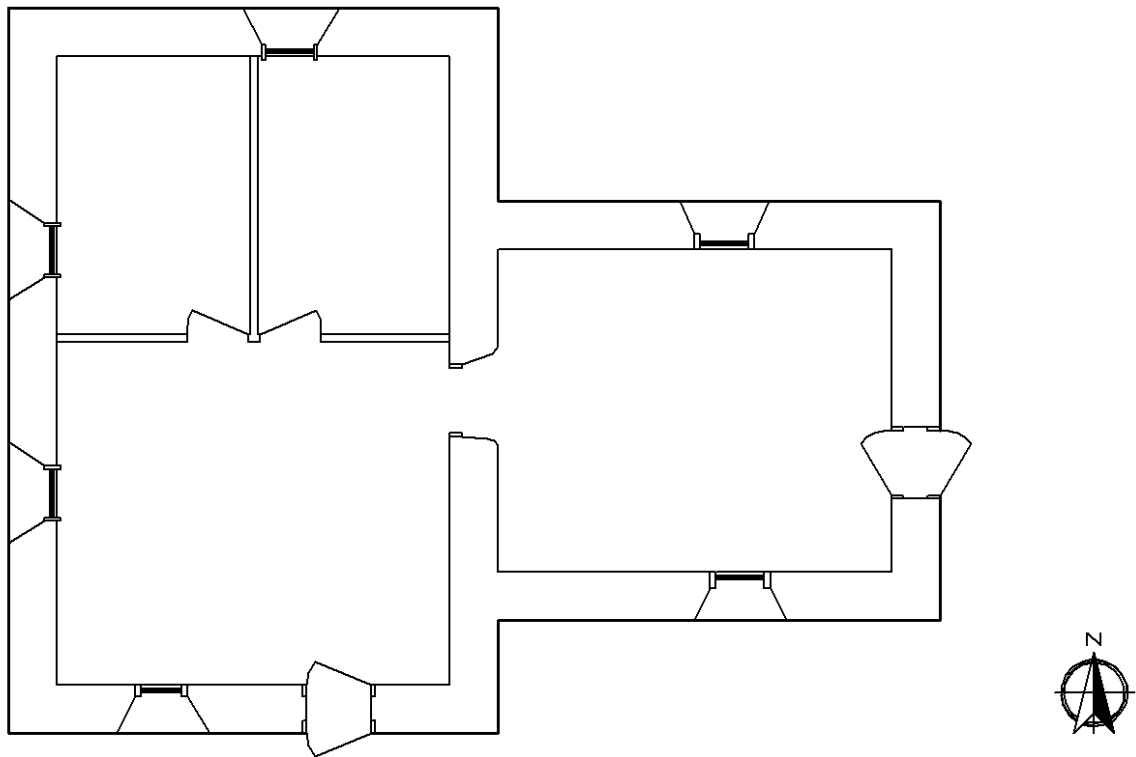


Interior of gable roof portion, view looking west towards hipped portion



Interior of hipped roof portion, view looking northeast

Figure 35. Sod – 05: Swanson/Foster Sod House interior



Scale: 1/8" = 1'-0"

Figure 36. Swanson/Foster Sod House floor plan

The Swanson/Foster Sod House illustrates an element in sod construction that was seen on a few examples in Custer County, but multiple examples in the Butcher photograph collection. While sod houses existing today feature frame additions that were necessary to accommodate growing families and changing needs, the sod addition seemed to characterize something different in sod houses. By 1900, lumber in Custer County was readily available, and even though many families were still building in sod, they chose to expand their dwellings with frame construction. The original gabled dwelling on the Swanson property was only one room, small, and although not crude, the house was constructed with the craftsmanship of someone hastily building a shelter. The sod addition was much larger and almost an entirely separate house. The living space was clearly shifted from the gabled portion to the hipped portion, which was built with the details of finer sod craftsmanship. Once covered with stucco on the exterior, one would hardly know that the hipped portion of the house was built of sod, except for the deeply recessed window wells. This feature was clearly mimicked from the original gabled sod house and possibly built for aesthetic purposes of architectural compatibility between the two structures.

The Swanson/Foster Sod House represents an aspect in sod building where the family kept the original claim and added on to it with a larger sod house. Unfortunately, this sod house is in poor condition. The house is heavily overgrown with brush and tree branches are resting on the roof. The exterior stucco is cracked in multiple places and large portions of sod are exposed on the east and south elevations. The exposed sod is eroded and crumbling, resulting in a large hole on the south elevation, which has thrown off the stability of the remaining walls in the hipped portion of the house. Roofing

members appear sound, but are beginning to rot where the sod meets the wood. Although this house is deteriorating rapidly, it is still in good enough condition to be rehabilitated.

SOD – 03: CHARLES CHESLEY SOD HOUSE/NOLAN STEELE SOD HOUSE

The Charles Chesley Sod House/Nolan Steele Sod House is one of two remaining sod houses in Custer County that are still inhabited. The house is located in Powell Canyon nearly six miles east of Arnold on the northwest quarter of Section 21, Township 17 North, Range 24 West. The house is clearly visible from the public right-of-way but does not resemble a sod house. The dwelling is currently a one-story, L-plan building clad in masonite siding. Displaying a hip roof, the house features a non-historic shed roof dormer on the south elevation, which is its primary façade. A historic one-story rectangular addition has been constructed on the northwest corner of the house giving the building its current L-plan.

Charles Chesley built the original sod core in 1892. Rectangular in plan, the house is very large and measures 48'-3"x 30'-3". It is known through a local newspaper article that blue stem grass was used for the sod and the walls measured approximately 36" thick. When Nolan Steele moved into the house in 1902, he covered the exterior with wood clapboard. The interior of the house, however, was inaccessible due to the absence of property owners and no further details were gathered on the interior layout of the dwelling. Since there was no sod exposed on the exterior, block dimensions and coursing could not be verified.

All windows and doors on the house have been downsized and replaced with modern types, but their placement is still likely original based on a historic photograph of the house. All windows are one-over-one aluminum sash. The south elevation, also the

primary façade, contains four windows and an entrance. The entrance contains a modern door covered by a non-historic stoop, and the central two windows are paired. The non-historic dormer is centered above the paired windows. The east elevation contains two evenly spaced windows. The north elevation features two windows and another set of paired windows. The frame addition projects off the northwest corner of the house and obscures part of the north and west elevations. The west elevation likely contained two windows in similar positions as the east elevation (Figures 37 and 38).

From the historic photograph, the roof shape appears to be original. The exact construction method of the steeply pitched hip roof is unknown, but local history states that the lumber for the roof came from the Milldale lumber mill. It is currently sheathed with asphalt shingles, but the historic photograph shows it was covered with wood shingles. The side gable frame addition was added to the northwest corner of the house in 1928. Its construction removed a small portion of the sod wall. The interior of the house was inaccessible, but the local newspaper article mentions that the house included four bedrooms and a small upstairs. The house was updated with electricity and plumbing.

Charles Chesley filed a Timber Claim on the property in 1899, but the sod house was already built on the land. Jared Copeland, Chesley's brother-in-law, began building the large, one-story sod dwelling for the Chesley's in 1892 and finished it three years later. Copeland is known to have helped or directed the construction of several sod houses in the general vicinity of Lower Powell Canyon. The Chesley's sold the property to Samuel Steele in April 1902. However, Nolan and Ella Steel moved into the sod house in November 1902 and established the B (Butler) and S (Steele) Cattle Ranch. Samuel

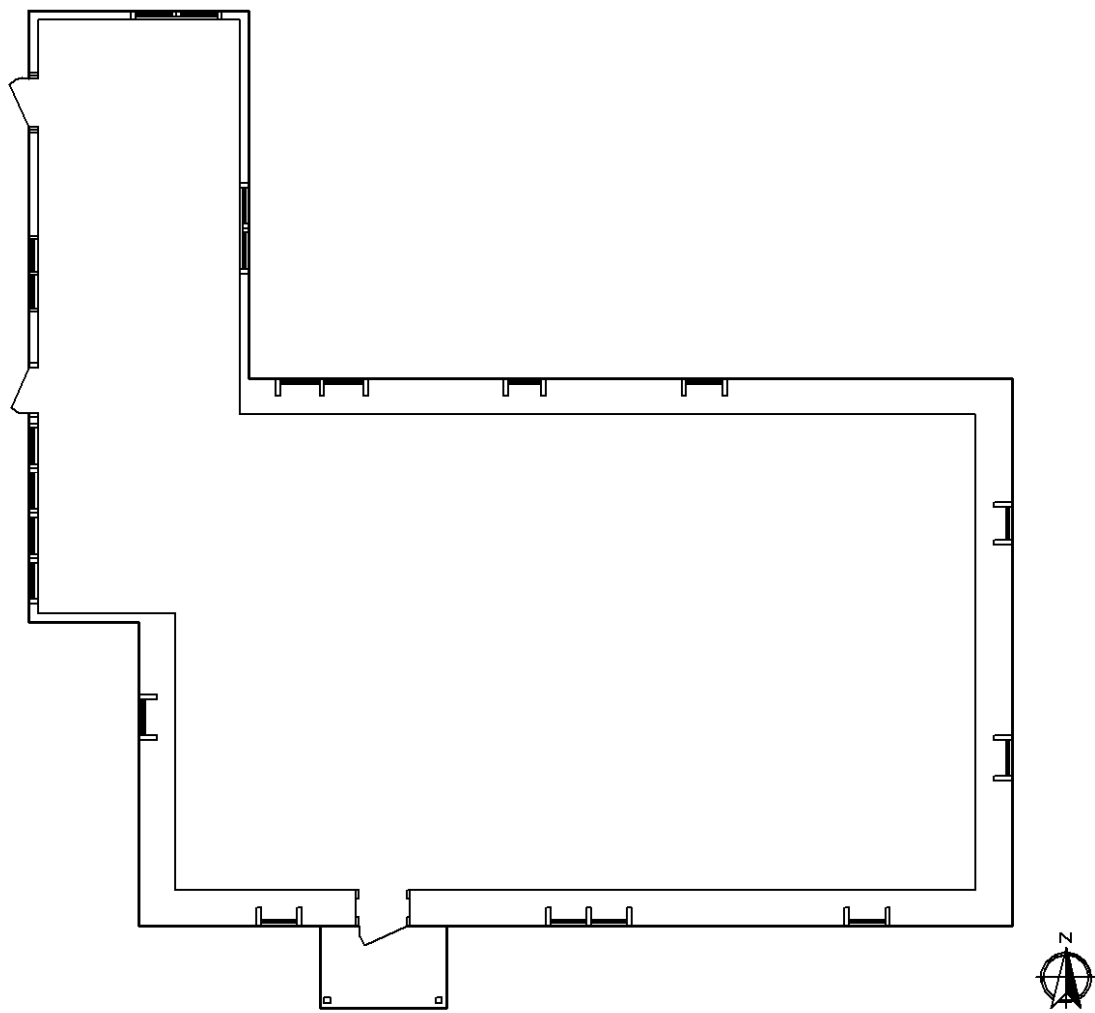


South Elevation, view looking north



Northeast corner, view looking southwest

Figure 37. Sod – 03: Charles Chesley/Nolan Steele Sod House, 1892



Scale: $3/32'' = 1'-0''$

Figure 38. Chesley/Steele floor plan

Steele remained the property owner until Nolan Steele received the deed in 1914. The Steeles raised cattle and hogs and were well respected in the community. The property continues to remain in the Steele family today. Leon Steele is the grandson of Nolan Steele and son of Cecil Steele, who lived in the house until the early 1990s.

The Chesley/Steele Sod House is unique in Custer County. The mere size of the structure, 48'-3"x 30'-3", differentiates it from many of the other sod houses found in the county. This house took an experienced sod builder three years to build. While it is implied that sod houses did not have building plans, this particular sod house appears to have been carefully constructed to ensure its durability. It was constructed as a permanent family homestead and not a temporary structure. Its quality craftsmanship and durability secured its fate with the Steele family and prevented its demise, which so many other sod houses in Custer County faced.

Since the Steele Family has occupied the Chesley/Steele Sod House for most of its lifetime, its history is better documented than most sod houses in Custer County. Although the interior could not be inspected, the exterior of the house remains in good condition. Its integrity may appear compromised due to the exterior alterations, but for a sod house these alterations are necessary to keep the house in good maintenance. Sod houses are not significant for their exterior appearance; they are significant for their method of construction. Without the alterations imposed on the Chesley/Steele Sod House, it may not have been livable according to twentieth century standards and ultimately may not have survived into the twenty-first century.

SOD – 11: WILLIAM R. DOWSE SOD HOUSE

The William R. Dowse Sod House is the most publicized sod resource in Custer County since its restoration in the early 1980s and listing in the National Register in 1987. The house is located nearly three miles south of Comstock on the southwest quarter of Section 22, Township 18 North, Range 17 West. It was built on a flat valley adjacent to a rising hill to the north and about 3/4 of a mile west of the Middle Loup River. The Dowse Sod House is currently a one-story, rectangular building clad in concrete and topped with a hip roof. Historic one-story frame additions have been added to the southeast corner and the west elevation.

William R. Dowse built the original sod core in 1900. L-shaped in plan, the house measures 29'-0"x 31'-3" and its main façade with the projecting ell faces east. Blue stem grass was used for the sod blocks, which were placed grass side down and measure 24" long by 16" wide and 3-1/2" thick. The grass on the underside of the blocks was cut very short and measures only 1/4". The walls were laid with a one course common bond and were battered, ranging from 27" thick at the floor to 20" thick near the eaves.

Since the house was fully restored, none of the windows or doors are original to the building, however they are historic and similar to what was originally built by William Dowse. The east elevation, also the primary façade, contained two entrances, one on the projecting ell and another on the recessed portion of the house. The wood paneled doors are recessed and include screen doors, which are flush with the exterior walls. The replacement doors contain oval and arched window lights, and are more decorative than what was likely originally installed. There is one two-over-two double-

hung wood sash window placed flush with the exterior wall directly north of the main entrance to the house. The north elevation contained two windows, which are also currently two-over-two double-hung wood sashes placed flush with the exterior wall. There is a 2"x 4" sawn lumber lintel placed above each window frame to bear the weight of the sod above. The original configuration of the west elevation is unknown, since the entire sod wall was removed in 1924 for the frame addition. The south elevation displayed one set of paired windows centrally placed along the wall. The replacement windows are currently one-over-one double-hung wood sash, also placed flush with the exterior wall (Figure 39).

The hip roof displays a steep pitch, which allowed space for an unfinished room in the attic. Using sawn lumber, the roof consisted of long rafters that spanned from the ridge beams to the sod walls. The rafters were set directly in the sod and extended roughly one foot beyond the walls. Wood plank spaced lath was laid horizontally across the rafters. The house was initially covered with wood shingles.

Two one-story frame additions were added to the sod house in 1924 to meet the needs of an expanding family. William Dowse removed the western sod wall and added a shed roof addition clad in wood shingles. The southeast corner of the house, which was formerly the void left by the L-plan of the house, was also filled in with frame and clad in wood shingles. The room was left unfinished on the interior and used as a laundry room. The interior of the 1900 sod core consisted of three rooms separated by wood partition walls (Figures 40 and 41). The kitchen was located in the ell projection on the east, the parlor/dining room on the south, and one bedroom in the northwest corner. The window wells were beveled on the interior with a gracefully rounded arch and the interior walls



Northeast corner, view looking southwest



Southwest corner, view looking northeast

Figure 39. Sod – 11: William R. Dowse Sod House, 1900

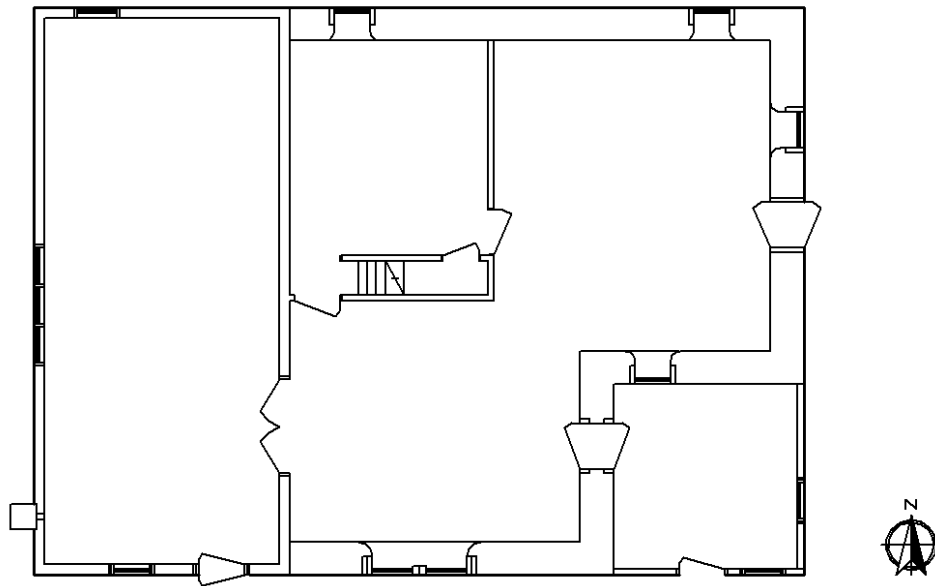


Kitchen interior, view looking northeast



Parlor interior, view looking southwest

Figure 40. Sod – 11: Dowse Sod House interior



Scale: $3/32'' = 1'-0''$

Figure 41. Dowse Sod House floor plan

were plastered with a mixture of sand, clay, straw, and hog hair. The floors were initially dirt until wood tongue-and-groove was laid in 1917. Electricity was eventually added to the house, but plumbing was not. William Dowse covered the exterior with concrete in 1935 after he noticed that the sod was eroding. The exterior concrete shell was applied one row at a time. Wood boards were placed against the sod walls and the concrete was poured between them. Once the first row was dry, another row was poured on top. This method of encasing the walls has left a series of bands about 1' high on the exterior of the house, where the molds of the boards used to hold the concrete were placed.

William R. Dowse was the son of Lewis Dowse, who was reportedly among the first family to settle in Custer County in 1873, although not on this parcel of land. Kate Prescott filed a Timber Claim on the southwest quarter of Section 22 in 1884, but it is unknown whether or not she actually built on the land. By 1900, William Dowse was living in his own dugout along the Middle Loup River, just south of his parent's farm. William married Florence Murphy whose father was an experienced sod house builder willing to help neighbors construct their homesteads. Occasionally, he was hired to build a sod house, but more often just helped. William and Florence moved to the Prescott land, which was about a mile northwest of his father's farm. Construction began in the spring of 1900 with the help of Florence's father, John Murphy, and neighbors and friends. Since there was plenty of Bluestem grass along the Loup River, the sod was likely cut within a few yards of where the house was built. William chose a L-plan house since it supposedly offered greater stability, and the house was completed by October 1900.

William lived in the sod house until his death in 1951. His son, William Jr., remained in the house until 1959. The house then stood abandoned for more than 20 years and fell into disrepair. Deteriorated and threatened with collapse, Philip and Curtis Dowse began restoring the house they grew up in during the late 1970s. They received private donations and support from Comstock's Community Club. Historically appropriate windows and doors were donated, fallen ceilings were raised, interior walls were plastered, and the roof repaired and shingled. The restoration was complete in 1982 and the house was listed in the National Register in 1987. Today the house serves as a free house museum to anyone wishing to enter and attracts thousands of visitors from all over the world every year.

Since the William R. Dowse Sod House has remained in the Dowse family since its construction, its history is well documented. The Dowse Sod House is not an unusual form for sod construction. Other sod houses were built with L-plans and hipped roofs, but the Dowse Sod House displays a slightly finer level of craftsmanship than other houses in the county. The 29' x 31'-3" dimensions of its plan render it fairly large for sod construction, and its interior arrangement of rooms reveals that the house was carefully planned before construction. The Dowse family was not wealthy, but they made enough money by raising hogs and cattle and growing corn to plan and build a nicely crafted sod house. The blocks were cut evenly, the walls were laid straight, and even the interior beveling of the windows was artistically fashioned. Furthermore, the presence of a frame roof attests to the higher level of quality put into building this sod house. Granted, many of these features may result from the help of Florence's father during construction, but they also demonstrate that the Dowse Sod House was built as a permanent dwelling.

Even after it fell severely into disrepair, it was still salvageable for restoration and remains in good condition today.

SOD – 17: DANIEL MCNULTY SOD HOUSE

The Daniel McNulty Sod House is located two miles southwest of Oconto on the northwest quarter of Section 12, Township 13 North, Range 22 West. The property is visible from the public right-of-way, but it is set in a grove of dying trees in a valley among rolling hills. The McNulty Sod House is currently a one-story, rectangular building with a low-pitched gable roof. The sod walls have been clad in stucco, but much of it has deteriorated leaving the sod exposed. A historic one-story frame addition with a shed roof has been added to the east elevation.

The original sod core is rectangular in plan and measures 16'-0"x 35'-3". The house was set about 1' below grade and the primary façade used to face east, until the addition shifted the main entrance to the south. The sod blocks measured 24" long by 9" wide and 3-1/2" thick. Leaving the grass long, about 3", the blocks were laid grass side down with two rows of headers alternating with one row of stretchers. The walls were laid straight at about 22" thick and extended up into the gable.

The east elevation, the original primary façade, contained two entrances placed roughly 6' apart near the center of the wall. The doors no longer remain, but it appears that they were recessed. North of the northernmost door, there is a window opening that is missing its sash. The window was flush with the exterior wall and beveled on the interior with slightly rounded corners. The 2"x 10" lintels remain above the window and door frames. The north elevation did not contain any windows or doors. The west elevation currently displays two four-over-four double-hung wood sash windows. The

northern window is placed flush with the exterior wall and beveled on the interior with rounded corners. The southern window used to be an entrance, since there is a lack of sod beneath the sill. The window is placed midway in the frame and does not feature beveling on the interior or exterior. Two rows of 2"x 10" lintels are placed above the window frames, which are pegged into the walls and topped with three courses of sod. The south elevation features only one centrally placed four-over-four double-hung wood sash window with the same features as the windows on the west elevation (Figure 42).

The original gable roof used a five beam construction method with frameless sheathing. Composed of sawn lumber, 2"x 8" beams, running north to south, were set directly into the sod, and 1"x 12" wood planks were placed vertically atop the beams extending from the ridge beam to the eaves. It appears that rafters were added later since they are placed beneath the beams. The ends of the rafters are joined with chords that form a triangular truss. The chord stringer is set into the sod on the east and west walls. Two additional beams were added below the rafters for extra support. Wood shingles initially covered the roof, but they have been covered with rolled asphalt and corrugated metal.

A frame shed roof addition was added to the east elevation of the sod house in circa 1935. Constructed of sawn lumber, the addition concealed the two original entrances of the sod house. New entrances were added on the north and south elevations of the addition, which then served as the primary access to the house. The addition was initially clad in horizontal wood planks, but re-covered with rolled asphalt siding at a later date. It appears that the addition served as a kitchen and bathroom.

The interior of the sod house consisted of two rooms, each with its own separate entrance on the east elevation (Figure 43 and 44). The walls were fully plastered and the floors were laid with 3-1/4" wood tongue-and-groove. The ceiling consisted of wood bead board, but it has since fully collapsed. Electricity was installed in the house as well as plumbing for the bathroom addition.

Daniel McNulty filed a Homestead Claim for the northwest quarter of Section 12 in 1907 and received the patent to the land later that same year. McNulty remained on his 160-acre homestead until he sold it to John Crowe in 1913. The property changed owners multiple times until Frederick Hickenbottom purchased it in 1929 and the acreage was increased to 480 acres. He owned the property until 1944 when Ray Trayer bought the large plot of land. The Trayers sold the property to the Bombergers in 1969, and Gary Bomberger acquired it 1988. It is unknown when the house was last inhabited.

The McNulty Sod House is in very poor condition. Nearly fifty percent of the west sod wall has collapsed, the southwest corner is heavily eroded, and both the northeast and northwest corners of the house are missing. Most of the stucco on the exterior has vanished and the exposed sod is greatly weathered and eroded. Large holes exist in the roof and the interior ceiling is fully collapsed. The house is severely threatened with a full collapse due to the instability of the missing sod walls.

There is not much historical background on the McNulty Sod House by which to determine its precise construction date and original owner. The 1907 estimate seems logical because the claim and the patent were filed the same year. The form of the McNulty Sod House does not help with dating as it is among the most common forms of sod houses. The rectangular plan and low-pitched gable was popular for many families



South Elevation, view looking northwest



Northwest corner, view looking southeast

Figure 42. Sod – 17: Daniel McNulty Sod House, ca. 1907

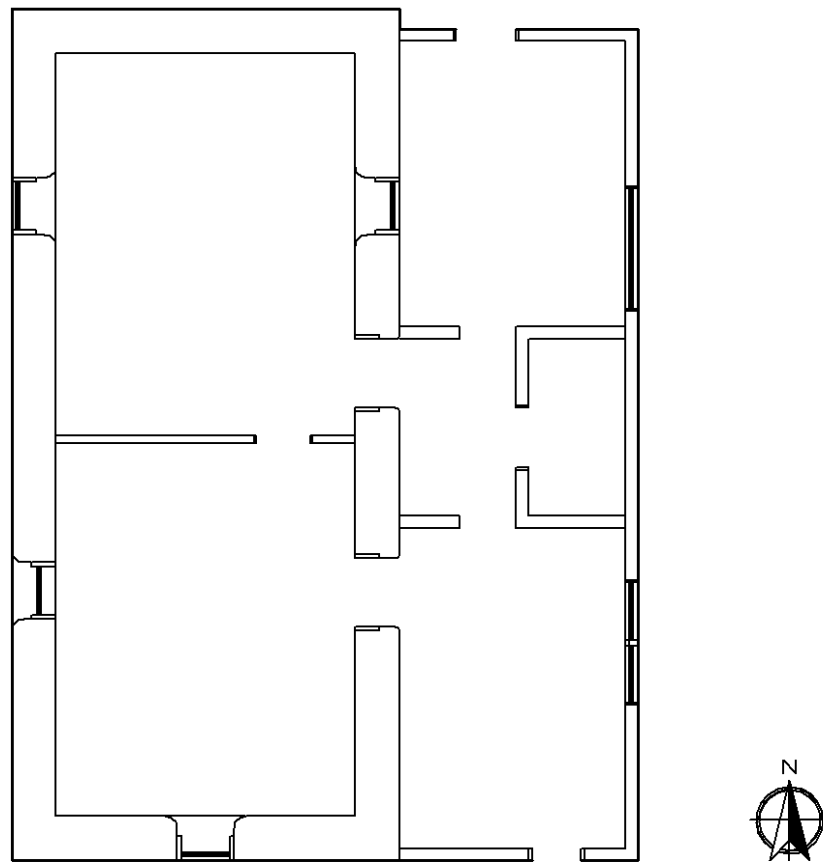


Interior of sod portion, view looking east towards original entrance



Interior of sod portion, view looking west

Figure 43. Sod – 17: McNulty Sod House interior



Scale: 1/8" = 1'-0"

Figure 44. McNulty floor plan

and was constructed during the late nineteenth and early twentieth century. It is possible that the McNulty Sod House accommodated two families as evidenced by the two entrances on the east elevation. Clearly by the time the addition was added, the house was sheltering only one family. The roof appears to always have been frame, which supports the later estimated date of construction. However, this sod house displays only a moderate level of craftsmanship. The sod blocks are cut evenly, but the five beams in the roof extend well beyond the eaves. Stucco was added to the exterior walls out of necessity, but the addition was not carefully constructed on the east elevation. Despite the poor condition of this resource today, this sod house is an important example in the spectrum of sod construction in Custer County.

SOD – 14: LEWIS FISCHER SOD HOUSE

The Lewis Fischer Sod House is the latest surviving example to date of sod construction in Custer County. The house is located on former school land just outside the western Berwyn city limits. Built on the southwest quarter of Section 16, Township 16 North, Range 19 West, the house sits about 1/8 mile north of Muddy Creek and a 1/4 mile north of Highway 2/Burlington Railroad tracks. Rectangular in plan, the Fischer Sod House is one-and-one-half stories tall with a side gable roof. The sod walls are covered in stucco but the half story above the sod walls is constructed of wood frame. A one-and-one-half story enclosed porch extends from the south elevation, which also currently serves as the primary façade. The west elevation used to feature the main entrance to the house, but a one-story concrete block addition on this elevation shifted the main entrance to the south elevation.

Lewis Fischer built the sod house in 1934 complete with the frame half story and the one-and-one-half story enclosed porch. The rectangular sod core measured 30'-4" x 19'-3" with 22" thick walls. The sod was cut from buffalo grass, according to a local history book, and was shorn to approximately 1/2". Laid grass side down, the sod blocks measured 16" long by 12" wide and four inches thick and were laid with a one course common bond. Interestingly, on these sod walls, a clay-sand mixture was used as a mortar between the blocks. The blocks were shaved on the interior and exterior with a spade, which formed the base for the plaster on the inside walls and the stucco on the outside walls. The stucco was adhered to the sod walls on the exterior by wire lath. A historical photograph shows that the sod walls were initially covered on the exterior.

All windows on the house were originally one-over-one double-hung wood sash placed flush with the exterior wall. The west elevation, the original primary façade, featured a symmetrically placed window and an entrance on the first story, with another window in the gable end on the half story. The entrance contained a three-paneled wood door, which was placed flush with the exterior wall. The north elevation contained two evenly spaced windows. The east elevation originally contained a set of paired windows on the first story and another window in the gable end. The first story paired windows were replaced with a single-pane fixed wood sash. The south elevation featured the one-and-one-half story enclosed porch at the center of the wall, which was flanked on the east side with a window and on the west side with a set of paired windows. The set of paired windows were replaced with a single-pane fixed wood sash. Another entrance is located directly behind the entrance on the first story of the porch. The five-paneled wood door

with a window light is placed flush with the exterior wall on this entrance to the sod portion of the house (Figure 45).

The framing of the gable roof structure was obscured, but a local history book describes that the roof and half story were framed with planks gathered from a bridge that was being rebuilt just south of the house. Lewis Fischer built a small sawmill to cut the planks into usable lumber. 3"x 3" rafters were set directly into the sod and left exposed about 6" beyond the wall. Wood planks were laid horizontally across the rafters and covered with asphalt shingles, which were later covered with corrugated metal.

One addition was added to the house in circa 1950. The one-story addition was constructed of concrete block and added to the west elevation. The flat roof addition was built as a bathroom and concealed the original main entrance on that elevation in order to use it as the entrance for the bathroom. The interior of the sod house was divided into two rooms on the first story and two rooms in the half story (Figure 46 and 47). The two rooms on the first story were divided by sawn lumber partitions. The walls were covered in two coats of plaster and the floors were laid with 3-1/2" and 6" wood tongue-and-groove. The windows on the interior were beveled with rounded corners like many other sod houses. The house contained both electricity and plumbing, but it is unknown when these amenities were installed.

There is no deed record for this property since it is located on former school land, which was leased to inhabitants over the years. Historical information, however, was gathered from *Muddy Creek Meanderings*, a local history text by Lavina Foster. The Lewis Fischer family moved to Berwyn in March 1934 from their ranch in Brown County, Nebraska. They had to wait a short time before their school lease on 40 acres of



Southwest corner, view looking northeast



Northeast corner, view looking southwest

Figure 45. Sod – 14: Lewis Fischer Sod House, 1934

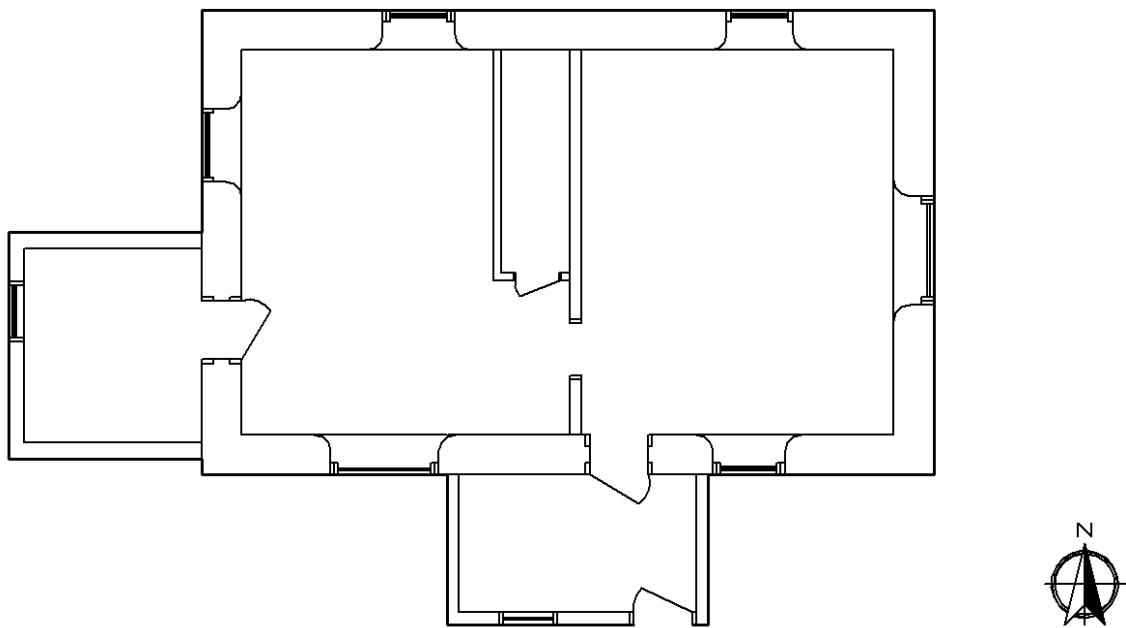


Interior of living room, view looking northwest



Interior of kitchen, view looking southeast

Figure 46. Fischer Sod House interior



Scale: $1/8'' = 1'-0''$

Figure 47. Fischer Sod House floor plan

unimproved land was available. During the spring of 1934 Lewis and his sons cut buffalo grass sod in the pasture area of the school lease for their new sod house. They hauled the blocks with a team of horses and a wagon. Construction continued into the summer of 1934, and by spring 1935 the Fischer family moved into their new sod house. Lewis passed away in 1950, but his widow likely lived in the house until the early 1960s. The property was sold to Clyde and Pearl Loy in the 1970s, but they only rented out the house. The house was occupied until the mid 1990s.

The Fischer Sod House is completely different from any of the other sod houses found in Custer County. Constructed during the height of the Depression, sod was specifically chosen as a building material even though lumber was readily available and sod was no longer a popular material of choice, even in Custer County. The Fischers used similar techniques on their sod house as those built fifty years prior, such as hauling the sod in a wagon, shaving the walls with a spade, and laying the blocks grass side down, but a few differences separate this sod house from others in the county. It is evident that cutting techniques had been refined since the blocks were thicker, but shorter and more uniform in size. The presence of mortar between the blocks, however, is especially unique. It is rarely mentioned in any literature or study of sod houses that builders used any mortar when constructing their sod walls. No other examples of sod houses in Custer County were found to have used mortar. It is unknown why exactly Lewis Fischer used mortar to build his sod walls, but it can be inferred in the conclusion that combined with the initial stucco coating on the exterior, that the Fischers were concealing the fact that their house was built of sod. It is not assumed that they were ashamed of their dwelling, but that architectural norms had changed by the 1930s, and

even with Custer County's rich legacy of sod, builders wanted a house that resembled others being built at the time. Furthermore, by the 1930s it had been shown that exposed sod walls did not last very long. The Fischer's set out to build a permanent dwelling, and mortared their walls to protect and ensure the durability of their residence. The house is in fair condition today. Several windows are broken and the exterior stucco is beginning to detach, but the house is salvageable to anyone wanting to rehabilitate it.

SURVEY ANALYSIS

Only a handful of field studies of sod construction have been conducted. A few have been carried out in Kansas, but none have been completed in Nebraska other than on a few selected houses around the state. A majority of the knowledge on sod houses in Nebraska comes from oral history, as documented in Welsch's *Sod Walls*, and Solomon Butcher's photograph collection. Armed with an understanding of sod construction from background literature and these two resources, I set out to verify what was actually built on the rolling hills of Custer County. I found many similarities that confirmed Welsch's conclusions, but also some differences that contradict some of the commonly held beliefs about sod construction methods.

Many of the sod houses I found in Custer County do not resemble the ones illustrated in Butcher's photographs. Properties frequently changed ownership after a homestead or timber claim was filed, and were rarely "proved up" exactly five years later. Moreover, families would build multiple houses on the same quarter section of land over a short period of time, and with each new house would remove the earlier structure. Some of Butcher's pictures even show a family building their new sod house directly adjacent to their initial dwelling. Even though for dating purposes, the date the

claim was filed was used as an estimated construction date for the sod houses in Custer County, it is highly possible, if not likely, that these were not the first houses built on the property.¹¹²

Using the estimated date of construction as the earliest possible year the sod house could have been built, more than half of the 22 resources found in Custer County were built after Butcher completed his photography for the *Pioneer History*. These houses displayed similarities to the houses in Butcher's photographs, but revealed evolving construction techniques and changing forms associated with improved living conditions and social norms at the cusp of the twentieth century. Unlike the houses photographed by Butcher from 1886 to 1892, these sod houses have been built as permanent structures intended for long-term use. They have been enlarged, adapted, and refined to meet changing tastes and needs in order to produce a more comfortable dwelling. The 22 resources found in Custer County are just a sampling of random examples of sod architecture. The character defining features of sod construction such as plan, walls, windows, and so on, have been analyzed with Welsch's conclusions. There were once thousands of these earthen houses scattered across the county. These are the ones that have survived into the twenty-first century and may help piece together their background.

The construction dates for the sod houses ranged from circa 1883 to 1934 for the 22 surveyed resources. Only three houses surveyed had confirmed construction dates: the Chesley/Steele Sod House (Sod – 03), the Dowse Sod House (Sod – 11), and the

¹¹² The only way to precisely know this difference would be to acquire the land patent file from the National Archives in Washington D.C. This document is the official proof and testimony of witness that the settler proved up on his claim. The document gives the location of the property and usually a description of the improvements and structures built. For the purposes of this thesis, land patent files were not obtained.

Fischer Sod House (Sod - 14). Due to the lack of historical information available and the rebuilding trend in sod house construction, the construction dates for the houses built prior to 1890 are questionable, especially the circa 1883 Murray Sod House (Sod - 12). However, it is believed that this sod house was constructed in two phases, therefore it is possible that the date is accurate. Half of the surveyed resources were built during the 1890s. These dates may be logical due to the large population explosion that occurred in Custer County during the 1890s. One-quarter of the surveyed houses were built during the twentieth century, and offer the greatest probability of accurate construction dates (Table 2).

A review of the surnames associated with each surveyed resource does not demonstrate a decidedly ethnic preference for building in sod, as a study in Rawlins County, Kansas suggested. Only two names appear to have an ethnic origin, the Robert Krembzow Sod House (Sod – 18) and the Adolf Geschwind Sod House (Sod – 21). Little information was retrieved about Robert Krembzow, but the name is German in origin. Adolf Geschwind was born in Switzerland, but grew up in Ohio before immigrating to Custer County. Other names are established American surnames originating from other parts of the United States, such as Smith, Luck, Bates, Steele, Murray, and Calhoun. Even though this is a random sampling of sod houses in a particular Nebraska county, it is clear that sod construction was not an ethnic practice limited to a certain group of people. Sod was used for building by families of all backgrounds, regardless of ethnicity.

It was also discovered from my research that there were indeed specialized sod house builders working in the county. Historic information on two surveyed resources

Table 2. Custer County Sod Houses Documented in 2007

2007 Field No.	Resource Name	QQ-Q, Section	Township, Range	Date
Sod – 01	John Melton Sod House	SE-SW, 28	T 18N, R 24W	ca. 1896
Sod – 02	Dugout	NW-NE, 8	T 17N, R 24W	ca. 1887
Sod – 03	Chesley/Steele Sod House	SW-NW, 21	T 17N, R 24W	1892
Sod – 04	Clara Wonch Sod House	SE-NW, 34	T 17N, R 24W	ca. 1892
Sod – 05	Swanson/Foster Sod House	NE-NW, 24	T 17N, R 24W	ca. 1892
Sod – 06	George Simpson Sod House	NW-NE, 2	T 17N, R 24W	ca. 1892
Sod – 07	James Milburn Sod House	NE-NE, 9	T 20N, R 21W	ca. 1894
Sod – 08	Anna Ellison Sod House	SE-NE, 34	T 17N, R 21W	ca. 1897
Sod – 09	James Bates Sod House	NE-SW, 27	T 19N, R 20 W	ca. 1893
Sod – 10	Edwin Mills Sod House	NE-NW, 30	T 19N, R 17W	ca. 1915
Sod – 11	William Dowse Sod House	SE-SW, 22	T 18N, R 17W	1900
Sod – 12	Murray Family Sod House	NE-SW, 25	T 17N, R 17W	ca. 1883
Sod – 13	Rebecca Perkins Sod House	SE-SE, 36	T 17N, R 19W	ca. 1913
Sod – 14	Lewis Fischer Sod House	SW-SW, 16	T 16N, R 19W	1934
Sod – 15	Albert Calhoun Sod House	SE-NW, 1	T 13N, R 20W	ca. 1885
Sod – 16	William Minks Sod House	NE-NE, 14	T 15N, R 21W	ca. 1889
Sod – 17	Daniel McNulty Sod House	NW-NW, 12	T 13N, R 22W	ca. 1907
Sod – 18	Robert Krembzow Sod House	SW, 12	T 16N, R 24W	ca. 1909
Sod – 19	Alexander Smith Sod House	SW-NE, 35	T 16N, R 23W	ca. 1892
Sod – 20	George Luck Sod House	SE-SE, 15	T 16N, R 23W	ca. 1890
Sod – 21	Adolf Geschwind Sod House	SW-SW, 9	T 16N, R 23W	ca. 1895
Sod – 22	Henry Kruser Sod House	NE-SW, 17	T 16N, R 24W	ca. 1894

revealed that the Dowse Sod House (Sod – 11) and the Chesley/Steele Sod House (Sod – 03) were built with the assistance of men who were known for their exceptional craftsmanship in sod house building. Jared Copeland assisted with the building of the Chesley/Steele Sod House and John Murphy helped build the Dowse Sod House. Both men were related to the respective families by marriage and offered their assistance for free, but it is noted that they did sometimes charge for their building services. Both houses exhibited a finer level of craftsmanship than other surveyed resources. Just like any other popular building type, sod construction practices evolved to include professional builders that had mastered the techniques of a particular material.

Roger Welsch notes that most sod houses were simple rectangles in plan.¹¹³

Based on the survey results, this statement is very likely true. Thirteen resources out of 22 had sod rectangular plans. Six resources had square plans, two had L-plans, and one had a T-plan. Simple rectangles were the easiest to build and the easiest to modify on the interior and exterior with additions. Interior wall partitions could simply be rearranged to alter the room configuration, and exterior wall planes could be effortlessly extended without disrupting the sod walls, if one chose. Square plans were also popular because they afforded shorter sod walls and an even division of room space on the interior.

Historical accounts of the Dowse Sod House mention that William Dowse chose an L-plan because it offered greater stability among the walls, but I find this statement questionable since the corners of a sod house are among the most vulnerable segments. They are difficult to construct and appear to be the first to fail if the balance of a house is distorted. Nonetheless, an L-plan offered a builder some variety in his design. The only T-plan house discovered was not likely built as such. The Murray Sod House (Sod – 12)

¹¹³ Welsch, *Sod Walls: The Story of the Nebraska Sod House*, 34.

was probably first built as a rectangular sod house, which was later added on to with a larger square sod addition.

Seven surveyed resources were built slightly below grade. Barbara Oringderff, in her book *True Sod*, calls these types of houses “half sods,” but this term is not quite appropriate. These houses are not dugouts and just because they are built slightly below grade, they should not be classified into a type of their own. Most of the resources in Custer County were built between one and two feet below grade. The depressed footprint of the house offered benefits that eased the construction process such as shorter wall heights, and thus sturdier walls. These houses are easier to identify in the field because of their noticeably squat appearance.

The common dimensions of sod house plans are widely speculated. Roger Welsch claims that most sod house dimensions of a rectangular plan ranged from 12 to 16 feet long by 12 to 16 feet wide.¹¹⁴ Ronna Lee Widner concludes that the common archetype of sod houses ranged from 12 to 18 feet wide by 32 to 35 feet long for rectangular plans.¹¹⁵ Neither of these statements is incorrect since they are both derived from a compilation of actual plans, but rectangular sod houses were not the only plans built. Square plans in Custer County were not perfectly square, but their lengths and widths only differed by a few feet, enough to illustrate a square. The dimensions ranged from roughly 18’x 18’ to 30’x 30’.

The rectangular houses gave the greatest variety in dimensions, varying from very large to rather narrow and somewhat broad. The Chesley/Steele Sod House (Sod – 03) was the largest measuring at 48’-3” x 30’-3”, and followed by the Albert Calhoun Sod

¹¹⁴ Welsch, *Sod Walls: The Story of the Nebraska Sod House*, 34.

¹¹⁵ Ronna Lee Widner, “The Sod Houses of Rawlins County, Kansas,” (M.A. Thesis, George Washington University, 1988), 151.

House (Sod – 15) measuring 20'-4"x 40'-7". The Murray Sod House (Sod – 12) was also among the largest plans surveyed, but since it is composed of two sod cores constructed at different time, it cannot be classified as a rectangular plan house. Other rectangular houses were not as large overall, but long and narrow. The McNulty Sod House (Sod – 17) measured 16'x 35'-5", and the Milburn Sod House (Sod – 07) measured 18'x 33'. Many of the rectangular sod houses discovered, however, were not small as Welsch claims, nor as narrow as Widner claims. Their plans were broad rectangles generally measuring 30'x 20'. The Geschwind Sod House (Sod – 21) measured 32'-9"x 20'-6" and the Luck Sod House (Sod – 20) measured 28'-1"x 20'-1". Thus Welsch's and Widner's "typical" dimensions do not encompass the range of examples in Custer County. The relative sizes of these plans play a larger role in the discussion of a sod house typology in Chapter 6.

The sod walls are visibly the most character defining feature of a sod house. The details involved in their construction such as grass, block dimensions, coursing, and wall depth help differentiate one sod house from another. It is commonly reported that buffalo grass was the most popular type of sod used for building. I was unable to determine the types of grass used on each surveyed resource, but historical information for three resources disclosed the type of grass used. Both the Chesley/Steele Sod House (Sod –03) and the Dowse Sod House (Sod – 11) used blue stem grass. It was noted that blue stem was plentiful near the Middle Loup River in Custer County, but the drought during the 1930s obliterated much of the species. What little was left was then eaten by cattle. Apparently further west in Custer County, in the short grass plains, the dense mats of

buffalo grass were favored for sod building. The Fischer Sod House (Sod – 14), however, was built with buffalo grass.

The literature states that sod blocks were cut either with a spade or a plow and never a mixture of the two. From the blocks in the survey, I was unable to determine the difference between these two cutting methods, although some say that it is possible. Many walls were shaved down with a spade after the blocks were laid, so that I believe that is impossible to determine the difference merely by looking at or measuring the block size. Nonetheless, the dimensions of blocks ranged from 16" to 29" in length, 9" to 14" in width, and 3" to 4" in depth. Every resource's walls were laid with the blocks placed grass side down, but had varying lengths of grass left on the underside of the blocks. An equal amount of houses cut the grass short to about 1/4" or 1/2", or left it long between 1" to 3".

Nearly all of the walls were laid two wythes deep, except for those of one resource, the Murray Sod House (Sod – 12), which were laid three wythes deep (Figure 48). Blocks were generally laid in one course or two course common bond, just like bricks. A few houses used odd bonding configurations such as a two rows of stretchers and three rows of headers (Sod – 09) or one row of stretchers and two rows of headers (Sod – 17). Wall depth ranged from 20" thick to 38" thick. Most of the walls were between 22" and 27" thick, but over half of them were battered. Three houses used wooden stakes to secure the blocks together. The stakes were generally 16" long and driven between two or three courses of sod. Only one house used mortar between the sod blocks (Figure 49). The Fischer Sod House (Sod – 14) is the latest example surviving in Custer County and among the most unique for its use of a clay/sand/cement mixture of



Figure 48. Sod – 12, Detail of Murray Sod House walls laid three wythes deep

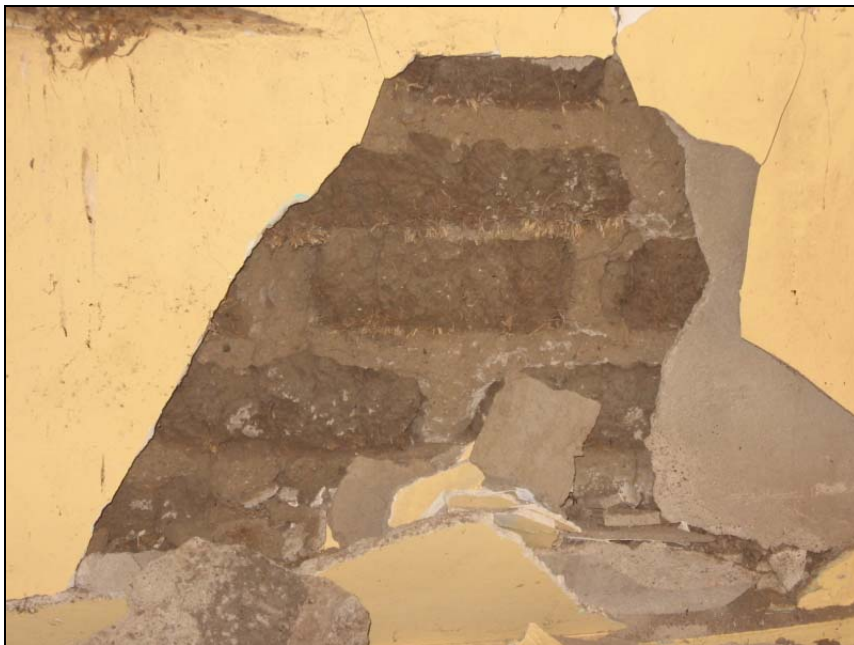


Figure 49. Sod – 14, Detail of Fischer Sod House walls laid with mortar

mortar in its walls. This one example proves that sod walls could be laid with mortar, but it was extremely rare.

Just like any other building type, windows are an important part of a building's character. These components were especially distinct on sod houses due to the size of the walls and the earthen material in which the frames were placed. Special measures had to be taken to allow enough light into the house and ensure that the weight of the walls would not crush the glazing. Roger Welsch maintains that windows placed flush with the exterior wall were the most common, while the recessed placement of windows was rare.¹¹⁶ The survey found that the majority of the windows were placed flush, or nearly flush, with the exterior wall. Two resources, the Swanson/Foster Sod House (Sod – 05) and the Murray Sod House (Sod – 12), had windows that were recessed to the interior wall plane. It is unknown why a builder chose recessed windows over ones that were flush. It is sometimes speculated that the recessed placement was an older construction technique, which would correlate with the circa 1883 construction date of the Murray Sod House. However, the Swanson/Foster Sod House also used recessed windows and it was built circa 1892. Flush windows offered advantages such as more interior space, while recessed windows created a troublesome ledge on the exterior where water could collect and erode the sod. Recessed windows, however, were by no means rare, just not as popular.

Welsch also maintains that six-over-six double-hung wood sash windows were the most common type of window used on sod houses.¹¹⁷ The survey found four types of windows built on the sod houses of Custer County. Two-over-two and four-over-four

¹¹⁶ Welsch, *Sod Walls: The Story of the Nebraska Sod House*, 72-74.

¹¹⁷ Welsch, *Sod Walls: The Story of the Nebraska Sod House*, 77.

double-hung wood sash windows accounted for the greatest majority. One-over-one windows followed but were mostly replacements of aluminum or vinyl. There were three examples of six-over-six double-hung wood sash windows found during the survey. Based on these results and Butcher photographs, it can be deduced that two-over-two, four-over-four, and six-over-six windows were used on sod houses. The quantity of window panes was merely a preference held by individual builders or determined by availability.

Other window features that are characteristic of sod house construction are the beveling of window wells and methods of weight suppression above the frames. The survey found that most of the windows, if placed flush with the exterior wall, were beveled on the interior with rounded corners. The radius of the arch varied from rather broad, which allowed more light in, to very sharp and angled. Only one house, the Mills Sod House (Sod – 10) did not bevel the interior window wells. This feature seemed to be a construction element where builders could flaunt their skill. The Dowse Sod House (Sod – 11) has gracefully arched window wells, while the window wells on the Melton Sod House (Sod – 01) are irregularly angled (Figure 50). The methods of weight suppression above the window frames was an interesting feature found during the survey. Many of the resources placed two very long lintels, generally measuring 2"x 8", side by side atop the window frame. Three to four courses of sod were then laid above the lintels. Much of the cloth or paper wadding that Welsch mentions to help suppress the weight of the sod above had deteriorated, but evidence of its existence was still present on some houses. Many of the houses found used this feature above the windows, and the lintel can often be seen on the exterior wall of the house (Figure 51).



Figure 50. Sod – 11, Detail of Dowse Sod House arched beveled window wells



Figure 51. Sod – 17, Detail of McNulty Sod House window lintels and sod

Just like windows, doors add a similar element to a building's character, and on sod houses were constructed in a similar manner. Doors, however, were mostly recessed to the interior wall plane of a house. This placement allowed for a small vestibule within the hollow void of the sod walls. From Butcher's photographs and the survey, it was found that screen doors were commonly placed on the exterior of the door frame, which created a double entry. Only one resource in the survey, the Albert Calhoun Sod House (Sod – 15), had a door, which was not a screen, placed flush with the exterior wall plane. Many of the original doors were missing on the resources found in the survey, but of the remaining sampling, three to five paneled wood doors were the most common. Vertical board doors were also found, but only on four resources. Unlike windows, most of the entrance openings found were not beveled. Among the few that included this feature were the Bates Sod House (Sod – 09) and the Swanson/Foster Sod House (Sod – 05).

In addition to plan, the shape of a building's roof completes its form. Roofs were vitally important on sod houses, but difficult to successfully construct. A misplaced beam or rafter could cause the demise of carefully laid walls. Although it is possible that some of the roofs on the surveyed resources were replaced entirely early on in their lifespan, it is doubtful based on the construction methods used. Hip roofs accounted for half of the surveyed resources in Custer County. Seven resources displayed gable roofs, and three resources featured pyramid roofs. The framing material for each of the roofs consisted of circular sawn lumber. Only one house, the Wonch Sod House (Sod – 04), displayed members that were hand hewn.

The precise construction method of the majority of hip and pyramid shaped roofs were difficult to determine because their steep pitch precluded a visible inspection. It

was, however, noted that these types of roofs consisted of rafters which extended from the ridge beams of the hip or pyramid down to the sod walls. Some roofs tied the rafters together near the top of the wall plane with attic joists spanning the width of the house. The joists were then set directly into the sod walls. A few resources contained top plates consisting of layered sawn lumber, which the rafters then rested upon instead of being set into the sod walls. The Wonch Sod House (Sod – 04), the Murray Sod House (Sod – 12), and the Smith Sod House (Sod – 19) contained this feature (Figure 52).

The resources with gabled roofs found in the survey mostly consisted of three, five, and seven beam construction methods. Placed directly into the sod, the beams were generally large, measuring 2”x 12” for the three-beam method and smaller, measuring 2”x 8”, for the five and seven-beam method. Half of the gabled resources were topped with frameless sheathing, consisting of vertical planks resting on the beams, while the other half displayed rafters that were placed in the sod and extended to the central beam. The gable roof on the McNulty Sod House (Sod – 17) was initially five-beam roof with frameless sheathing, but rafters were added later beneath the beams and tied together with joists at the walls, which created a principle rafter roof system that supported the five ridge beams (Figure 53).

Roger Welsch claims that most sod houses contained a sod roof constructed of brush and poles.¹¹⁸ This statement is likely true for early sod houses, but not for later generation houses when lumber was more accessible. The resources found in Custer County primarily contained roofs with wood decking or spaced lath. Many of the roofs, regardless of their shape, displayed horizontally placed planks, and a few featured vertically placed planks. Sheathing materials on many of the resources were historically

¹¹⁸ Welsch, *Sod Walls: The Story of the Nebraska Sod House*, 71.



Figure 52. Sod – 04, Detail of Wonch Sod House built up top plate



Figure 53. Sod – 17, Detail of McNulty Sod House roof framing

wood shingles, which were later covered with corrugated metal, rolled asphalt, or asphalt shingles. It is possible that the surveyed resources once contained sod as a sheathing material, but they would have needed strong framing and continuous decking, and there is no way to determine this without a historical photograph. Of the historical photographs that were found on surveyed resources, the roofs all contained wood shingles.

Except for four resources, every surveyed house in Custer County contained an addition. Most of the additions were constructed of sawn lumber, except for three resources, which featured sod additions. The Perkins Sod House (Sod – 13), the Swanson/Foster Sod House (Sod – 05), and the Murray Sod House (Sod – 12) were all initially constructed as small, one room rectangular sod houses that were expanded with much larger square or rectangular sod additions. These three sod houses do not include any frame additions. The additions, frame and sod, were constructed between circa 1900 and circa 1950, with a majority built in the 1910s and 1920s. The additions ranged from very large extensions of the house to small, enclosed porches. Sometimes a sod wall was removed to expand the interior space of the addition, such as in the Calhoun Sod House (Sod – 15) and the Smith Sod House (Sod – 19). The additions often continued the exterior wall plane of the sod house, but could also be irregularly placed on the house such as the Luck Sod House (Sod – 20). Additions do not hurt the integrity of a sod house. They were a common and necessary feature of sod houses that allowed families to keep up with the improving lifestyle in Custer County without building a new house.

The number of interior rooms within a sod house often depended on its plan. Roger Welsch states that most sod houses had only one room.¹¹⁹ This may be true for some of the earlier, smaller dimensioned houses, but not accurate for the later and larger sod houses built in Custer County. The survey found that four sod houses, including the dugout contained one room on the interior; five houses contained two rooms; six houses contained three rooms; and another six houses contained four rooms. Most of the rectangular houses contained two or three rooms, while the square plan houses generally had three or four rooms. Only three of the surveyed resources appeared to have reconfigured the arrangement of their rooms.

Interior room finishes were fairly consistent among the surveyed resources. Every house, including the dugout, displayed plastered walls. Wood tongue-and-groove floors were laid on a majority of the floors and most of the houses were updated with electricity, but only a few had plumbing installed. The exterior finishes of the surveyed resources primarily consisted of stucco and a few were covered with an exterior wall of concrete. Much of the stucco has eroded away, and the concrete is severely cracked and beginning to detach from the sod. It appeared that the later a house was inhabited, the higher the likelihood of stucco or concrete on the exterior of the house. Three houses, the Melton Sod House (Sod – 01), the Luck Sod House (Sod – 20), the Chesley/Steele Sod House (Sod – 03), were covered in wood clapboard or masonite siding. This feature should also not diminish the integrity of a sod house. Without exterior finishes to protect the sod blocks, the walls would quickly erode and eventually destroy the house.

The condition of the surveyed resources was better than I expected. Seven resources were found to be in good condition, two in fair condition, and another two in

¹¹⁹ Welsch, *Sod Walls: The Story of the Nebraska Sod House*, 91.

fair to poor condition. These resources display problems such as animal infestation, rot, and erosion, but offer the potential for a full rehabilitation. Two of these resources are still inhabited by the owners, and one is in the process of rehabilitation. Sadly, one resource was classified in poor condition and another six were in very poor condition. These houses either display large holes in the sod walls or portions of the house have completely collapsed. These houses could be rehabilitated but only with much effort and money. Three surveyed houses were classified as nonexistent. The sod walls were completely gone, even though a floor plan could be identified.

Based on these conditions assessments, 14 out of the 22 surveyed resources are recommended as eligible for the National Register. These fourteen examples contain most of their remaining sod walls and display sufficient integrity for listing (Table 3). Just because many of the resources displayed fair to poor or even very poor condition, it did not impair their integrity. Integrity for sod houses should be measured with a degree of lenience. According to National Park Service standards, sod houses are significant under Criterion C for their distinctive method of construction. Sod houses are important for their association with the settlement of the American West and due to the fragile nature of their earthen building material, surviving examples are extremely rare. Therefore, most remaining examples, despite their physical condition, should be considered eligible unless a great majority of the house has collapsed or the sod walls are no longer intact.

Furthermore, regarding alterations, sod houses should not be penalized for integrity if their sod walls have been clad with another material. The durability of a sod house depends on the protection of its earthen material, therefore the exterior cladding is

Table 3. Custer County Sod Houses Eligible for the National Register

2007 Field No.	Resource Name	Date	Condition
Sod – 01	John Melton Sod House	ca. 1896	Fair
Sod – 02	Dugout	ca. 1887	Good
Sod – 03	Chesley/Steele Sod House	1892	Good
Sod – 05	Swanson/Foster Sod House	ca. 1892	Poor
Sod – 09	James Bates Sod House	ca. 1893	Fair to Poor
Sod – 10	Edwin Mills Sod House	ca. 1915	Good
Sod – 12	Murray Family Sod House	ca. 1883	Very Poor
Sod – 13	Rebecca Perkins Sod House	ca. 1913	Very Poor
Sod – 14	Lewis Fischer Sod House	1934	Fair
Sod – 15	Albert Calhoun Sod House	ca. 1885	Fair to Poor
Sod – 17	Daniel McNulty Sod House	ca. 1907	Very Poor
Sod – 19	Alexander Smith Sod House	ca. 1892	Good
Sod – 20	George Luck Sod House	ca. 1890	Good
Sod – 21	Adolf Geschwind Sod House	ca. 1895	Good

absolutely necessary. Nonetheless, these houses needed to be upgraded in order to be livable over the last century. Additions ultimately became characteristic feature of sod houses in order to expand the relatively small living space for a growing family. Of course, each sod house should be evaluated on a case by case basis, but it must be remembered that it is the sod walls that are important on these structures, and they should remain eligible regardless of their exterior cladding or additions.

FUTURE RESEARCH POTENTIAL

It must be noted that each sod house was once part of a larger farmstead. Some of the surveyed resources still displayed the outbuildings associated with the sod house, such as barns, chicken coops, root cellars, and windmills. However, due to the scope of this project, I needed to limit the amount of research gathered at each surveyed resource. For the purposes of this document, I decided to focus my research on only the sod house and its architectural features. Future research efforts into the sod houses of Custer County should look into the landscape context of the larger farmstead. For example, did a farmstead with a sod house operate in a similar manner to a farmstead with a frame house? Were there patterns in outbuilding arrangement around the sod house? Why did a farmer choose to build a house of sod, but his outbuildings of wood frame?

Furthermore, the social and cultural context of sod houses should be investigated. What was the social use of the interior space of sod houses? Did the room divisions serve to function like wood frame houses? Was there a dining room, kitchen, living room, and bedrooms? Or did rooms serve multi-purpose functions? The sod houses of Custer County are an excellent group of resources to help answer these questions, which may help further explain the phenomenon of this building type on the Great Plains.

CHAPTER 6. SOD HOUSE TYPOLOGY OF CUSTER COUNTY

Each sod house develops its own individual characteristics over the course of its existence on the landscape. Builders possess varying levels of skill, families possess varying levels of wealth and taste, and the repeated succession of ownership dictates the changes large and small made to an individual house. Through my examination of Butcher's photographs and my field study in Custer County, I began to recognize an array of broad similarities among the sod houses in Custer County including plan, overall size, roof shape, and number of rooms. The variations in form are not dramatic, but five types can be distinguished. The types range from the simplest form of a sod house, the dugout, to the most elaborate, which I deem a sod "palace." Characteristics of each type, including examples from the Butcher photograph collection and the survey in Custer County, are discussed in this chapter.

TYPE I: THE DUGOUT

Shelter was the most urgent necessity for a family upon their arrival on a land claim. It was typical for a settler to construct a temporary dwelling until a more permanent sod house was ready for occupancy. A dugout was commonly the first form of shelter constructed and consisted of a structure that was built below grade or into the side of a hill. If not completely below grade a dugout could include one or two sod walls and a roof, and maybe even a window or two. Dugouts must be differentiated from sod houses, even houses that were built slightly below grade, because dugouts did not contain

four erect sod walls. They were distinctly different from a sod house because they were purposefully excavated into the earth.

An ideal building site would be located in a ravine or next to a hill so the dugout could have a natural roof and a front opening like a cave, but sometimes a land claim did not offer either of these features (Figure 54). In such cases the bank was dug back approximately 12 to 14 feet and the front was built up with sod blocks. An opening for a door was created, which could be framed with lumber, and if space permitted a window was added. Since a dugout was generally a temporary structure, a builder often did not purchase lumber for decking, and a brush and pole roofing method was most often used as described in Chapter 3.¹²⁰ The interiors of dugouts could be finished with plaster walls and wood floorboards or left bare. Dugouts blended well with their environment, and sometimes the only sign of habitation was a stovepipe sticking up over the hill or out of the ground. There are many accounts of wagons accidentally running over a dugout, or wandering cattle falling through the roof.

A dugout needed to be erected fairly quickly in order to provide shelter and therefore was generally rather small due to the intense labor involved to excavate such an interior. Allen Noble gives the typical dimensions of a dugout as 8 to 9 feet deep and 12 feet wide.¹²¹ The dugout surveyed in Custer County was only 5 feet wide and 14 feet deep. However, if a homesteader planned on occupying his dugout for a longer period of time, he may have chosen to make it larger and add a few amenities. Oscar Babcock, a

¹²⁰ Oringderff, *True Sod: Sod Houses of Kansas*, 25-27.

¹²¹ Noble, *Wood, Brick, and Stone: The North American Settlement Landscape*, 72.

seventh-day Baptist minister of North Loup, Nebraska, paid \$2.78 1/2 for a fourteen-foot square dugout in 1872.¹²² He itemized the costs as follows:

One window (8 x10 glass).....	\$1.25
18 feet of lumber for front door.....	\$0.54
Latch and hanging (no lock).....	\$0.50
Length of pipe to go through roof.....	\$0.30
3 lbs. nails to make door, etc.	\$0.19 1/2
Total	\$2.78 1/2

In Butcher's photograph collection, there are a few pictures of dugouts in Custer County. Some nearly look like sod houses, but a steep hill takes the place of two of the walls. In some of the pictures one can see the dugout near the sod house, but it consists of only a mound with a door. There is one photograph of Butcher himself in front of the dugout he constructed, but it is rather crudely put together (Figure 55). But not all dugouts were crude, temporary structures. Some were built with fine execution, and there are records of settlers living in dugouts for nearly twenty years. Most settlers though would only live in them for several years or less until there were enough resources and time to build an above ground sod house.

Settlers of all backgrounds and finances built dugouts. Though some settlers chose to immediately begin building their sod house upon arriving on a claim, many of them built a dugout so they could focus on cultivating their land for crops. They were built in Custer County from about 1870 or earlier to around circa 1910 at the latest. A dugout was a very early type of sod house that was popular during the early settlement years. Once the county grew in population and the number of available land claims diminished, people were no longer filing claims on undeveloped land. By the 1910s,

¹²² Everett Dick, *The Sod-House Frontier 1854-1890: A Social History of the Northern Plains from the Creation of Kansas & Nebraska to the Admission of the Dakotas* (New York: D. Appleton Century Company, 1937), 112.



Figure 54. Surrounding landscape of Sod – 02: Dugout. An ideal building site for a Type I dugout



Figure 55. Solomon Butcher in front of his first dugout, taken circa 1880

most settlers were buying and selling property that included the sod house. Once the above ground sod house was completed, the dugout was either converted into a root cellar or back filled. Six surveyed resources contained below grade root cellars nearby the sod house that were possibly the original dugout on the claim.

TYPE II: THE COMMON HOMESTEAD

The existing literature on sod construction claims that many houses were rectangular and contained only room. A review of Butcher's photographs in Custer County reveal that a majority constructed between 1886 and 1892 were rectangular, but the sizes varied and interior room configuration could not be identified. Butcher's *Pioneer History of Custer County* features over 100 stories in the course of which the sizes of twelve sod houses are given. Three are 12'x 14', two are 16'x 24', and the remaining seven are 14'x 16', 14'x 14', 12'x 12', 16'x 32', 9'x 9', 12'x 24', and 14'x 24'.¹²³ Assuming that one room ranged between 9' and 16' in each direction, seven of these houses had one room plans, and the remaining five contained at least two rooms. Moreover, there are only a few feet of difference between the length and width of these seven plans, rendering them almost square.

The survey in Custer County found two resources with one room plans, however each was an earlier sod house that contained a larger sod addition. The Swanson/Foster Sod House (Sod – 05) initially consisted of an 18'-3"x 17'-4" sod house with a gable roof built in circa 1892, and the Perkins Sod House (Sod – 13) was initially a 22'x 16' sod house with a shed roof built in circa 1913. Both of these houses were built slightly below grade and contained only two windows and two doors, one on each elevation. Many of

¹²³ Welsch, *Sod Walls: The Story of the Nebraska Sod House*, 34.

Butcher's photographs showing small sod houses also contain very few windows and doors, and a majority display gable roofs (Figures 56 and 57).

Based on this analysis, the Type II sod house was a common pioneer homestead for settlers who were building their first sod house. With little money and usually a limited amount of skill, a settler chose among the simplest type of sod house he could build for himself or his family. Rectangular or square in plan, the house contained only one room and few windows and doors. A gable roof was the most popular to build on this simple structure, because it was relatively easy to construct and required less lumber, but hipped, shed, and even pyramidal roofs were also built. The plan was kept relatively small, generally not exceeding 20' for the length, and the house could be partially excavated below grade since this eased the labor involved in constructing the walls. It is not uncommon for these types of houses to be void of any windows, since it is possible that the settler could not afford any because the window was often the most expensive element to purchase for a house. If windows were included, they usually did not exceed more than one window per elevation, although a window and a door could be built on the same wall.

Not every settler chose to build this kind of sod house. Some possessed bigger families, better skill, or more money and chose a different kind of plan to suit their needs. It appeared that this type of plan was more popular during the early settlement years of Custer County (from pre-1870 to circa 1900) and there are many illustrated in Butcher's pictures of varying craftsmanship. However, due to the ease and affordability of this kind of plan, families continued to build it into the early twentieth century, such as the Perkins Sod House (Sod – 13). But by this time, sod houses were getting larger and more refined,



Figure 56. H.S. Calkins Sod House, Custer County, taken 1886



Figure 57. Type II gable portion of Swanson/Foster Sod House (Sod – 05), circa 1892

which outdated the simple one room structure built to satisfy a land claim. There are not many of these types of sod houses left since these were the types that were usually demolished to make way for a larger sod house. Some families, however, kept their initial homestead and just added on with more sod.

TYPE IIIA: THE STANDARD PLAN

Ronna Lee Widner, in her study of sod houses in Rawlins County, Kansas, claims the sod house archetype was a rectangular two room plan ranging between 12' to 18' wide by 32' to 35' long. Measuring between 12' and 16' wide by 24' to 32' long, five of the twelve plans described in Butcher's *Pioneer History* compare to Widner's archetype. Many of Butcher's photographs in Custer County illustrate rectangular sod houses that differ considerably from the Type II sod house described above. They are longer, narrower, and contain more windows and doors. Some examples even contain two or more entrances on the longer elevation. It is doubtful that these larger rectangular houses only contained one room, since the number of entrances and windows indicate an increased division of space. The roofs on these types of houses only differ between a gable and a hip (Figure 58).

The Custer County survey found three resources with long and narrow plans. Built between 1894 and 1907, the McNulty Sod House (Sod – 17), the Milburn Sod House (Sod – 07), and the Kruser Sod House (Sod – 22) all contained gabled roofs and measured 16'x 35'-3", 18'x 33', and 18'x 26' respectively. Regarding the placement of windows and doors, all the resources resembled the archetype described by Widner, which placed a single window on each of the shorter elevations, while the longer elevations contained a combination of windows and entrances. The McNulty Sod House

was divided into two rooms, each with a separate entrance on the east elevation, which was later concealed by a frame addition. The interior partition wall also contained an entrance, but it is unknown whether this was original or added later. It is speculated that the McNulty Sod House could have housed two families (Figure 59). The Milburn Sod House was so deteriorated that it was not possible to determine the number of interior rooms, but judging from the size of the house and its placement of windows and doors, it is speculated that there were at least two. The Kruser Sod House is the most different of the three, because it is not as long as the other two resources. Unfortunately this sod house was nonextant, so interior room configuration could not be confirmed, but a local resident who had visited the house when he was younger mentioned that it had three rooms.

Widner's study suggests that there were a number of sod houses in Kansas built with these dimensions and this type of plan. It is clear from Butcher's pictures that many families built similar types of sod houses in Custer County, and the survey documented a few that remained, but had been expanded with additions. Therefore, the Type IIIA sod house was a standard, reliable plan for families who desired a larger interior and a division of space. Long and narrow, the rectangular plan could range generally from about 12' to 18' in width and at least 24' in length. Requiring minimal skill, it was not only relatively easy to build but offered those with a little more wealth added features like paired windows, as some of Butcher's photographs illustrate. However, families possessing varying degrees of wealth used this type of plan. It could be kept simple by including few windows and doors and topping with a sod roof, or more elaborate and displaying a frame-shingled roof. Advantageously, it was transitional because it could be



Figure 58. Unidentified family in front on their Type IIIA sod house, taken 1889. Notice the double entrances, long and narrow plan, and sod addition off the rear



Figure 59. McNulty Sod House example of Type IIIA sod house

expanded easily with a frame addition or divided further on the interior based on a family's changing needs. The roofs on this type of plan were usually gable or hip shapes due to the size of the dwelling.

It is believed that this type of plan did not become popular in Custer County until circa 1875, shortly before the large influx of settlers. Even though sod houses were already being constructed in the county by the early 1870s, the county was still sparsely populated with its first wave of settlers who were working very hard to till their land and may not have had the time or the knowledge to build a larger sod house. The Type IIIA plan proved to be so reliable, that it continued to be constructed until the mid-1930s in Custer County. A few newspaper articles from 1933 and 1934 commended the spirit of several Custer County residents who built sod houses when they lost their farmsteads to adverse economic conditions. The newspaper posted a picture of the finished house and listed its dimensions as 16'x 40'.¹²⁴ Due to the popularity of the type of sod house, even though there are only three revealed in Custer County, there may be many more left in other counties or states.

TYPE IIIB: THE STANDARD PLAN VARIATION

When reviewing all of the plans and pictures of sod houses in Custer County, it was first believed that there was only one type of rectangular multiple room plan. But a closer look at the dimensions revealed some minor differences. The Type IIIA plan is long and narrow, with dimensions that are nearly twice as long as wide. A number of other sod houses, although rectangular, were not as narrow, but just as long. In effect, these houses appeared larger and broader. By comparison, a Type IIIA sod house may be 16'x 35', but the Type IIIB sod houses had dimensions that were generally 20'x 32'.

¹²⁴ "Hard Hit Custerites Prove Pioneer Spirit Still Dominant," *Custer County Chief*, 2 November 1933.

It is understood that this is not a large difference in width, but when viewed in the field and in Butcher's pictures, the discrepancy is much more noticeable. Just like the Type IIIA sod house, Butcher photographs show a high number of this type featuring windows and doors in similar places, in addition to gable and hip roofs. However, where a Type IIIA sod house may include just one window on the shorter elevations, the Type IIIB sod house may include two or a window and an entrance because there is more wall space. The Custer County survey identified eight sod houses that could be classified as Type IIIB. For example, the Luck Sod House (Sod – 20), built circa 1890, measured 28'1x 20'1 and featured a hip roof. The Geschwind Sod House (Sod – 21) was built in circa 1895 with a gable roof, and measured 32'-9"x 20'-6". The two room Luck Sod House featured windows on each shorter elevation, a window and a door on the longer elevation, but no windows or doors on the other long elevation. The Geschwind Sod House was divided into three rooms, and included one window on each shorter elevation, with two windows and a door on each of the longer elevations (Figures 60 and 61).

Just like the Type IIIA sod house, the Type IIIB sod house was a standard, reliable plan for families who desired a division of space, but wanted even more interior room. Broad and long, the rectangular plan could range generally from about 20' to 25' wide and 28' to 35' feet long or longer. It too was relatively easy to construct and built by families of varying degrees of wealth. The Butcher pictures did not show as many paired entrances on these types of houses as on the Type IIIA house. This type of house could be just as easily modified with additions to accommodate growing families and changing needs, but room division did not seem to exceed two or three rooms. Just like



Figure 60. North Custer County Type IIIB sod house, taken 1887. Notice the broader appearance compared with the Type IIIA house



Figure 61. Example of Type IIIB sod house in Custer County. Geschwind Sod House (Sod - 21), circa 1895

the Type IIIA house, the roofs seem to be limited to gables and hips and could be sheathed in sod or wood shingles. Since these two types of sod houses are so similar, the period of construction is the same as the Type IIIA sod house.

TYPE IV: THE SOD PRAIRIE CUBE

Despite the large majority, not every sod house was rectangular. Many settlers chose to build their houses with a square or nearly square plan. The *Pioneer History* offers the dimensions for a few square plan houses, but these relatively small sizes really distinguish the houses as a Type II common pioneer homestead. The Custer County survey found five square resources that were much larger and contained three to four rooms. The Butcher Collection also showed several examples that were square in plan and appeared to be much larger than a simple 12'x 12' or 14'x 14' homestead (Figure 62).

The Melton Sod House (Sod – 01) was built circa 1896 and measures 28'-8"x 28'-0". It displays a steeply pitched hipped roof and contains four rooms. The house features two windows on two elevations, and one window on another. The fourth elevation of the house is obscured by an enclosed wraparound porch addition. There are three entrances to the house, but it is believed that two were added for the addition. The Mills Sod House (Sod – 10) was built circa 1915 and measures 30'-0"x 30'-8". It displays a pyramid shaped roof and contains three rooms. The house features two windows per elevation, just like the Melton Sod House, but it too has one elevation that is obscured by an enclosed wraparound porch addition. There are two entrances to the house, and it is possible that both are original (Figure 63). The other resources are similar in size, window placement, contain either hipped or pyramidal roofs, and are

divided into three or four rooms. Only one house is slightly smaller, the Smith Sod House (Sod – 19), which measures 22'x 24'. Similar houses in Butcher photographs also show hipped or pyramidal roofs with at least two elevations containing two windows. Beginning in the very late nineteenth century, there was a popular vernacular style of frame house being built on Nebraska farmsteads and in small towns. The “prairie cube” was a smaller, square building topped with a hipped or pyramidal roof and covered in clapboard or built out of concrete block. This style of house featured at least two windows per elevation as well as a front and rear door (Figure 64). Closely resembling this style, the Type IV sod house is a sod version of the prairie cube. Square, or nearly square, the plan generally ranged in size from 20'x 20' to 30'x 30', or maybe even a little larger. Steeply pitched hipped or pyramidal roofs were usually constructed on this type of sod house. Two windows per elevation seemed to be a characteristic feature of the Type IV sod house, but entrances were usually placed on either one or two elevations. Due to the nature of the square plan, there was more flexibility in the arrangement of rooms, resulting in three or four room plans, but the hipped or pyramidal roofs proved difficult to expand upon in an addition. Therefore additions to the Type IV sod house were typically in the form of a porch or a fully separate extension, such as the gable addition on the Smith Sod House (Sod – 19).

The Type IV sod house differed from the other types found in Custer County in that it involved more skill to build, in addition to being more expensive. The hipped and pyramidal roofs were difficult to construct and required more lumber, as well as the increased number of windows. The examples of this type found in Custer County possessed a slightly finer degree of craftsmanship than its rectangular counterparts.



Figure 62. Twin Type IV sod houses in Custer County, taken 1887



Figure 63. Example of Type IV sod house in Custer County. Mills Sod House (Sod – 10), circa 1915



Figure 64. Frame “prairie cube” house in Custer County. Note the similarities to Type IV sod house

Of course Type IV sod houses could still be put together crudely, but a greater amount of effort went into building this kind of house as opposed to a Type II or III. Even though the Dowse Sod House (Sod – 11) is L-shaped in plan, it possesses the same characteristics in size, craftsmanship, roof, and windows as a Type IV sod house and would be classified as such.

Butcher photographs show this type of plan as early as 1886, but due to the higher level of skill and cost involved, the type did not really catch on until the early to mid 1890s and continued through the 1920s. This was also the time period that the framed or concrete block prairie cube began appearing in small towns and on farmsteads. The resemblance between these two similar types of houses, differing only in building material, attests to a larger trend that was developing in sod house construction, at least in Custer County. Sod houses were beginning to look like framed houses that were common on Nebraska farmsteads. The plan, the roof, and even the placement of windows were beginning to mimic houses built of frame. Living conditions were improving on the Plains and in Custer County. Lumber and commodities were more readily available due to the extension of railroad tracks, and a small, one room house was no longer suitable for families. People were still choosing to build in sod, but the standard of living had been raised and owners were trying to keep up with style of the day.

TYPE V: THE SOD PALACE

Judging from Butcher's photograph collection and two surveyed resources in Custer County, there are a select few sod houses that are clearly different from any of the other types described above. The sheer size and level of craftsmanship on these houses is

remarkable. There is no particular plan or roof shape that distinguishes this type of sod house, as the experienced builder could mold the sod walls into whatever plan he desired, and added a frame roof to complement the structure. The thickness of the walls is impressive, but usually a direct result of the height of the structure. It is almost a general rule that most sod houses are one story, but these types of houses defied that rule and expanded beyond the first story either in sod or in frame.

The Type V sod house is deemed the sod “palace.” Varying in plan, although usually rectangular, the Type V sod house contained at least four rooms and could measure at least 30’ in width and nearly 50’ or more in length. The walls could be built higher than most other types of sod houses, and in some rare examples one-and-one-half or even two-story sod walls could be built. As a result of this height, it is not uncommon to find walls three feet thick or more on this type of sod house. The frame roofs were generally steeply pitched hips so that there was enough room in the attic for an upstairs bedroom or two. In some cases, a dormer was added to allow light into the upstairs rooms. There were multiple windows on every elevation, but doors were placed as necessary. Additional decorative features, such as wall curvatures, could be added to this type of sod house if the builder possessed the skill.

In Butcher’s photograph collection, two specific houses in Custer County exemplify this type of sod house. The McCaslin House near Rose Valley in Custer County was built circa 1887. From the picture, one can see the very long walls of sod complete with many windows. It is one story with a frame half story above that contains two large dormers. The sod walls and the frame shingled hipped roof are finely executed with sharp corners and level eaves (Figure 65). The Haumont Sod House really was a

sod palace. Built in 1884 by Isadore Haumont, the house featured two full stories of evenly laid sod, which stood 19 feet at the eaves. The walls were at least three feet thick and included rounded turrets at the corners that were to resemble a Flemish-style castle. Sheathed in wood shingles, a steeply pitched hip roof covered the dwelling (Figure 66). This extraordinarily rare sod house was listed in the National Register as early as 1969, but was demolished in 1972 under the property owner's wishes.

Two resources found during the survey also reflect the Type V sod house. The Chesley/Steele Sod House (Sod – 03) was built in 1892 by Charles Chesley and Jared Copeland. Copeland was an experienced sod builder who offered his skills to help his brother-in-law construct his new homestead in southwest Custer County. Rectangular in plan, the one story house measured 48'-3"x 30'-3" and included a steeply pitched hip roof with room upstairs for an attic bedroom. The house was sold to the Steeles in 1902 and continues to remain in the Steele family. The Chesley/Steele Sod House is among the last inhabited sod houses in Custer County. The other sod house, the Murray Sod House (Sod – 12) is actually a combination of two other types of sod houses. In circa 1883, a member of the Murray family built a Type IIIB sod house measuring 22'x 26'-10", and sometime in the next twenty years a Type V sod addition was added to the earlier house (Figure 67). The addition measured 31'x 37' and included a frame half story with a dormer as well as one-story gabled front porch. Even though the Type V sod addition was large in and of itself, the combined structures created a very large and imposing sod house.

Often, this type of sod house was built as the family homestead that was to be passed on from generation to generation. The families were not excessively rich, but



Figure 65. McCaslin Sod House in Custer County, taken 1887



Figure 66. Haumont Sod House in Custer County, taken 1886



Figure 67. Example of Type V sod house in Custer County. Murray Sod House (Sod – 12), circa 1883. Due to size of house and dense vegetation, photograph is obscured

considerably respected in the community and doing quite well for themselves as farmers. Exceptionally skilled owners themselves built these houses, or an experienced sod builder could be brought in to help with construction. The effort and expense put into building one of these types of houses was reflected in the amount of time it took to build. These were not the kind of sod houses that could be constructed in a week. They usually took many months or even years to build. Since these homes were so treasured by the family, they were generally well maintained and lasted much longer than the other types of sod houses.

No one type of sod house described here is more significant than another. In cultural resource documentation, in order to evaluate a building, one must be able to compare it against other examples. In order to use this typology, a researcher can make an initial judgment of a sod house based on a photograph, but a further investigation into its floor plan and history will offer the best conclusion as to its type. Although this typology is limited to Custer County, it is my hope that it may be adapted and used for other sod houses found in Nebraska or the Great Plains. It is understood that with further research and fieldwork, more sod house types can be added to this list or that this typology can be refined (Table 4).

Table 4. Custer County Sod Houses Classified into Types

2007 Field No.	Resource Name	Date	Type No.	Type Name
Sod – 01	John Melton Sod House	ca. 1896	IV	Sod Prairie Cube
Sod – 02	Dugout	ca. 1887	I	Dugout
Sod – 03	Chesley/Steele Sod House	1892	V	Sod Palace
Sod – 04	Clara Wonch Sod House	ca. 1892	IIIB	Standard Plan
Sod – 05	Swanson/Foster Sod House	ca. 1892	II + IIIB	Common Homestead and Standard Plan
Sod – 06	George Simpson Sod House	ca. 1892	II	Common Homestead
Sod – 07	James Milburn Sod House	ca. 1894	IIIA	Standard Plan
Sod – 08	Anna Ellison Sod House	ca. 1897	N/A	N/A
Sod – 09	James Bates Sod House	ca. 1893	IV	Sod Prairie Cube
Sod – 10	Edwin Mills Sod House	ca. 1915	IV	Sod Prairie Cube
Sod – 11	William Dowse Sod House	1900	IV	Sod Prairie Cube
Sod – 12	Murray Family Sod House	ca. 1883	IIIB + V	Standard Plan and Sod Palace
Sod – 13	Rebecca Perkins Sod House	ca. 1913	II + IIIB	Common Homestead and Standard Plan
Sod – 14	Lewis Fischer Sod House	1934	IIIB	Standard Plan
Sod – 15	Albert Calhoun Sod House	ca. 1885	IIIB	Standard Plan
Sod – 16	William Minks Sod House	ca. 1889	IV	Sod Prairie Cube
Sod – 17	Daniel McNulty Sod House	ca. 1907	IIIA	Standard Plan
Sod – 18	Robert Krembzow Sod House	ca. 1909	IIIB	Standard Plan
Sod – 19	Alexander Smith Sod House	ca. 1892	IV	Sod Prairie Cube
Sod – 20	George Luck Sod House	ca. 1890	IIIB	Standard Plan
Sod – 21	Adolf Geschwind Sod House	ca. 1895	IIIB	Standard Plan
Sod – 22	Henry Kruser Sod House	ca. 1894	IIIA	Standard Plan

CHAPTER 7. THE PRESERVATION OF SOD HOUSES

REHABILITATION ADVICE

Problems of maintenance and adaptation to fit modern tastes and conveniences have led people to abandon sod houses in the twentieth century. There is a constant battle with natural elements in maintaining a sod house. Vermin and insects are attracted to the earthen walls and are difficult to exterminate. The soil needs to maintain a certain amount of moisture to stay firm and resist crumbling, but too much moisture can melt and destroy it. Moreover, moisture is inherently a problem when combined with other necessary building materials such as wood or plaster. Modernization efforts for electricity and plumbing are also problematic because one must cut through the fragile and deteriorating walls to install pipes and conduits. Sometimes, in order to complete the work, a sod wall or two may have to be removed. Repairing with sod has also shown to be a complex problem. Cattle have grazed off much of the buffalo grass and its strong root system from the prairie making it difficult to find and cut good sod blocks.

Despite these difficulties, it must be remembered that two sod houses in Custer County are still being inhabited and one is in the process of being restored as a summer cottage. It is possible to put these dying resources back into commission. Rehabilitation is essential, in most cases an extensive one. Too many of these houses have been left to the elements and suffered structural as well as cosmetic damage. An extensive rehabilitation is not cheap or easy to perform, but with determined effort and care, it can be done well and with valuable results.

It is not the purpose of this thesis to focus on rehabilitation techniques, but a few points of advice can be given based on my research and inspections in the field. Since there are no footings or foundations on sod houses, they naturally shift and settle. Lack of maintenance in an abandoned sod house has likely caused the walls to warp, twist, and in effect throw off the balance of the structure. The house will need to be stabilized in some fashion that does not disrupt the character of the sod walls. It is possible that severely warped parts could be disassembled and reconstructed, but only if coursing of the walls is kept intact. The biggest problem associated with this task is finding appropriate sod to fill in gaping holes. Trees and brush within at least two to three feet of the walls should be removed. Vegetation poses a serious threat to earthen architecture because the roots will gravitate towards the dirt in the walls and cause unnecessary growth, which could destroy the stability of the walls.

A good roof is also essential to the durability of a sod house. Many of the roofs on abandoned sod houses have either collapsed or possess large holes that allow rain and other natural elements to enter the building. The roof of a sod house is a character defining feature and should be repaired as much as possible and not completely replaced. Features such as ridge beams and rafters should be inspected for rot and replaced on a case by case basis, but only where necessary as these are the components that make up the roof. Since much of the roof members were placed directly on the sod, a problem of moisture arises for the wood. Some form of a thin protective material should be placed between the sod and the wood to prevent rot. The decking and roofing material atop the framing system is not as essential to preserve. It could be replaced if needed with a suitable modern material. Standing seam metal roofs are popular in rural Custer County

due to the heavy sand content that travels with the prairie winds. Standing seam metal roofs would be appropriate if an owner did not want to sheath the roof in wood shingles.

Among the most important rehabilitation tips in the preservation of sod houses is the protection of the walls. Smart owners realized the detriments of the prairie winds and rains and the erosion they cause on their walls of sod. Since their emergence in Custer County, sod houses were historically stuccoed on the exterior and continued to be covered by those who remained in their houses up until the mid-twentieth century. Even though a house's sod walls are its most character defining feature, encasing or covering them prevents erosion. The walls of an existing sod house should be covered with a material that is compatible with the earth beneath it. Clapboards may work, but due to the wood's susceptibility to rot, it may not be the best option unless other measures are taken to protect the wood from the sod. Vinyl, although inexpensive, is certainly not acceptable since in the presence of moisture, it will warp and bend and render itself useless in protecting the moisture-rich earth beneath it. Stucco erodes quickly in the sandy winds of the prairie and requires constant patching. Concrete, although stark and heavy, has proven to be a good protective material for the Dowse Sod House, which remains in good condition. However, every sod house is different, and exterior cladding for the sod walls should be investigated on a house by house basis.

Windows and doors should be repaired as much as possible. They are an integral part of a sod house and are fairly difficult to remove without threatening the stability of the walls. Frames should be inspected for rot and repaired and stabilized where necessary. Window openings should not be downsized in order to fit modern window frames. Sod house windows were constructed in precise ways, and modern frames may

not be able to withstand the heavy weight of the sod above, unless a method is devised to control the sod from crushing the frames. Furthermore, the long and narrow appearance of sod house windows is a significant character defining feature.

The interior of a sod house should also be preserved as much as possible. Interior room divisions may be too small to meet building codes, and therefore a compromise should be worked out so that too much of the interior finished are not lost. The walls were historically plastered and should remain that way. The floors, which have shown to be updated with wood tongue-and-groove floorboards, should be repaired where necessary. If wood floors are not feasible, concrete may be appropriate. The arched bevels of the window wells should be maintained and not encased. The graceful arch gives a sod house its light and charm.

STRATEGY FOR PRESERVATION OF SOD HOUSES IN CUSTER COUNTY

The rehabilitation of a sod house is solely the property owner's choice, but communities, including Custer County, can begin an effort to preserve their sod houses if they so choose. First of all, the remaining sod houses in the county should be located. My survey of Custer County attempted to identify every remaining resource, but due to the hidden and concealed nature of these properties, in addition to property owner's privacy requests, it was not possible. The first step is being able to recognize a sod house on the landscape. The search for sod houses quickly brings an observer to the realization of the difficulty involved in actually locating one. Most would think to look for a small, dark building with low-pitched roof and uneven walls. However, the sod houses remaining in the twenty-first century no longer resemble the nineteenth century photographs made so popular by Butcher. First of all, since many were constructed

before the automobile, they can be set deep into the quarter section on which they were built, far away from the public right-of-way. Secondly, they have been modified and added on to, just like frame or brick houses. These changes alter the appearance and quickly take away the defining characteristic of a sod house, its walls. Without this visual guide, sod houses can look no different than other types of frame, brick, or concrete houses on the prairie.

One must look closer for certain traits to determine a building's potential for existing sod walls. First and foremost, look only for one-story buildings. Two story houses of sod were constructed, but were extremely rare. Secondly, look for a gable, hipped, or pyramidal roof. These were the most common types of roofs constructed on sod houses and can tell an observer a wealth of information about the structure of the house. Thirdly, look at the windows and doors. Are they recessed a few feet into the wall, or if they are flush, can you see the frame behind them. If it is deep (more than one foot) it is possibly a sod house. Other things to look for are whether or not the house appears squat or almost sinking into the ground. Many sod houses were set slightly below grade, which shortens the height of the walls. The eaves can also lead an observer to sod walls, since rafter ends were frequently exposed and set into the sod; one can sometimes see the appearance of earth in these places. Finally, if there are cracks in the exterior walls, they may reveal the presence of sod beneath.

After resources have been identified, they should be evaluated for their potential for listing in the National Register of Historic Places. Not every sod house is eligible, but the attitude at the Nebraska State Historical Society is amenable to the listing of sod houses. My 2007 study has evaluated the 22 resources discovered in Custer County and

can serve as a building block for future nominations. If determined eligible, every effort should be made to get the building listed in the National Register. It must be noted that this recognition does not legally protect any resource. A property owner can still choose to demolish his sod house, but the listing does provide recognition and increased publicity in the community. The greater the public awareness of a sod resource, the greater the chance others might take notice and organize a preservation effort. Legal protection for a resource can come in the form of a conservation easement, but it is initiated at the property owner's discretion. An easement can offer a degree of protection, but they generally stay in effect in perpetuity. That is, once someone decides to file a conservation easement, all property owners of that house from then on must abide by it.

An easement offers the most protection for a resource, but is not always a popular option. A very real problem affecting sod houses is the lack of public awareness. Aside from popular literature, much of the public gets their knowledge about sod houses through visits to museums and replica buildings. However they are not easily accessible or well-known tourist attractions. Careful consideration must be given to the buildings in which sod houses are represented to the public. Several restorations and replicas exist across the Midwest that reflects the appreciation of the sod building tradition, but accurate interpretative information is crucial. The Stuhr Museum in Grand Island, Nebraska contains a replica sod house that was built in 2007. The replica adds to the museum's "pioneer town," but the structure in no way resembles a historic sod house. Construction photos show builders using wood frames to stabilize the walls and the blocks look like heaps of dirt, rather than dimensioned blocks cut with a plow. The site

perpetuates the myth that sod houses were temporary structures that were built until the railroad came through in the 1870s and brought wood framing materials. Interpretative materials should not add to the common misconceptions about sod construction.

The residents of Custer County were very interested in the research that I was conducting on their sod houses and were more than helpful in assisting me. Though it may not seem like it due to the state of disrepair that many sod houses are in, people do show an interest in these resources. The two-story Haumont Sod House was listed in the National Register in 1969, only three years after the establishment of the congressional act that created the register. People from all over the country visited the unique American sod castle and were outraged at the destruction of the house in 1972. People still come to Custer County to visit the acclaimed Dowse Sod House, and its guest book attests to this fact. Custer County has proven to yield a high number of extant sod houses. As a way to attract more visitors, some form of heritage tourism should be developed for the sod houses of Custer County. Using the Dowse Sod House as a focal point, visitors could make other stops to extant sod houses around the county as part of an interconnected interpretative guide to sod construction and life on the prairie. This idea would have to be well planned and investigated as to whether it would work. Among the biggest obstacles would be getting other sod house property owners to agree and participate, along with bringing the extant resources into a state of utility, since many are very dangerous in their current condition of disrepair.

CONCLUSION

The sod house has long been perceived as a crude and temporary solution to the need for housing and the shortage of acceptable building materials. This perception is

true for some sod houses built on the Plains (as Butcher's photographs suggest), but confusion arises when there is a failure to separate the temporary sod shelter or dugout from the finer crafted permanent sod home. The Custer County survey and analysis has demonstrated that sod houses were neither simple nor temporary structures. Among the surviving examples are houses that were meant to serve the function of a family home, permanent and enduring. Their plaster and concrete reinforcement and successful roofs have allowed several of them to resist crumbling back into the earth.

Adding to the confusion about sod houses is a great deal of misconceptions regarding how and why they were built. Roger Welsch conducted an excellent study of sod construction in the mid 1960s, but it was primarily based on oral history. The intensive survey and analysis of sod houses in Custer County concurred with many of Welsch's conclusions, but also presented new evidence that showed the variety in construction methods and designs. There was not one common type of sod house that every settler built regardless of wealth. Just like any other example of vernacular architecture, several types persist among an array of different forms. The typology of sod houses in Custer County shows that five common types were built for varying reasons of wealth, preference, and need. This typology is not final and by no means perfectly accurate since it is based on 22 resources in addition to Butcher's historical photographs and other background information. Other sod houses, as discovered, should be measured and tested against this typology to see if they fit or should be classified into a type of their own.

This once popular and affordable building type disappeared in the twentieth century once it became less difficult to construct frame houses. Many of the remaining

examples are hidden deep within a grove of trees far from the public right-of-way, or standing in plain sight but concealed by a protective coating of plaster or concrete. No longer able to offer the conveniences dictated by modern living, they are left for the cattle to take shade under or the birds to nest in, and they slowly melt back into the earth from which they came. Without authentic examples, the notion of the sod house is embodied by replicas and museums perpetuating the image of the temporary “little old sod shanty on the claim.” This notion is correct, but incomplete. The public should also be aware of the dugout, the standard and reliable plan, the sod prairie cube, and of course the sod palace. Custer County provides an excellent landscape and a plethora of resources to help change the way America thinks about the sod house. With a little thought and a lot of dedication, Custer County can further celebrate its title as the “Sod House Capital of the World.”

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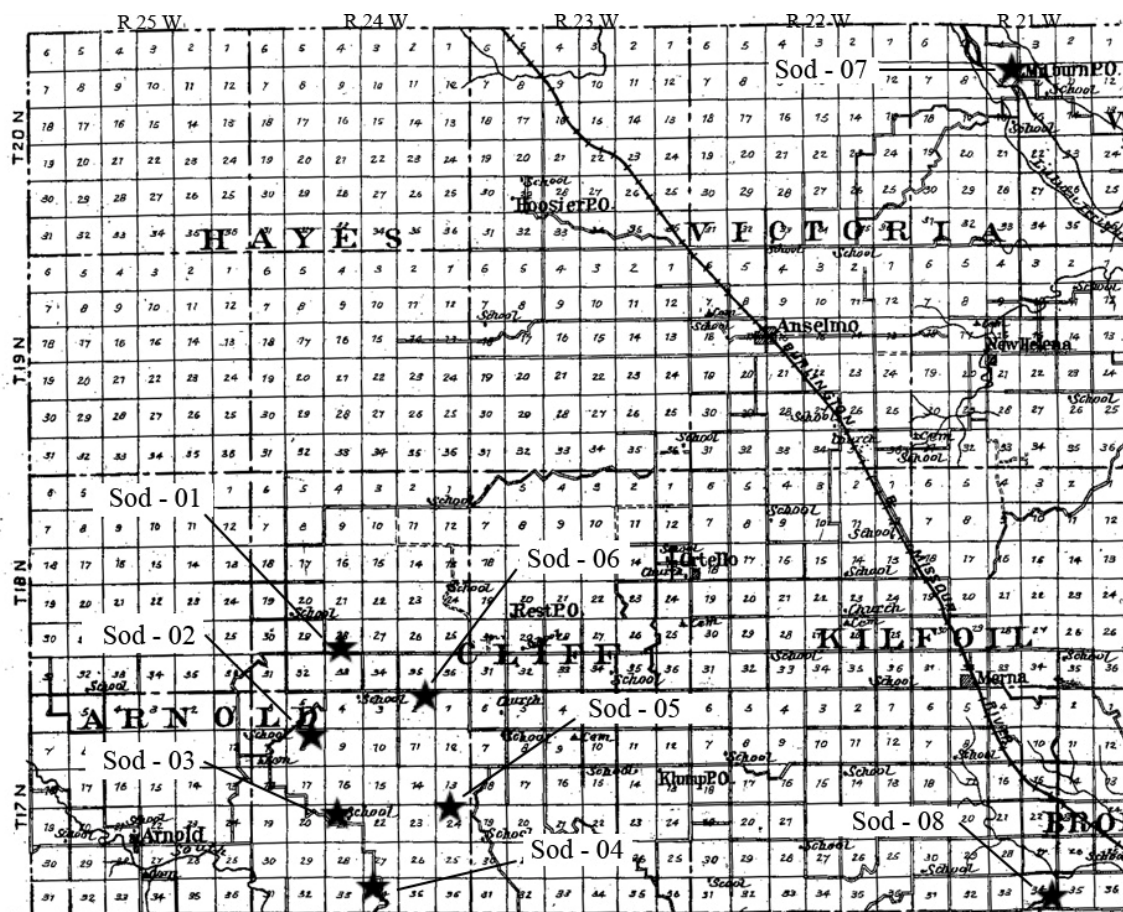
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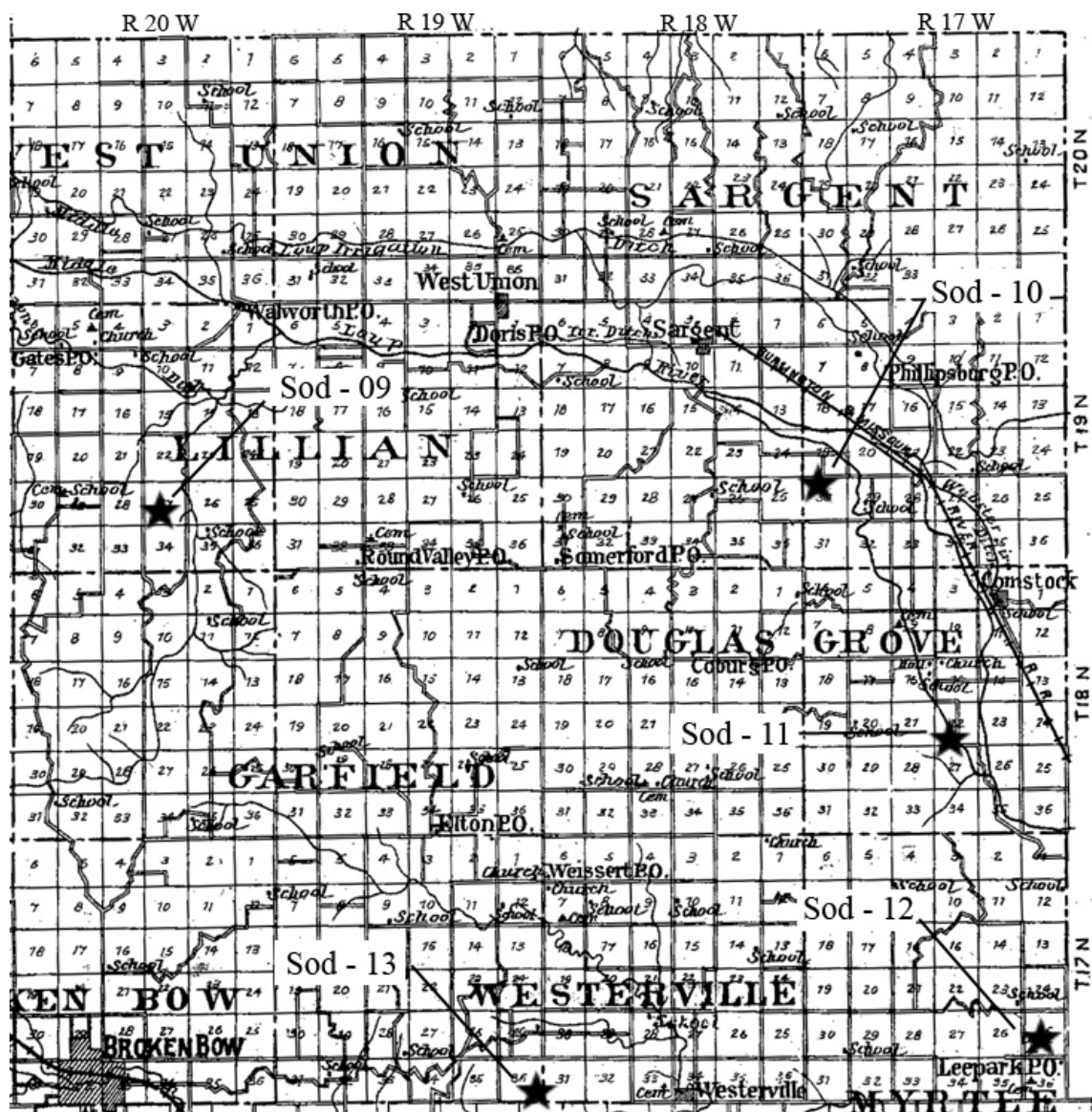
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APPENDIX A. MAPS OF SURVEYED PROPERTIES



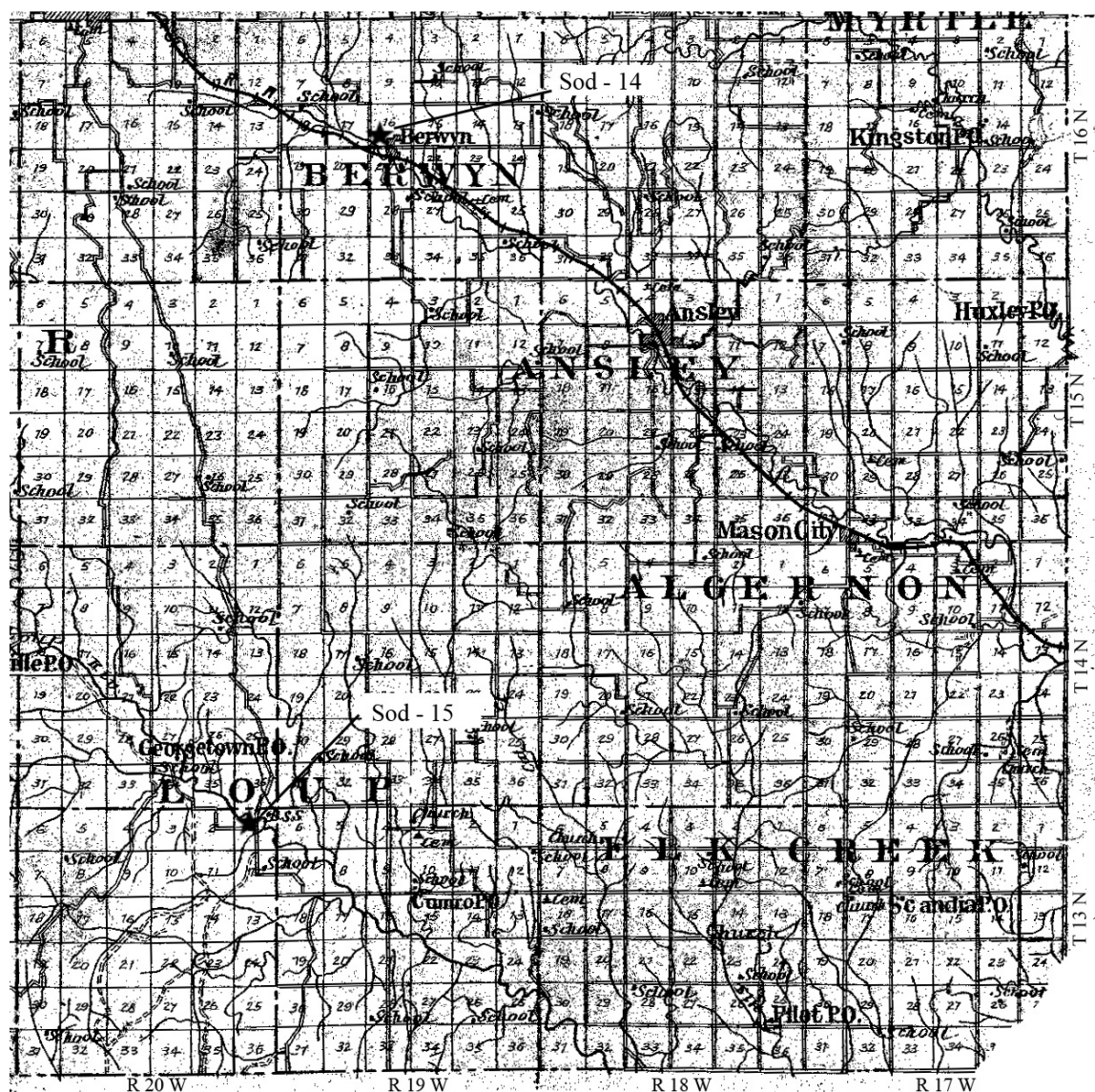
Custer County Northwest Quadrant

2007 Field No.	Resource Name	QQ-Q, Section	Township, Range	Date
Sod - 01	John Melton Sod House	SE-SW, 28	T 18N, R 24W	ca. 1896
Sod - 02	Dugout	NW-NE, 8	T 17N, R 24W	ca. 1887
Sod - 03	Chesley/Steele Sod House	SW-NW, 21	T 17N, R 24W	1892
Sod - 04	Clara Wonch Sod House	SE-NW, 34	T 17N, R 24W	ca. 1892
Sod - 05	Swanson/Foster Sod House	NE-NW, 24	T 17N, R 24W	ca. 1892
Sod - 06	George Simpson Sod House	NW-NE, 2	T 17N, R 24W	ca. 1892
Sod - 07	James Milburn Sod House	NE-NE, 9	T 20N, R 21W	ca. 1894
Sod - 08	Anna Ellison Sod House	SE-NE, 34	T 17N, R 21W	ca. 1897



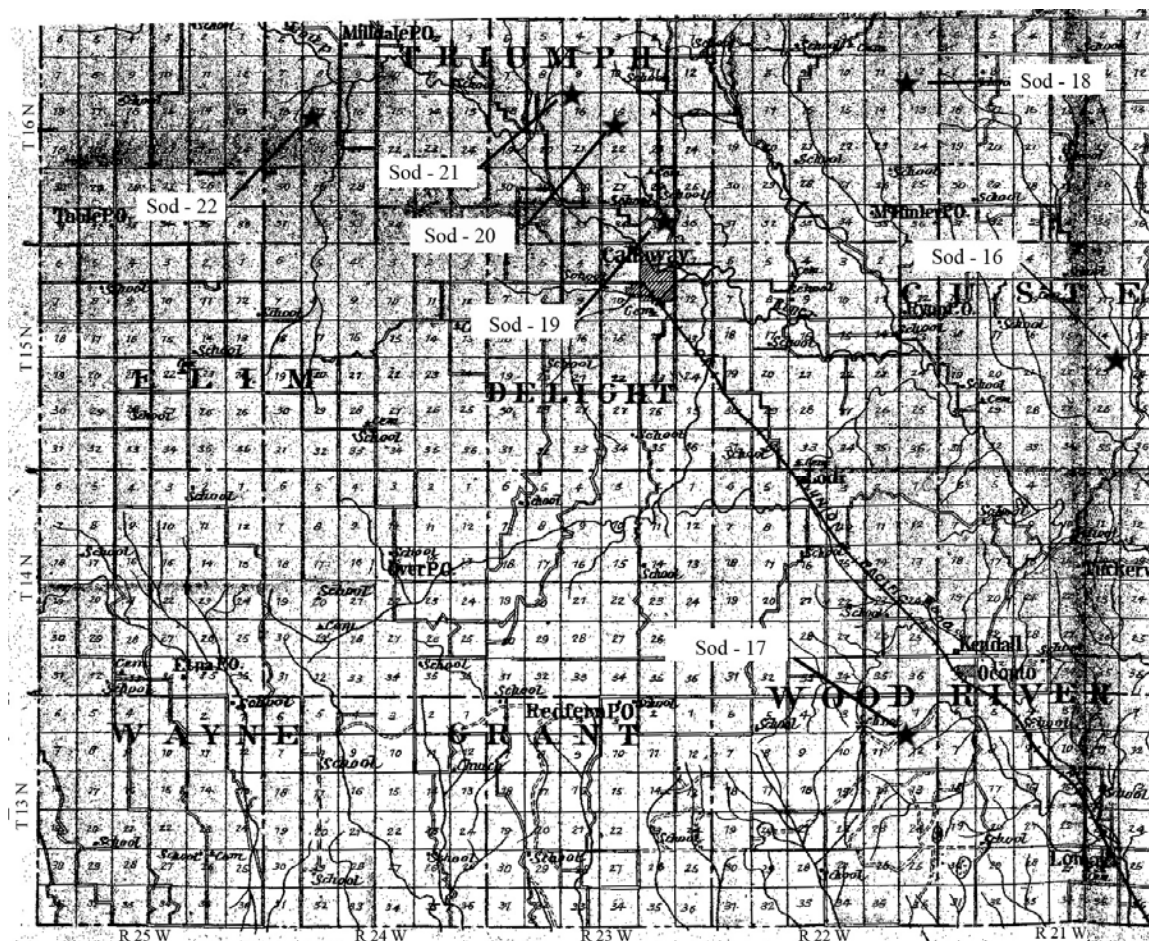
Custer County Northeast Quadrant

2007 Field No.	Resource Name	QQ-Q, Section	Township, Range	Date
Sod - 09	James Bates Sod House	NE-SW, 27	T 19N, R 20 W	ca. 1893
Sod - 10	Edwin Mills Sod House	NE-NW, 30	T 19N, R 17W	ca. 1915
Sod - 11	William Dowse Sod House	SE-SW, 22	T 18N, R 17W	1900
Sod - 12	Murray Family Sod House	NE-SW, 25	T 17N, R 17W	ca. 1883
Sod - 13	Rebecca Perkins Sod House	SE-SE, 36	T 17N, R 19W	ca. 1913



Custer County Southeast Quadrant

2007 Field No.	Resource Name	QQ-Q, Section	Township, Range	Date
Sod - 14	Lewis Fischer Sod House	SW-SW, 16	T 16N, R 19W	1934
Sod - 15	Albert Calhoun Sod House	SE-NW, 1	T 13N, R 20W	ca. 1885



Custer County Southwest Quadrant

2007 Field No.	Resource Name	QQ-Q, Section	Township, Range	Date
Sod - 16	William Minks Sod House	NE-NE, 14	T 15N, R 21W	ca. 1889
Sod - 17	Daniel McNulty Sod House	NW-NW, 12	T 13N, R 22W	ca. 1907
Sod - 18	Robert Krembzw Sod House	SW, 12	T 16N, R 24W	ca. 1909
Sod - 19	Alexander Smith Sod House	SW-NE, 35	T 16N, R 23W	ca. 1892
Sod - 20	George Luck Sod House	SE-SE, 15	T 16N, R 23W	ca. 1890
Sod - 21	Adolf Geschwind Sod House	SW-SW, 9	T 16N, R 23W	ca. 1895
Sod - 22	Henry Kruser Sod House	NE-SW, 17	T 16N, R 24W	ca. 1894

APPENDIX B. 2007 INVENTORY FORMS

Sod House Architectural History Inventory Form**NEHBS:** CU00-193**Field Number:** Sod - 01**County:** CUSTER**Historic Name:** John H. Melton Sod House**Date:** 7/5/2007**Legal Description:** SE of SW, Section 28, Township 18N, Range 24W**Current Property Owner:** Brett Miller**Current Use:** Vacant**Estimated Date:** ca. 1896**Setting:** Set about 1/8 mile north of the public right-of-way, house sits on a slight hill that swells further to the north.**FORM****Number of Stories:** 1**General Plan:** Rectangular**Roof Shape:** Hip**Exterior Cladding:** Clapboard**Set Below Grade:** Yes; appx. 1' - 0"**Primary façade faces:** North**Additional details:** ---**SOD CORE****Plan:** Square**Plan Dimensions:** 28'-8" x 28'-0"**Block Dimensions:** (no exposed sod)**Grass:** ---**Coursing:** ---**Wall depth:** 25"**Additional details:** 4"x 5" concrete sill surrounds perimeter of exterior walls**WINDOWS****Location:** West, South, East**Original/Replaced:** Replaced (filled in)**Placement:** All flush; one set of historic recessed paired windows on east elevation.**Bevel:** Angled on the interior**Pegged:** ---

Type: Formerly two-over-two double hung wood sash. Currently downsized one-over-one single-hung aluminum sash.

Additional details: ---

DOORS

Location: South, East

Original/Replaced: Original

Placement: Recessed and no exterior screens

Bevel: No

Pegged: ---

Type: Four panel wood

Additional details: ---

ROOF

Framing Material: Sawn Lumber

Original/Replaced: Original

Framing System: Unable to determine

Decking: Vertical wood planks

Roofing Material: Asphalt Shingles

Additional details: ---

ADDITIONS

Number of Stories: 1

Estimated Date: c.1920

Location: North, Northwest corner

Framing: Sawn lumber

Roof Shape: Shed

Exterior Cladding: Clapboard

Additional details: ---

INTERIOR DETAILS

Number of Rooms (sod core): 4

Partition Framing: Sawn lumber

Walls: Plaster covered with wall paper

Floors: 3-1/2" wood tongue-and-groove

Plumbing: Yes

Electricity Hook-up: Yes

Height to ceiling: 8'

ASSESSMENT

Condition: FAIR. House is invested with birds, insects, and vermin. Windows are broken and siding is cracked and loose. Structural cracks are present on interior walls.

Interior plaster is cracked and detaching from wall. Ceiling shows evidence of water damage. House suffered damage from a tornado in May 2007.

Historical Notes:

John H. Melton filed Homestead Claim #5217 for this parcel of land in 1896. He received the patent to the land on November 12, 1896. This residence also appears on the 1904 plat of Custer County. Therefore, circa 1896 is assumed as the date of construction for this sod house. The property changed owners a relatively few number of times. John T. Knott, who owned the property from 1906 to 1936, possibly made the addition and alterations to the house. Knott increased the acreage adjacent to the house from 80 acres (owned by Melton) to 280 acres. The Pinkstons, however, were the longest inhabitants of the property and are likely responsible for a majority of the interior alterations. Homer Pinkston bought the property in 1947 and eventually increased the acreage to 600 acres by the early 1960s. Members of the Pinkston family lived in the house until sometime during the 1990s or early 2000s.

Type Based on Chapter 6: Type IV Sod Prairie Cube

Recommendation: Eligible for the National Register

Photos:

Photo #	Facing	Date	Description
1	S	7/5/2007	Sod – 01, North Elevation
2	W	7/5/2007	Sod – 01, East Elevation
3	N	7/5/2007	Sod – 01, South Elevation
4	E	7/5/2007	Sod – 01, West Elevation
5	S	7/5/2007	Sod - 01, Interior



Photo: 1



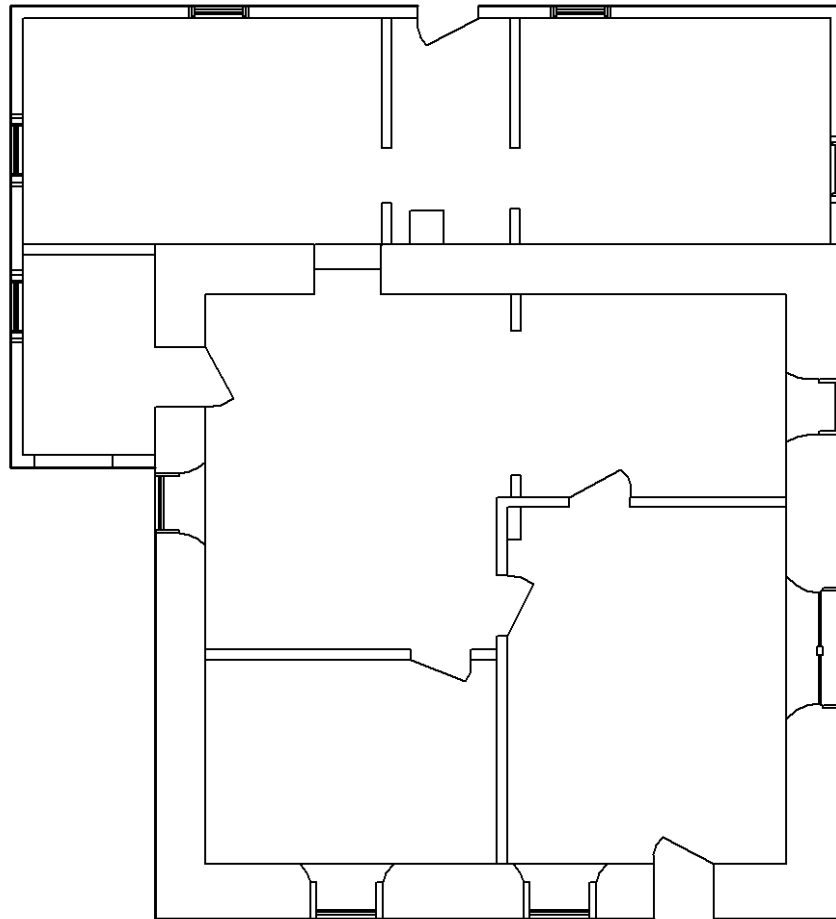
Photo: 2



Photo: 3



Photo: 4



Floor Plan
Scale: 1/8" = 1'-0"

Sod House Architectural History Inventory Form

NEHBS: --- **Field Number:** Sod - 02 **County:** CUSTER

Historic Name: Dugout **Date:** 7/5/2007

Legal Description: NW of NW, Section 8, Township 17N, Range 24W

Current Property Owner: Victor Karg

Current Use: Vacant **Estimated Date:** ca. 1887

Setting: Located approximately 1.5 miles northeast of Powell Canyon, property is excavated out of the side of a sandy hill that is roughly 10'-4" tall and 13'-6" long. Dugout is surrounded by large, grass covered sand hills. A pond is located appx. 1/8 mile southeast from the dugout. Property is only accessible on foot.

FORM

Number of Stories: N/A

General Plan: N/A

Roof Shape: N/A

Exterior Cladding: N/A

Set Below Grade: Yes; appx. 3'-0"

Primary façade faces: East

Additional details: Property contains no form, as it is a dugout completely excavated into a hill.

SOD CORE

Plan: Rectangular

Plan Dimensions: 5' x 14'-2"

Block Dimensions: No sod blocks

Grass: ---

Coursing: ---

Wall depth: N/A

Additional details: 28" tall alcoves are located on each side of the dugout. There are 2'-6" wide and range between 5'-0" and 10'-0" deep. There is a 32" tall bench at the rear of the dugout.

WINDOWS

Location: N/A

Original/Replaced: N/A

Placement: N/A

Bevel: N/A

Pegged: N/A

Type: N/A

Additional details: N/A

DOORS

Location: N/A

Original/Replaced: N/A

Placement: N/A

Bevel: N/A

Pegged: N/A

Type: N/A

Additional details: N/A

ROOF

Framing Material: N/A

Original/Replaced: N/A

Framing System: No framing system in place. Since room cavity is dug completely out of the side of the hill, the “roof” is merely earth above the room.

Decking: N/A

Roofing Material: N/A

Additional details: Ceiling of room is arched.

ADDITIONS

Number of Stories: N/A

Estimated Date: N/A

Location: N/A

Framing: N/A

Roof Shape: N/A

Exterior Cladding: N/A

Additional details: ---

INTERIOR DETAILS

Number of Rooms (sod core): 1

Partition Framing: 4 caverns excavated to north and south of the dugout.

Walls: Plaster

Floors: Dirt

Plumbing: No

Electricity Hook-up: No

Height to ceiling: 7'-1"

ASSESSMENT

Condition: GOOD. Entrance to dugout has filled with soil, making opening smaller. Large portions of plaster are missing due to extensive graffiti carved into the walls. Rear bench towards the west wall of the dugout is beginning to erode. Interior walls are still fairly sharp.

Historical Notes:

Property location is questionable since local guide was unsure as to where it was precisely located on the map. If location is accurate, Robert Shaw filed a Timber Claim on this property in 1895. He received the patent to the land in June 1905. The property remained in the Shaw family until approximately 1957.

Local guide mentioned that the dugout was a popular but “secret” local attraction. Based on this information, it is possible that the dugout is the Pine Canyon Cave mentioned in Norene Mills book *One Hundred Years on the South Loup: A History of the Arnold Community from 1883-1983*. Located approximately six miles northeast of Arnold and 13 miles northwest of Callaway, the book talks about a cave located in Pine Canyon. Although nearby Powell Canyon is marked on the map, Pine Canyon is not. The description of the cave, however, is very similar to the one found in July 2007. The entrance is in the fold of a canyon wall gully, rain has eroded part of the entrance, and many of the inscriptions are missing. This dugout contains a great number of graffiti inscriptions carved into the plaster from as early as 1918. The book mentions a missing inscription that noted that a George Troyer discovered the cave on December 13, 1887.

Type Based on Chapter 6: Type I Dugout

Recommendation: Eligible for the National Register

Photos:

Photo #	Facing	Date	Description
1	W	7/5/2007	Sod - 02
2	W	7/5/2007	Sod - 02
3	W	7/5/2007	Sod – 02, Interior
4	E	7/5/2007	Sod – 02, Interior
5	SW	7/5/2007	Sod - 02, Setting



Photo: 1



Photo: 2



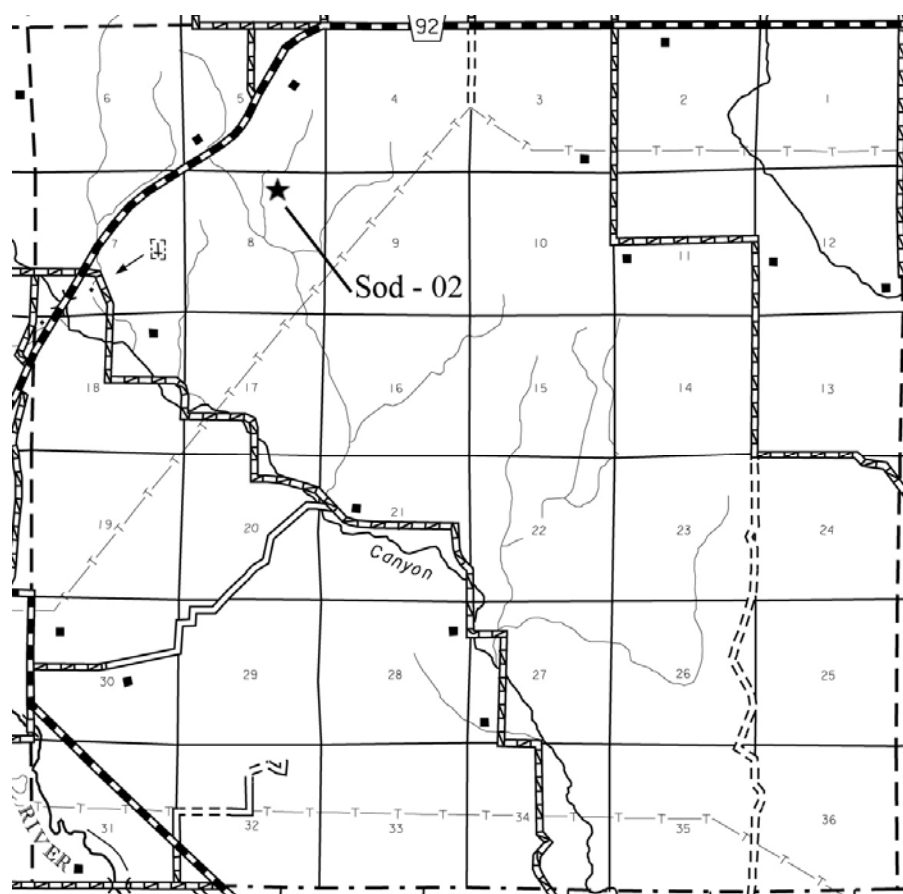
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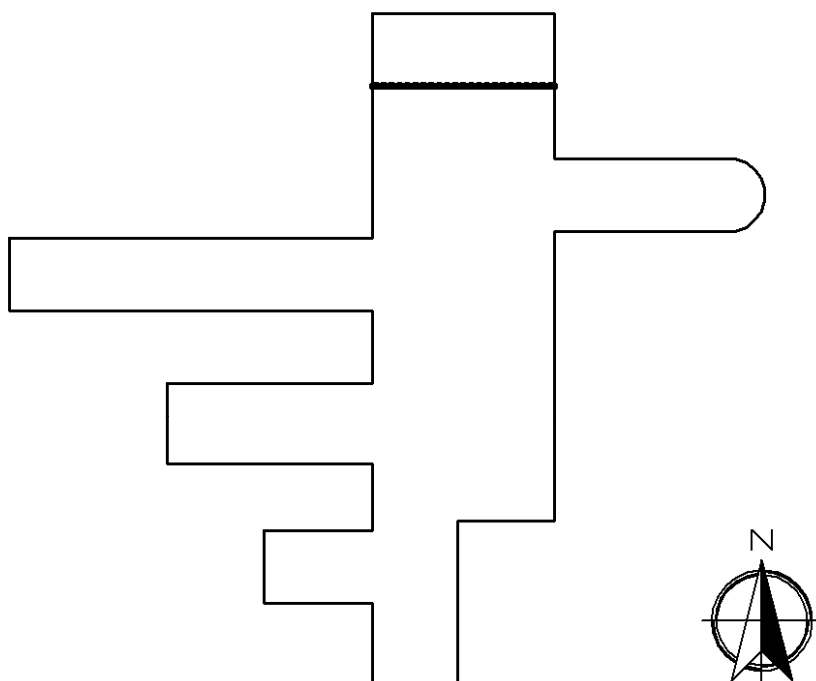
Photo: 4



Photo: 5



Location Map



Floor Plan
Scale: $\frac{3}{16}'' = 1'-0''$

Sod House Architectural History Inventory Form

NEHBS: --- **Field Number:** Sod - 03 **County:** CUSTER

Historic Name: Charles Chesley Sod House/Nolan Steele Sod House **Date:** 7/4/2007

Legal Description: SW of NW, Section 21, Township 17N, Range 24W

Current Property Owner: Leon and Mona Steele

Current Use: Single family dwelling **Date:** 1892

Setting: Located in Powell Canyon, the house is clearly visible from the public right-of-way. House is part of a larger historic farmstead complete with chicken coops, outhouse, three barns, a corral, windmill, and silo.

FORM

Number of Stories: 1 **General Plan:** L-Plan

Roof Shape: Hip **Exterior Cladding:** Masonite

Set Below Grade: No **Primary façade faces:** South

Additional details: Non-historic dormer, possibly for attic space, and one-story covered stoop present on south elevation. House initially covered with clapboard.

SOD CORE

Plan: Rectangular **Plan Dimensions:** 48'-3"x 30'-3"

Block Dimensions: (no sod exposed) **Grass:** N/A (blue stem)

Coursing: N/A **Wall depth:** 36" (?)

Additional details: ---

WINDOWS

Location: North, West, South, East **Original/Replaced:** Replaced

Placement: Flush

Bevel: N/A **Pegged:** N/A

Type: One-over-one aluminum sash; originally two-over-two double-hung wood sash

Additional details: Windows have been downsized.

DOORS**Location:** South**Original/Replaced:** Replaced**Placement:** N/A**Bevel:** N/A**Pegged:** N/A**Type:** N/A**Additional details:** ---**ROOF****Framing Material:** Sawn lumber**Original/Replaced:** Original**Framing System:** Unknown**Decking:** Unknown**Roofing Material:** Asphalt Shingles**Additional details:** Original roofing material was wood shakes. Lumber for the roof came from the Milldale lumber mill.**ADDITIONS****Number of Stories:** 1**Estimated Date:** 1928**Location:** Northwest corner**Framing:** Sawn lumber**Roof Shape:** Side gable**Exterior Cladding:** Clapboard**Additional details:** ---**INTERIOR DETAILS****Number of Rooms (sod core):** 4+**Partition Framing:** N/A**Walls:** N/A**Floors:** N/A**Plumbing:** Yes**Electricity Hook-up:** Yes**Height to ceiling:** N/A**ASSESSMENT****Condition:** GOOD. Unable to gain access to interior of house, but exterior appears structurally sound and well maintained.

Historical Notes:

Timber Claim #853 was filed on the northwest quarter of section 21 in 1899, but the sod house was already built on the land. Jared Copeland began building the large one story dwelling for his brother-in-law, Charles Chesley. Copeland is known to have helped or directed the construction of several sod houses in the general vicinity of Lower Powell Canyon. The house was completed in 1895 and included four bedrooms and a small upstairs. The Chesley's sold the property to Samuel Steele in April 1902. However, Nolan and Ella Steel moved into the sod house in November 1902 and established the B (Butler) and S (Steele) Cattle Ranch. Samuel Steele remained the property owner until Nolan Steele received the deed in 1914. The property continues to remain in the Steele family today. The Steele's raised cattle and hogs and were well respected in the community. Leon Steele is the grandson of Nolan Steele and son of Cecil Steele, who lived in the house until the early 1990s.

Type Based on Chapter 6: Type V Sod Palace

Recommendation: Eligible for the National Register

Photos:

Photo #	Facing	Date	Description
1	N	7/4/2007	Sod – 03, South Elevation
2	W	7/4/2007	Sod – 03, East Elevation
3	SW	7/4/2007	Sod – 03, Northeast corner
4	SW	7/4/2007	Sod – 03, North Elevation of addition
5	E	7/4/2007	Sod – 03, West Elevation



Photo: 1



Photo: 2



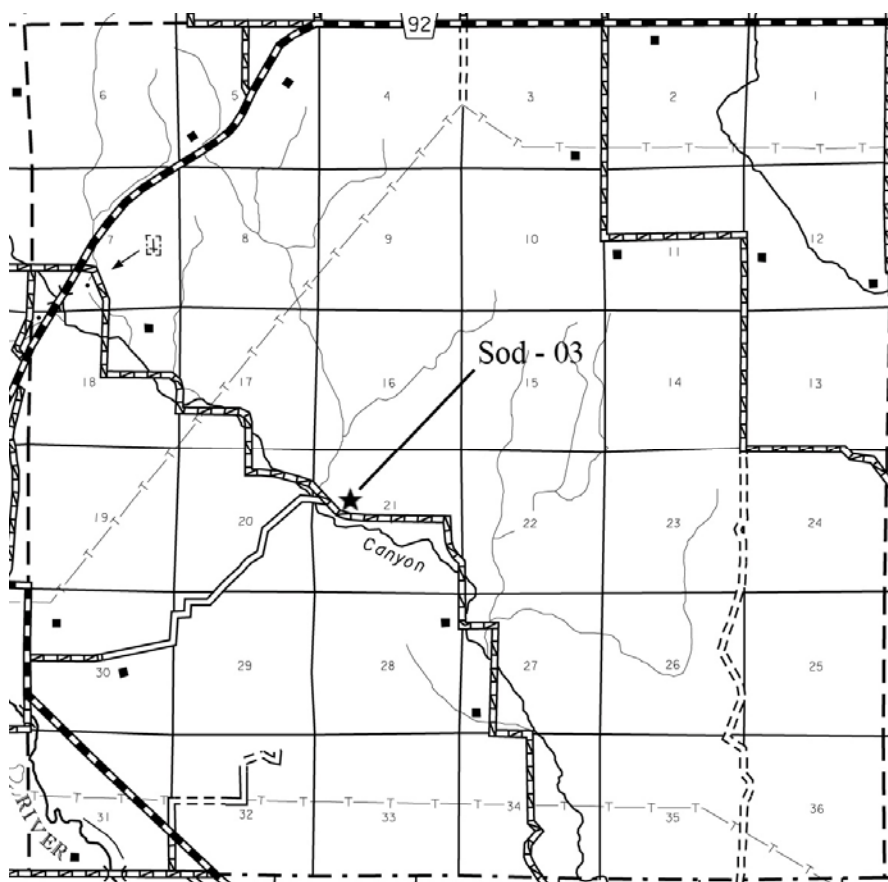
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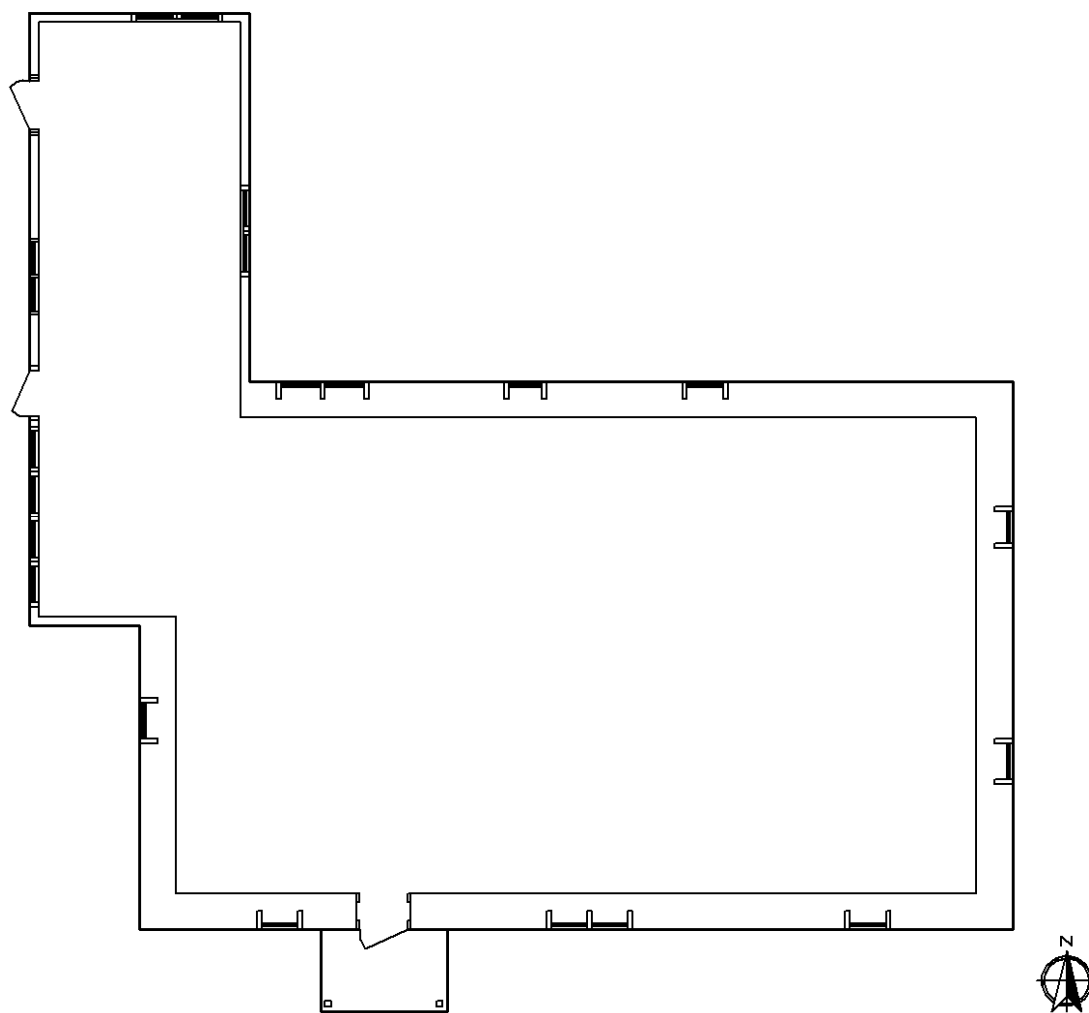
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Photo: 5



Location Map



Floor Plan
Scale: $\frac{3}{32}'' = 1'-0''$

Sod House Architectural History Inventory Form

NEHBS: --- **Field Number:** Sod - 04 **County:** CUSTER

Historic Name: Clara Wonch Sod House **Date:** 7/5/2007

Legal Description: SE of NW, Section 34, Township 17N, Range 24W

Current Property Owner: Leon Steele

Current Use: Vacant **Estimated Date:** ca. 1892

Setting: Set in a thick grove of deciduous trees between a shelterbelt on the north and a deep ravine on the south.

FORM

Number of Stories: 1	General Plan: Rectangular
Roof Shape: Hip	Exterior Cladding: Plaster, clapboard
Set Below Grade: No	Primary façade faces: East

Additional details: South and east sod walls have been removed and replaced with frame walls when the house was expanded to the south.

SOD CORE

Plan: Rectangular	Plan Dimensions: 20'-6"x 25'-0"
Block Dimensions: 26"x 14"x 3-4"	Grass: 1/2"; laid grass side down
Coursing: Two rows of headers alternate with two rows of stretchers	Wall depth: 23" – 27"
Additional details: Walls are battered ranging from 27" at the floor to 23" at the eaves	

WINDOWS

Location: North, West	Original/Replaced: Original
------------------------------	------------------------------------

Placement: Flush

Bevel: No	Pegged: Yes
------------------	--------------------

Type: Two-over-two double-hung wood sash

Additional details: ---

DOORS

Location: East**Original/Replaced:** Original**Placement:** N/A**Bevel:** N/A**Pegged:** N/A**Type:** N/A**Additional details:** No remaining doors in sod walls.**ROOF**

Framing Material: Sawn and hewn lumber **Original/Replaced:** Original**Framing System:** Rafters extend from ridge beam and rest on built up lumber top plate set above the sod walls; ceiling joists connect the rafters**Decking:** Horizontal wood planks**Roofing Material:** Wood shingles**Additional details:** Decking is skip sheathing**ADDITIONS**

Number of Stories: 1**Estimated Date:** ca. 1915**Location:** South**Framing:** Sawn lumber**Roof Shape:** Hip**Exterior Cladding:** Clapboard**Additional details:** ---**INTERIOR DETAILS**

Number of Rooms (sod core): 4**Partition Framing:** Sawn lumber**Walls:** Plaster**Floors:** Wood tongue-and-groove**Plumbing:** No**Electricity Hook-up:** No**Height to ceiling:** 7'-9"**ASSESSMENT**

Condition: VERY POOR. Remaining sod walls are fully exposed and heavily eroded. Nearly 60% of the west wall has collapsed, which has left the interior of the house open to the elements. The entire sod core is structurally unstable due to the significant shifting and settling of the walls. The roof displays large holes, which are causing the further deterioration of the sod and frame walls. The interior of the house displays severe water damage and as a result the wood walls, roof framing, and floors are significantly rotted.

The house is heavily overgrown with trees and brush, and insects and vermin have nested in the walls, roof, and floor.

Historical Notes:

Clara Barnum, formerly Clara Wonch, filed claim #3458 for the northwest quarter of Section 34 in 1892. The property was sold three times until she received the patent to the land in October 1914. By that time H.D. Woodward owned the property, but sold it in 1919 to Thomas Backes. Thomas Backes owned the land until 1962 when he sold it to Cecil Steele. The property continues to remain in the Steele family today.

Type Based on Chapter 6: Type IIIB Standard Plan Variation

Recommendation: Not eligible for the National Register

Photos:

Photo #	Facing	Date	Description
1	S	7/5/2007	Sod – 04, North Elevation
2	E	7/5/2007	Sod – 04, West Elevation
3	N	7/5/2007	Sod – 04, South Elevation
4	SW	7/5/2007	Sod – 04, Northeast corner
5	NE	7/5/2007	Sod – 04, Interior



Photo: 1



Photo: 2



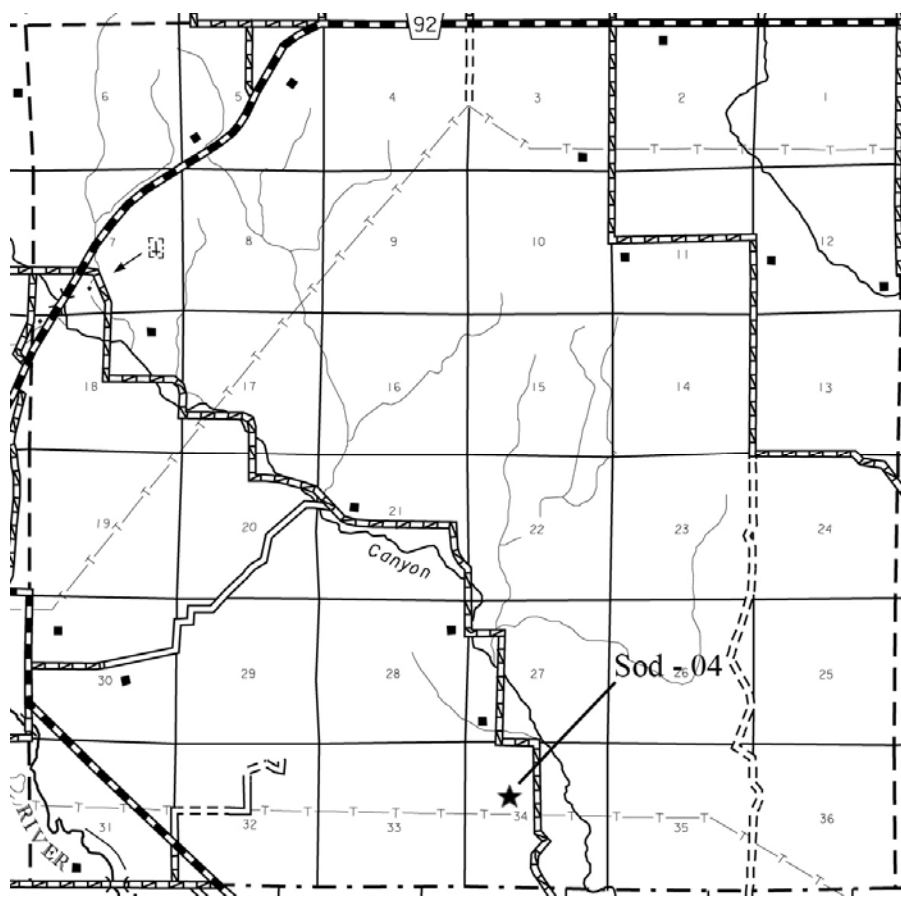
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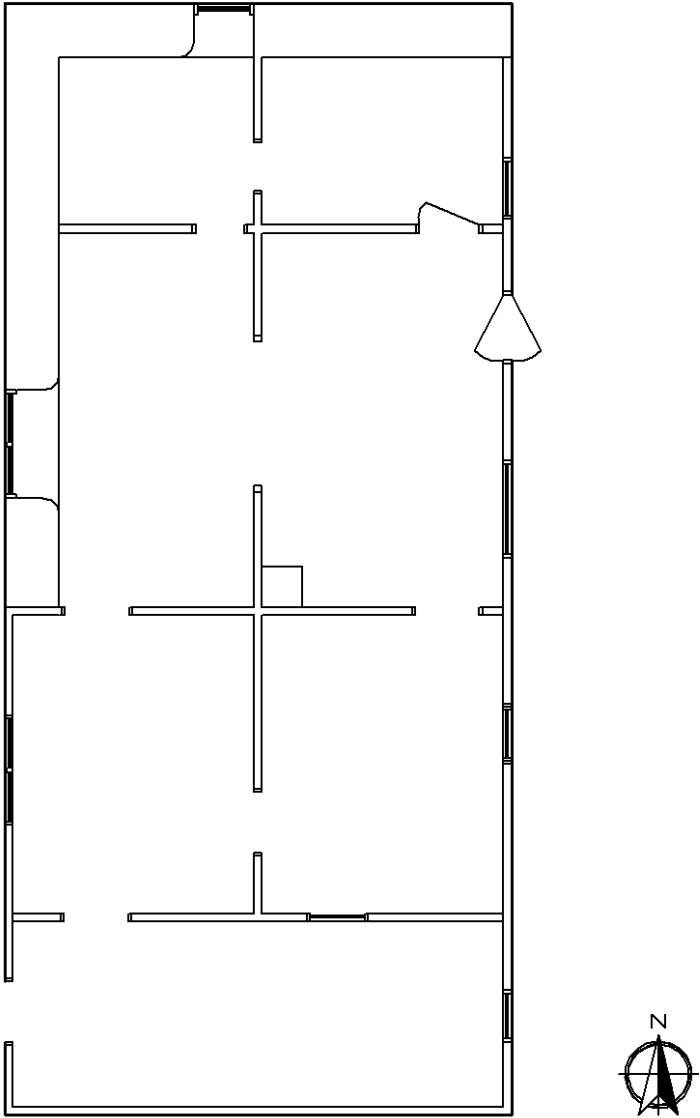
Photo: 4



Photo: 5



Location Map



Floor Plan
Scale: 1/8" = 1'-0"

Sod House Architectural History Inventory Form

NEHBS: --- Field Number: Sod - 05 County: CUSTERHistoric Name: Herman Swanson Sod House/Sam Foster Sod House Date: 7/4/2007Legal Description: NE of NW, Section 24, Township 17N, Range 24WCurrent Property Owner: John BeshalerCurrent Use: Vacant Estimated Date: ca. 1892

Setting: Set in a thick grove of pine and deciduous trees. The south of the house gently slopes down to a field. The property is completely obscured from the public right-of-way by a shelterbelt.

FORM

Number of Stories: 1 General Plan: T-Plan

Roof Shape: Hip, Gable Exterior Cladding: Stucco

Set Below Grade: Yes (Gable); 18" Primary façade faces: South

Additional details: Rectangular hipped house with gabled square wing on the east elevation.

SOD CORE

Plan: Rectangular, Square Plan Dimensions: 20'-3"x 30'; 18'-3"x 17'-4"

Block Dimensions: 21"x 10"x 4" (hip) Grass: 1/2" (hip); laid grass side down, no grass (gable)

24"x 13"x 3-1/2" (gable)

Coursing: One course common (both) Wall depth: 23" – 25" (hip); 24" (gable)

Additional details: Sod extends in the gable end of gable portion. Walls are battered on hip portion, ranging from 25" at the floor to 23" near the top plate.

WINDOWSLocation: North, West, South (hip) Original/Replaced: Replaced (historic)
North, South (gable)

Placement: Recessed on all elevations

Bevel: Angled on the exterior Pegged: ---

Type: One-over-one double-hung wood sash

Additional details: On gable portion, windows are set at grade on the exterior and frames are wider than those of the hip portion.

DOORS

Location: South, East

Original/Replaced: Original

Placement: Recessed (hip), flush (gable)

Bevel: None

Pegged: ---

Type: Wood four panel with exterior screen. Interior door between two sod structures is wood vertical board.

Additional details: The interior door frame between the two sod structures is beveled on the east wall.

ROOF

Framing Material: Sawn lumber (hip);
Sawn and hewn lumber (gable)

Original/Replaced: Original

Framing System: Rafters set into sod connect to ridge beams (hip); three beam construction with frameless sheathing. Beams measure 2"x 12"

Decking: Horizontal wood planks (hip)
Vertical wood planks (gable)

Roofing Material: Corrugated metal

Additional details: Exposed rafter ends on hip portion.

ADDITIONS

Number of Stories: ---

Estimated Date: ---

Location: ---

Framing: ---

Roof Shape: ---

Exterior Cladding: ---

Additional details: It is believed that the rectangular hipped portion of the house was an addition to the initial gabled square plan house.

INTERIOR DETAILS

Number of Rooms (sod core): 3; 1

Partition Framing: Sawn lumber; sod

Walls: Plaster

Floors: 3-1/2" wood tongue-and-groove

Plumbing: No

Electricity Hook-up: Yes

Height to ceiling: 6'-6" (gable), 8'-2" (hip)

ASSESSMENT

Condition: POOR. House is heavily overgrown with brush and tree branches are resting on the roof. Exterior stucco is cracked and large portions of sod are exposed on the south and east elevations. Exposed sod is eroded and beginning to crumble, resulting in a large hole on the south elevation. The hole has thrown off the stability of the remaining walls on the hip portion of the house, which is evidenced by the warped window and door frames. Roofing members appear sound, but are beginning to rot where the wood meets the sod. Insects, vermin, and birds have nested in the roof.

Historical Notes:

Herman Swanson filed Timber Claim #81 for the northwest quarter of Section 24 in 1892. He sold the property to W.E. Warren in 1896. Warren sold the property to Samuel Foster in 1902. Foster remained the owner the property, even though the claim was finally proved up on in 1910. In 1928, Samuel Foster sold the land, which had now grown to 240 acres, to Clemmie Foster. She remained on the property until 1964, when it was sold to Mabel Benefiel. It is known that the house was inhabited until the 1980s. The Beshaler's acquired the property in 1996.

Type Based on Chapter 6: Type II Common Homestead (gabled portion) and Type IIIB Standard Plan Variation (hipped portion)

Recommendation: Eligible for the National Register

Photos:

Photo #	Facing	Date	Description
1	W	7/4/2007	Sod – 05, East Elevation
2	N	7/4/2007	Sod – 05, South Elevation
3	E	7/4/2007	Sod – 05, West Elevation
4	SE	7/4/2007	Sod – 05, Northwest corner
5	NE	7/4/2007	Sod – 05, Interior gable portion



Photo: 1



Photo: 2



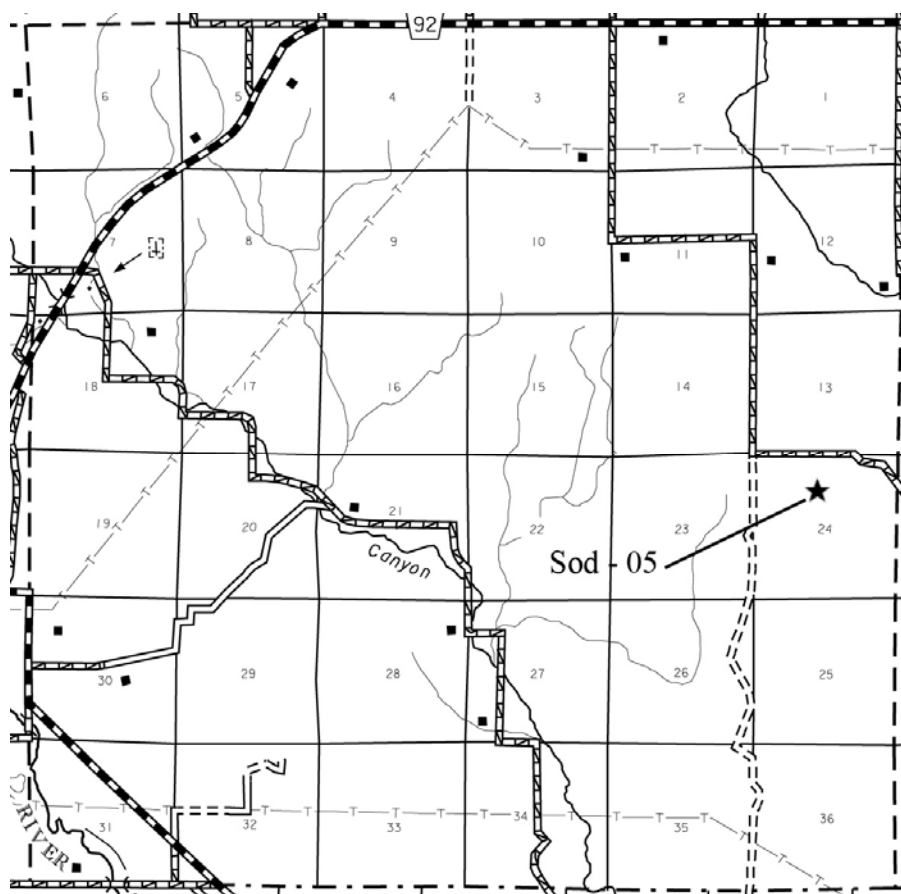
Photo: 3



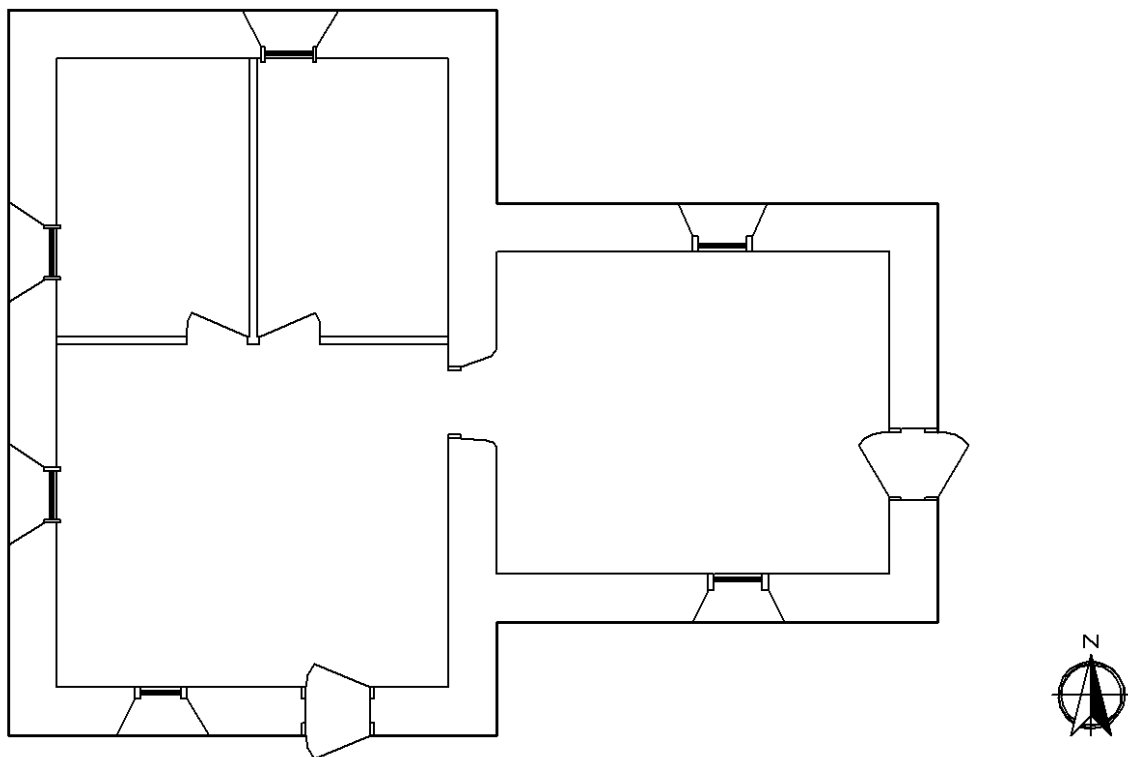
Photo: 4



Photo: 5



Location Map



Floor Plan
Scale: 1/8" = 1'-0"

Sod House Architectural History Inventory Form

NEHBS: --- **Field Number:** Sod - 06 **County:** CUSTER

Historic Name: George Simpson Sod House **Date:** 7/5/2007

Legal Description: NW of NE, Section 2, Township 17N, Range 24W

Current Property Owner: Charles Foran

Current Use: Vacant **Estimated Date:** ca. 1892

Setting: Set within a modern farmstead that is visible from the public right-of-way.

FORM

Number of Stories: 1 **General Plan:** Rectangular

Roof Shape: Hip **Exterior Cladding:** Clapboard

Set Below Grade: No **Primary façade faces:** South

Additional details: Information on form derived from property owner.

SOD CORE

Plan: Square **Plan Dimensions:** 18' x 15'

Block Dimensions: N/A **Grass:** Length N/A; laid grass side down

Coursing: N/A **Wall depth:** 30"

Additional details: 4" concrete sill surrounds perimeter of sod

WINDOWS

Location: West, South, East **Original/Replaced:** N/A

Placement: Flush

Bevel: N/A **Pegged:** N/A

Type: N/A

Additional details: Information on windows derived from property owner.

DOORS

Location: South **Original/Replaced:** N/A

Placement: N/A

Bevel: N/A

Pegged: N/A

Type: N/A

Additional details: Door is nonextant.

ROOF

Framing Material: Sawn lumber

Original/Replaced: N/A

Framing System: N/A

Decking: N/A

Roofing Material: N/A

Additional details: Roof is nonextant.

ADDITIONS

Number of Stories: 1

Estimated Date: N/A

Location: N/A

Framing: Sawn lumber

Roof Shape: N/A

Exterior Cladding: Clapboard

Additional details: ---

INTERIOR DETAILS

Number of Rooms (sod core): 1

Partition Framing: N/A

Walls: N/A

Floors: N/A

Plumbing: N/A

Electricity Hook-up: N/A

Height to ceiling: N/A

ASSESSMENT

Condition: NONEXTANT. House has completely collapsed. A small portion of the melted sod blocks can be seen at grade on the south elevation. Lumber remnants from the addition have fallen atop the mound of dirt.

Historical Notes:

George Simpson filed Homestead claim #180 on the northeast quarter of Section 2 in 1892. The property changed owners five times before Simpson received the patent to the land in March 1903, however the bank had acquired the property that same year. The property was sold to Samuel Neve in 1906 and then to Joseph Wolniczek in 1915.

The bank reclaimed the property in 1932 and sold it four years later to Elizabeth Life. Hazel Weber acquired the property sometime before 1959 and sold it to Lyle Foran in 1960. The property continues to remain in the Foran family. According to Charles Foran, the current property owner, the sod house was fully standing in the 1950s but not occupied. The house began to collapse in the 1970s.

Type Based on Chapter 6: Type II Common Homestead

Recommendation: Not eligible for the National Register

Photos:

Photo #	Facing	Date	Description
1	N	7/5/2007	Sod – 06
2	N	7/5/2007	Sod – 06
3	SW	7/5/2007	Sod – 06



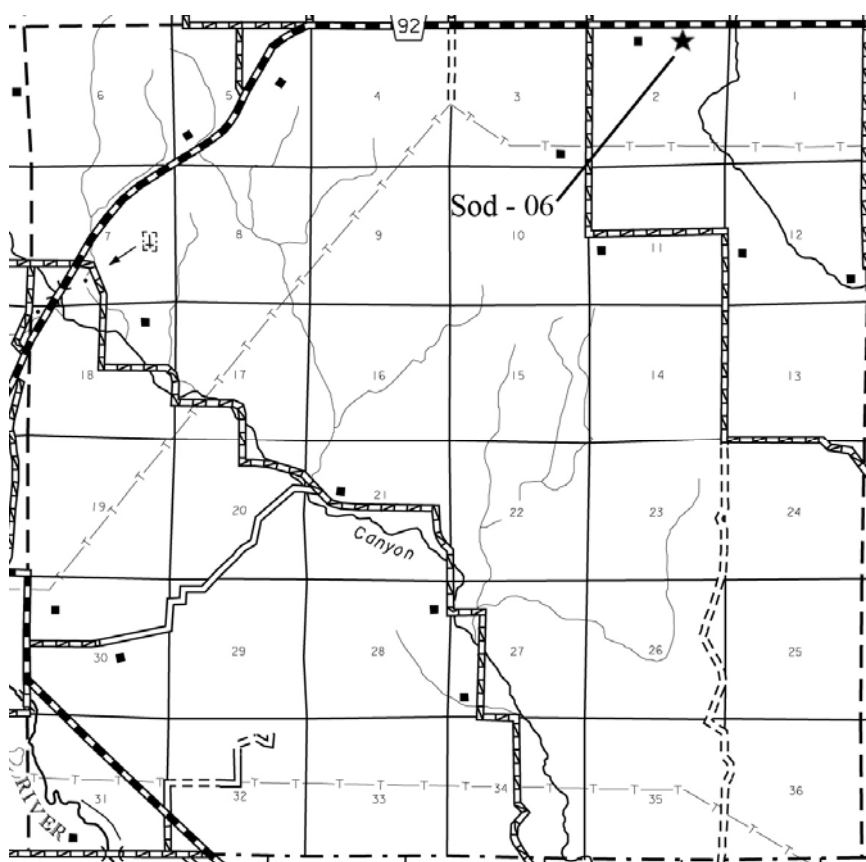
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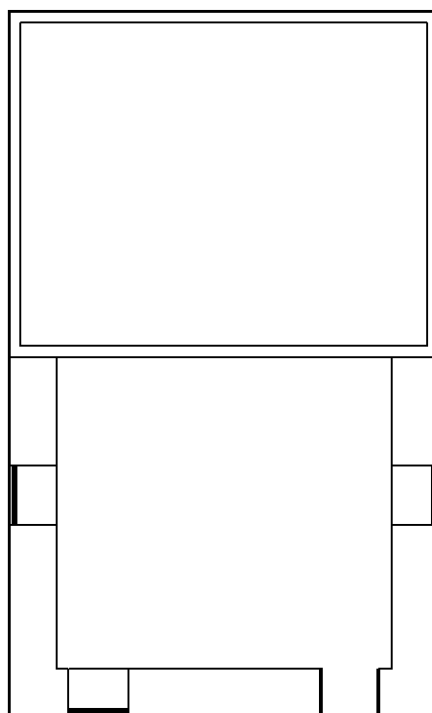
Photo: 2



Photo: 3



Location Map



Floor Plan
Scale: $1/8'' = 1'-0''$

Sod House Architectural History Inventory Form

NEHBS: CU00-154 **Field Number:** Sod - 07 **County:** CUSTER

Historic Name: James Milburn Sod House **Date:** 7/7/2007

Legal Description: SE of NE, Section 9, Township 20N, Range 21W

Current Property Owner: Merton Thompson

Current Use: Vacant **Estimated Date:** ca. 1894

Setting: Located at the Milburn crossroads, the house is set in a in a grove of trees less than 100 yards from the public right-of-way.

FORM

Number of Stories: 1 **General Plan:** Rectangular

Roof Shape: Side gable **Exterior Cladding:** Stucco

Set Below Grade: No **Primary façade faces:** East

Additional details: ---

SOD CORE

Plan: Rectangular **Plan Dimensions:** 18' x 33'

Block Dimensions: 16"x 13"x 4" **Grass:** 1/4"; laid grass side down

Coursing: One course common **Wall depth:** 22" – 25"

Additional details: Sod extends into the gable end. Walls were battered ranging from 25" at the floor to 22" near the top plate.

WINDOWS

Location: North, West, South **Original/Replaced:** Original

Placement: Flush

Bevel: Rounded on the interior **Pegged:** ---

Type: Four-over-four double-hung wood sash

Additional details: Only one window remains encased in sod.

DOORS**Location:** West, East**Original/Replaced:** Original**Placement:** Recessed**Bevel:** Rounded on the exterior**Pegged:** ---**Type:** Wood three panel with window light**Additional details:** Only one door remains partially encased in sod.**ROOF****Framing Material:** Sawn lumber**Original/Replaced:** Original**Framing System:** Three beam construction with rafters nailed into beams.**Decking:** Horizontal wood planks**Roofing Material:** Tar paper and rolled asphalt**Additional details:** Entire roof has collapsed.**ADDITIONS****Number of Stories:** 1**Estimated Date:** ca. 1940**Location:** West**Framing:** Sawn lumber**Roof Shape:** Shed**Exterior Cladding:** Unknown**Additional details:** Addition is completely collapsed.**INTERIOR DETAILS****Number of Rooms (sod core):** 2?**Partition Framing:** Unknown**Walls:** Plaster**Floors:** Unknown**Plumbing:** No**Electricity Hook-up:** No**Height to ceiling:** 7'-6"**ASSESSMENT**

Condition: VERY POOR. Roof on house collapsed nearly 20 years ago. Four partial walls remain standing, but the shed roof frame addition to the west is completely gone. Exposed sod walls are heavily weathered and crumbling. One full gabled wall remains on the south elevation, where the center roof beam is still set into the sod at the peak. Remaining roof planks and beams are heavily rotted. House is overgrown with vegetation and very difficult to see from the public right-of-way.

Historical Notes:

James Milburn filed Timber Claim #348 for the northeast quarter of section 9 in 1894. In 1899, Milburn sold the land to William Ewing, who sold it the following year to David Hill. A patent was issued to James Milburn in 1905 continued to live on the land until 1906. The land then changed owners multiple times until Charles Mitchell acquired it in 1942. Mitchell was the last known occupant of the house during the 1940s. He sold the property in 1947 and once again it changed owners nearly every five years until Merton Thompson bought the land in 1999.

Type Based on Chapter 6: Type IIIA Standard Plan

Recommendation: Not eligible for the National Register

Photos:

Photo #	Facing	Date	Description
1	W	7/7/2007	Sod – 07, East Elevation
2	NE	7/7/2007	Sod – 07, South Elevation
3	S	7/7/2007	Sod – 07, Interior of north wall
4	NE	7/7/2007	Sod – 07, Interior of east wall
5	S	7/7/2007	Sod – 07, Interior of north wall



Photo: 1



Photo: 2



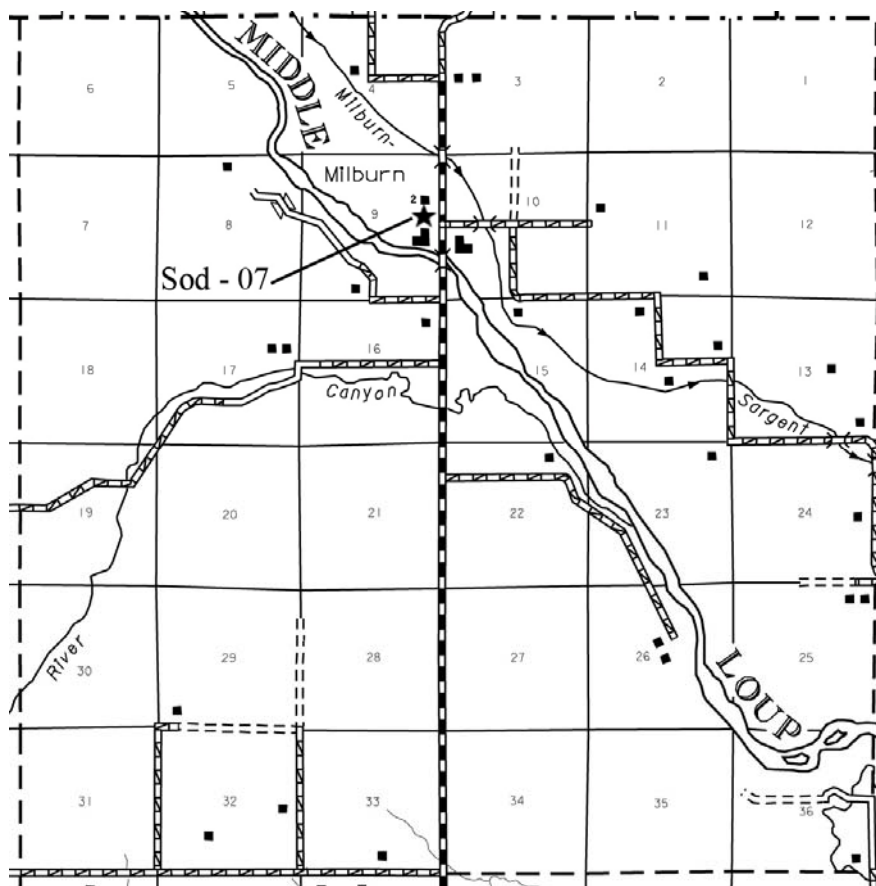
Photo: 3



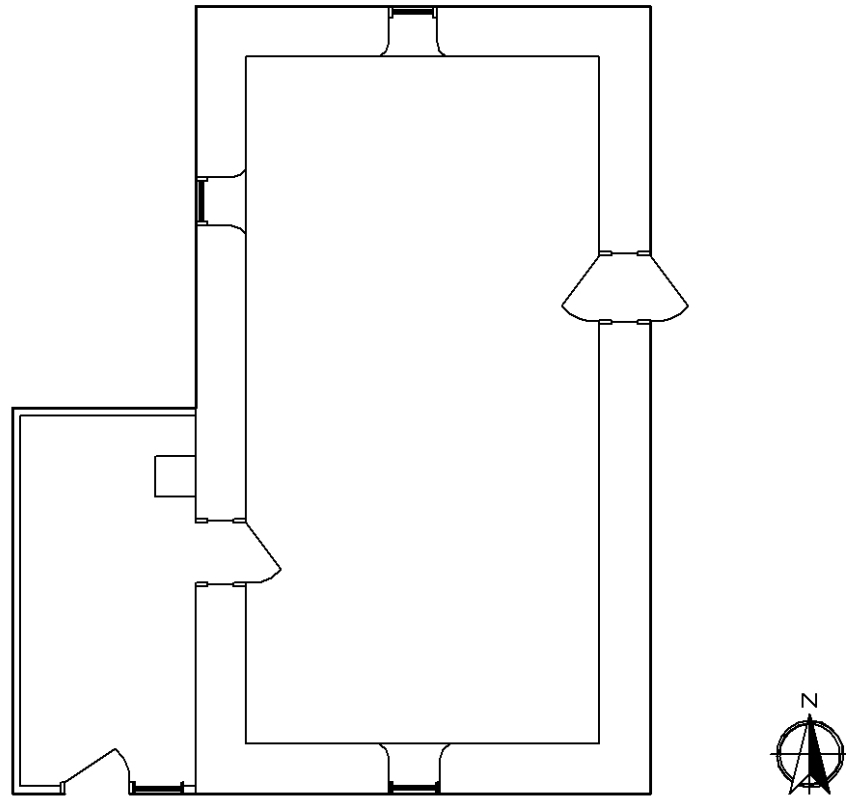
Photo: 4



Photo: 5



Location Map



Floor Plan
Scale: 1/8" = 1'-0"

Sod House Architectural History Inventory Form

NEHBS: CU00-049 **Field Number:** Sod - 08 **County:** CUSTER

Historic Name: Anna Ellison Sod House **Date:** 7/2007

Legal Description: SE of NE, Section 34, Township 17N, Range 21W

Current Property Owner: Roy Yanagida

Current Use: Vacant **Estimated Date:** ca. 1897

Setting: Unknown

FORM

Number of Stories: 1 **General Plan:** Rectangular

Roof Shape: Hip **Exterior Cladding:** N/A

Set Below Grade: N/A **Primary façade faces:** N/A

Additional details: Site was not visited due to denied permission to enter property.

SOD CORE

Plan: Rectangular **Plan Dimensions:** N/A

Block Dimensions: N/A **Grass:** N/A

Coursing: N/A **Wall depth:** N/A

Additional details: ---

WINDOWS

Location: N/A **Original/Replaced:** N/A

Placement: N/A

Bevel: N/A **Pegged:** N/A

Type: N/A

Additional details: ---

DOORS

Location: N/A **Original/Replaced:** N/A

Placement: N/A

Bevel: N/A

Pegged: N/A

Type: N/A

Additional details: ---

ROOF

Framing Material: N/A

Original/Replaced: N/A

Framing System: N/A

Decking: N/A

Roofing Material: N/A

Additional details: ---

ADDITIONS

Number of Stories: N/A

Estimated Date: N/A

Location: N/A

Framing: N/A

Roof Shape: N/A

Exterior Cladding: N/A

Additional details: ---

INTERIOR DETAILS

Number of Rooms (sod core): N/A

Partition Framing: N/A

Walls: N/A

Floors: N/A

Plumbing: N/A

Electricity Hook-up: N/A

Height to ceiling: N/A

ASSESSMENT

Condition: N/A

Historical Notes:

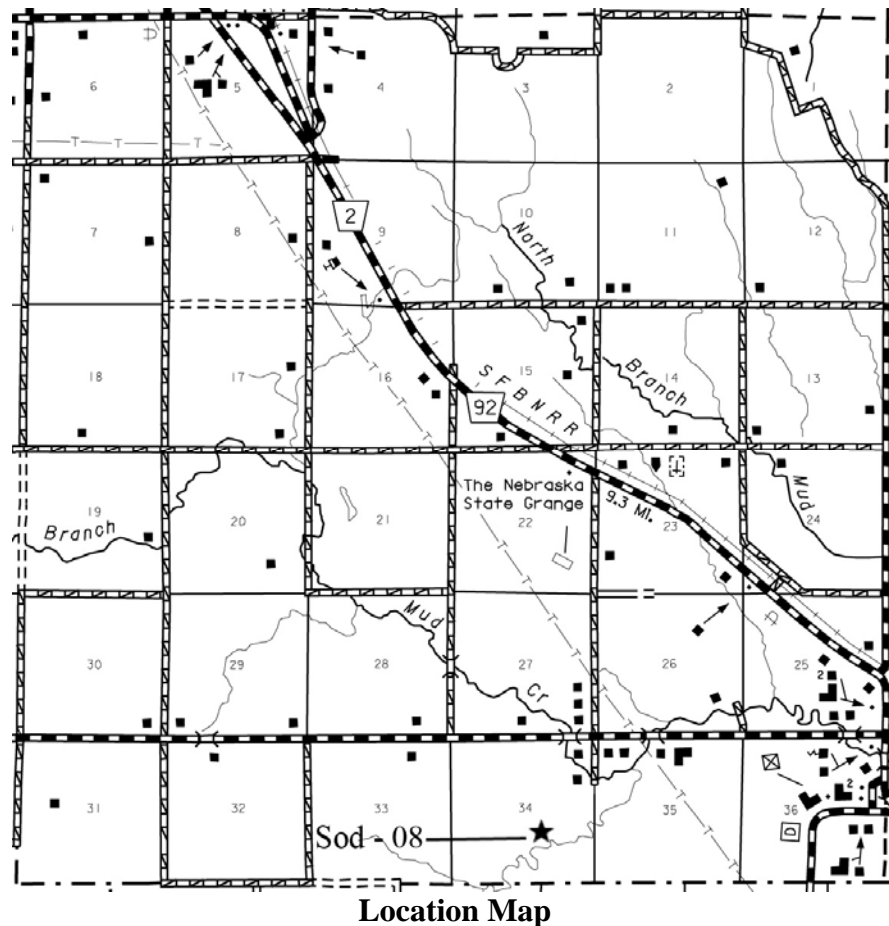
Anna Ellison filed Homestead Claim #749 for the northeast quarter of Section 34 in 1897 and received the patent to the land in January 1902. The property then changed owners twice until Charles Hipsley bought the land in 1908. The property remained in the Hipsley family until 1938 when it was sold to Frank Gottwald. Mr. Gottwald sold the land in 1950 to John Thomas. Throughout the 1950s, the property changed owners multiple times. During this time Phil Gardner, a local Custer County historian, spent part

of his childhood in this house. The McDuffee's bought the property in 1959 and owned it until 1983. The current owner, Roy Yanagida, purchased the land in 1990.

Type Based on Chapter 6: Unable to determine type.

Recommendation: Unable to evaluate.

Photos: No photos.



Sod House Architectural History Inventory Form

NEHBS: --- **Field Number:** Sod - 09 **County:** CUSTER

Historic Name: James Bates Sod House **Date:** 7/11/2007

Legal Description: NE of SW, Section 27, Township 19N, Range 20W

Current Property Owner: Kim Myers

Current Use: Vacant **Estimated Date:** ca. 1893

Setting: Not visible from the public right-of-way, house is set on the edge of a canyon, about 3/4 mile west of Lillian Creek.

FORM

Number of Stories: 1	General Plan: Square
Roof Shape: Pyramid	Exterior Cladding: Plaster (partial)
Set Below Grade: No	Primary façade faces: East

Additional details: ---

SOD CORE

Plan: Square	Plan Dimensions: 28'-10"x 28'-0"
---------------------	---

Block Dimensions: 23"x 13"x 4"	Grass: 1-1/2"; laid grass side down
---------------------------------------	--

Coursing: Two rows of stretchers alternate with three rows of headers	Wall depth: 27" - 29"
--	------------------------------

Additional details: A 3" concrete sill surrounds the perimeter of the house. The walls are slightly battered and range from 29" near the floor to 27" near the top plate. Wood stakes are driven approximately 16" into the sod from the top plate to secure the roof.

WINDOWS

Location: North, West, South, East	Original/Replaced: Original
---	------------------------------------

Placement: Slightly recessed from the exterior wall

Bevel: Rounded on the interior and exterior **Pegged:** Yes

Type: Two-over-two and four-over-four double-hung wood sash

Additional details: Historic fixed replacement window on the north elevation. Four-over-four windows on the west elevation are boarded. Two-over-two window on the

south elevation is boarded. Above the window frames, two lintels, measuring 1-1/2"x 5", are placed on top of each other with a row of sod in between.

DOORS

Location: East

Original/Replaced: Original

Placement: Recessed

Bevel: Rounded on the exterior

Pegged: ---

Type: Four panel wood

Additional details: ---

ROOF

Framing Material: Sawn lumber

Original/Replaced: Original

Framing System: Rafters are joined to 4"x 4" ceiling joists that span the width of the house from north to south are set into top plate of sod.

Decking: Horizontal wood planks

Roofing Material: Wood shingles

Additional details: ---

ADDITIONS

Number of Stories: N/A

Estimated Date: N/A

Location: N/A

Framing: N/A

Roof Shape: N/A

Exterior Cladding: N/A

Additional details: ---

INTERIOR DETAILS

Number of Rooms (sod core): 4

Partition Framing: Sawn lumber

Walls: Plaster (2 coats) and wall paper

Floors: 3-1/2" and 5-1/2" wood tongue-and-groove

Plumbing: No

Electricity Hook-up: No

Height to ceiling: ---

ASSESSMENT

Condition: FAIR to POOR. Most of exterior plaster is missing, except towards the eaves. Sod walls are exposed and heavily eroded, especially at the corners. Appears that cattle have been allowed to rub against the sides of the house and enter the house, leaving large piles of dung. Roof contains small holes, but framing appears sound. All glazing

in windows is missing. Lintels and sills display rot, but interior partitions and ceilings appear in fair condition. Water leaks are evident on several interior walls, and the plaster is heavily eroded. House is invested with insects, birds, and vermin.

Historical Notes:

James Bates filed Timber Claim #176 for this parcel of land in 1893. He sold the property to Claude Bates in 1904. Between 1904 and 1914, Claude Bates increased the acreage of the property from 160 acres to 320 acres, and further by 1938 to 640 acres. The property was then sold to Fred Bates in 1949. Only nine months later in September 1949, James Bates received the patent to the land. The plat maps show Claude and Fred Bates owning the property during the early twentieth century, and it is unknown why the property was proved up on so late. Fred Bates kept the property until the late 1950s, when it then changed hands a number of times in the 1970s, and eventually sold to Kim Myers in 1992. It is unknown when the house was vacated.

Type Based on Chapter 6: Type IV Sod Prairie Cube

Recommendation: Eligible for the National Register

Photos:

Photo #	Facing	Date	Description
1	SW	7/11/2007	Sod – 09, Northeast corner
2	SE	7/11/2007	Sod – 09, Northwest corner
3	E	7/11/2007	Sod – 09, West Elevation
4	SE	7/11/2007	Sod – 09, Interior
5	SW	7/11/2007	Sod – 09, Interior



Photo: 1



Photo: 2



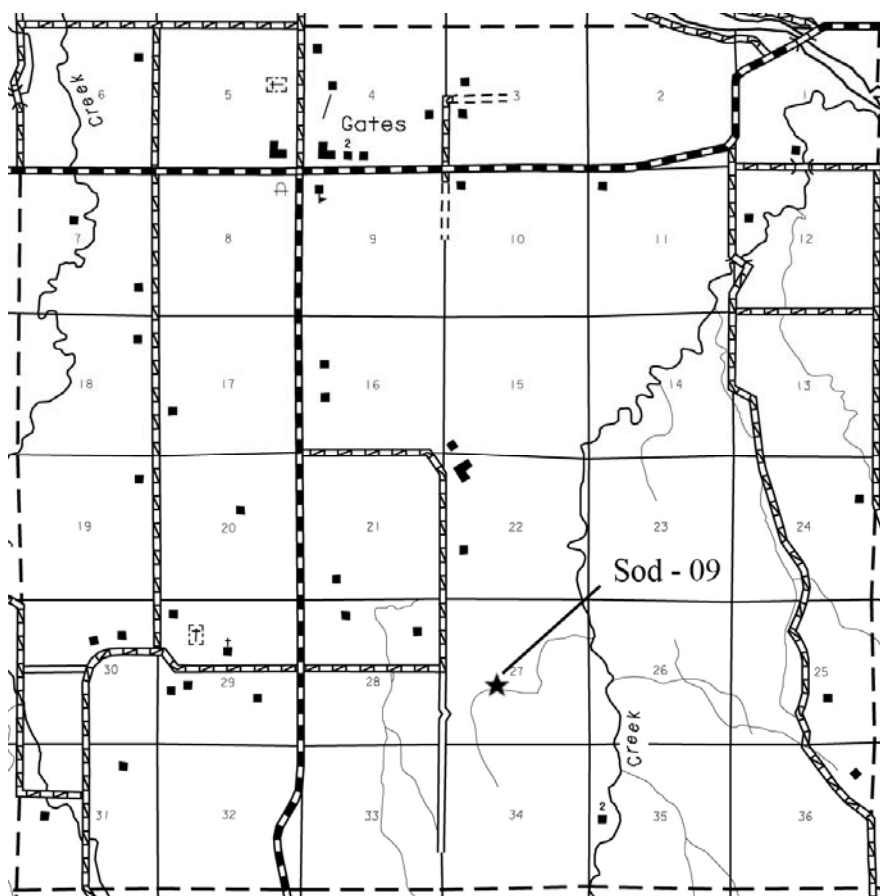
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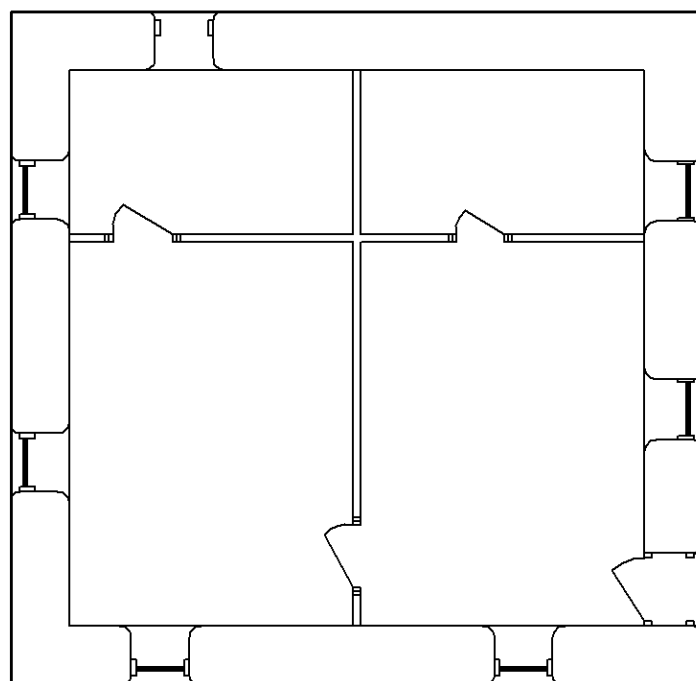
Photo: 4



Photo: 5



Location Map



Floor Plan
Scale: $1/8'' = 1'-0''$

Sod House Architectural History Inventory Form

NEHBS: CU00-055 **Field Number:** Sod - 10 **County:** CUSTER

Historic Name: Edwin Mills Sod House **Date:** 7/4/2007

Legal Description: NE of NW, Section 30, Township 19N, Range 17W

Current Property Owner: Scott Svoboda

Current Use: Secondary dwelling **Estimated Date:** ca. 1915

Setting: Surrounded by gently rolling hills and located over a mile southwest of the Middle Loup River.

FORM

Number of Stories: 1	General Plan: Square
Roof Shape: Pyramid	Exterior Cladding: Stucco
Set Below Grade: No	Primary façade faces: South

Additional details: Primary façade originally faced east, but enclosed porch addition shifted main entrance to the south elevation.

SOD CORE

Plan: Square	Plan Dimensions: 30'-0"x 30'-8"
Block Dimensions: (no sod exposed)	Grass: N/A
Coursing: N/A	Wall depth: 33"

Additional details: 4" concrete sill surrounds perimeter of the house

WINDOWS

Location: North, West, East	Original/Replaced: Replaced
------------------------------------	------------------------------------

Placement: Slightly recessed

Bevel: No	Pegged: N/A
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Type: One-over-one single-hung vinyl sash

Additional details: Windows were originally one-over-one double-hung wood sash but have been downsized.

DOORS**Location:** South, East**Original/Replaced:** Original**Placement:** Recessed**Bevel:** No**Pegged:** N/A**Type:** Three paneled wood with window light**Additional details:** ---**ROOF****Framing Material:** N/A**Original/Replaced:** Original?**Framing System:** Unknown, obscured from view**Decking:** N/A**Roofing Material:** Asphalt shingles**Additional details:** ---**ADDITIONS****Number of Stories:** 1**Estimated Date:** ca. 1945**Location:** South, Southwest corner**Framing:** Sawn lumber**Roof Shape:** Shed**Exterior Cladding:** Stucco**Additional details:** ---**INTERIOR DETAILS****Number of Rooms (sod core):** 3**Partition Framing:** Sawn lumber**Walls:** Plaster**Floors:** 3-1/2" wood tongue-and-groove**Plumbing:** Yes (in addition only)**Electricity Hook-up:** Yes**Height to ceiling:** ---**ASSESSMENT**

Condition: GOOD. Exterior stucco has been maintained and shows no signs of severe cracking that may indicate shifting sod walls in the house. Roof appears sound. Other than a few minor cracks, the interior is in good condition. The walls exhibit a few slight bulges, but the house appears stable. Currently the house is used as a secondary dwelling by the property owner.

Historical Notes:

George H. Sidle filed Homestead claim #827 on the northwest quarter of Section 30 in 1898 and received the patent to the land in November 1906. It is possible that George Sidle built a sod house on this property, but discussions with the property owner revealed that Edwin Mills likely built the current sod house in circa 1915. In 1937 the property was acquired by the bank through a sheriff's auction and sold by the bank to Everett Kinney in 1944. After Kinney's death, the property was sold Frank Beran in 1978. Scott Svoboda is a relative of the Beran's and acquired the property in 2005. According to Mr. Svoboda, the Beran's upgraded much of the house and lived in the dwelling. Mr. Svoboda built a modern dwelling adjacent to the sod house, but continues to use it as a secondary dwelling.

Type Based on Chapter 6: Type IV Sod Prairie Cube

Recommendation: Eligible for the National Register

Photos:

Photo #	Facing	Date	Description
1	SW	7/4/2007	Sod – 10, Northeast corner
2	NW	7/4/2007	Sod – 10, East Elevation
3	N	7/4/2007	Sod – 10, South Elevation
4	SE	7/4/2007	Sod – 10, West Elevation
5	NW	7/4/2007	Sod – 10, Interior



Photo: 1



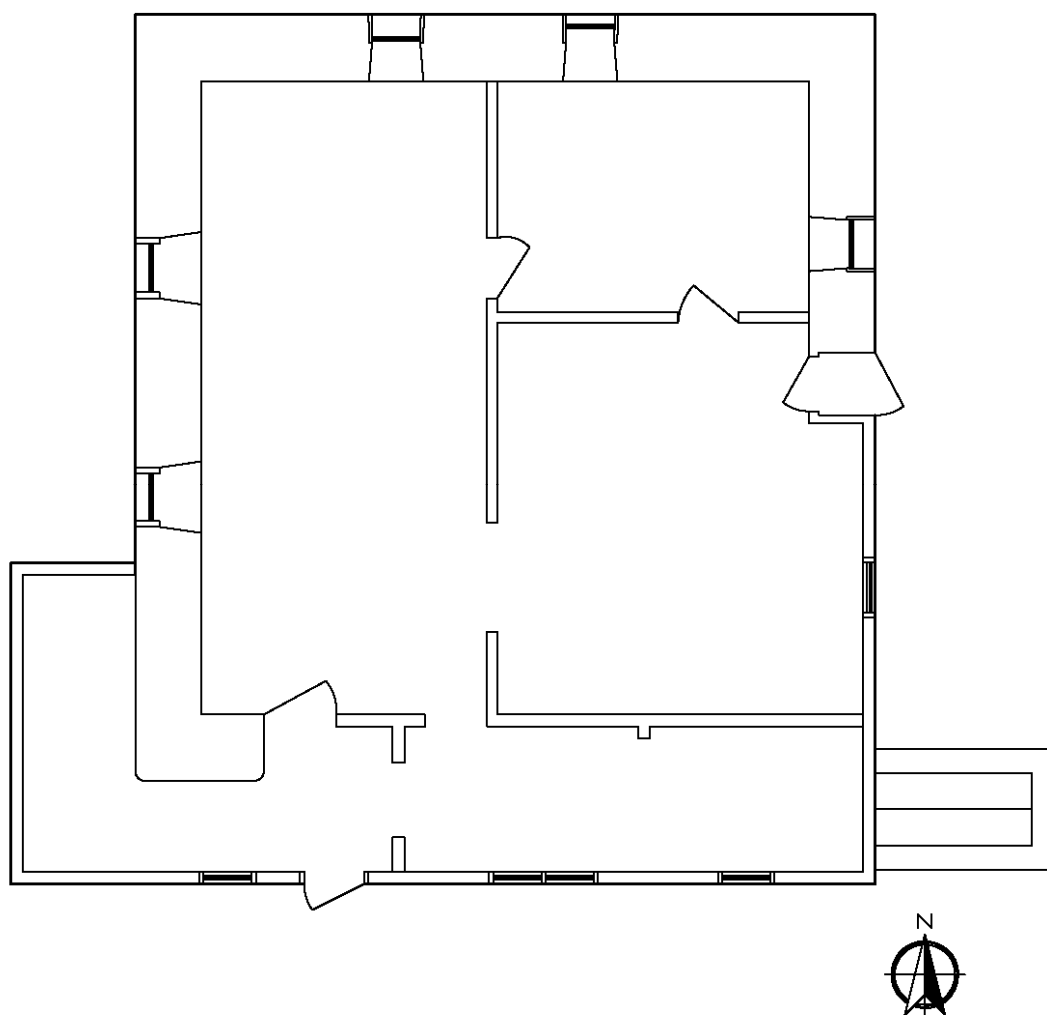
Photo: 2



Photo: 3



Photo: 4



Floor Plan
Scale: 1/8" = 1'-0"

Sod House Architectural History Inventory Form

NEHBS: CU00-051 **Field Number:** Sod - 11 **County:** CUSTER

Historic Name: William R. Dowse Sod House **Date:** 7/2/2007

Legal Description: SE of SW, Section 22, Township 18N, Range 17W

Current Property Owner: Doralea Sutton

Current Use: House Museum **Date:** 1900

Setting: House is built in a flat valley 3/4 mile west of the Middle Loup River. A hill swells behind the house to the north.

FORM

Number of Stories: 1	General Plan: Rectangular
Roof Shape: Hip	Exterior Cladding: Concrete and stucco
Set Below Grade: No	Primary façade faces: East

Additional details: ---

SOD CORE

Plan: L-Plan	Plan Dimensions: 29' x 31'-3"
Block Dimensions: 24"x 16"x 3-1/2"	Grass: 1/4"; laid grass side down (blue stem)
Coursing: One course common	Wall depth: 20" – 27"

Additional details: Battered walls ranging from 27" at the floor to 20" near the eaves. Four-inch concrete sill surrounds the perimeter of the sod house.

WINDOWS

Location: North, South, East	Original/Replaced: Replaced (historic)
Placement: Flush	
Bevel: Rounded on the interior	Pegged: ---

Type: Two-over-two and one-over-one double-hung wood sash

Additional details: One-over-one windows are paired on the south elevation. A 2"x 4" lumber lintel sits above the window frame. Windows were donated for the restoration in the 1980s.

DOORS

Location: East	Original/Replaced: Replaced (historic)
-----------------------	---

Placement: Recessed with historic screens

Bevel: No	Pegged: ---
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Type: Wood panel with oval light and double arched lights

Additional details: Doors were donated for the restoration in the 1980s.

ROOF

Framing Material: Sawn lumber (historic)	Original/Replaced: Original/Replaced
---	---

Framing System: Rafters set directly into the sod

Decking: Horizontal wood planks	Roofing Material: Wood shingles
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Additional details: Exposed rafter ends.

ADDITIONS

Number of Stories: 1	Estimated Date: 1924
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Location: West elevation	Framing: Sawn lumber
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Roof Shape: Shed	Exterior Cladding: Wood shingles
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Additional details: Southeast corner of house was also filled in with a frame construction.

INTERIOR DETAILS

Number of Rooms (sod core): 3	Partition Framing: Sawn lumber
--------------------------------------	---------------------------------------

Walls: Plaster	Floors: Wood tongue-and-groove
-----------------------	---------------------------------------

Plumbing: No	Electricity Hook-up: Yes
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Height to ceiling: ---

ASSESSMENT

Condition: GOOD. Philip and Curtis Dowse heavily restored the house from 1977 to 1982. The exposed sod on the north elevation is crumbling. The attic houses a large number of hornets' nests. There is some cracking above interior door frame, which may or may not signal shifting of the sod walls.

Historical Notes:

The Lewis Dowse (William's father) family is reportedly among the first to settle in Custer County in 1873, but not on this particular parcel of land. Kate Prescott filed Timber Claim #5982 on the southwest quarter of section 22 in August 1884. It is unknown whether or not she actually built on the land. By 1900, William Dowse was living in his own dugout along the Middle Loup River and south of his parents' farm. William married Florence Murphy, whose father was an experienced sod house builder, always willing to help neighbors construct their homesteads. Occasionally, he was hired to build a sod house, but more often just helped.

William and Florence moved to the Prescott land, which was about a mile northwest of his father's homestead. Construction began in the spring of 1900 with the help of Florence's father, John Murphy, and neighbors and friends. Since there was plenty of Bluestem grass along the Loup River, the sod was likely cut within a few yards of where the house was built. The house was completed by October 1900. William chose a L-plan house since it supposedly offered greater stability. The house had three rooms for a kitchen, living/dining room, and a first floor bedroom. The steeply pitched hipped roof allowed space for an unfinished bedroom in the attic.

Interior walls were plastered with a mixture of sand, clay, straw, and hog hair. The floors were initially dirt, but wooden floors were added in 1917. In 1924, the western sod wall was removed for a one-story frame addition to accommodate a growing family, and the southeastern corner of the house was filled in to serve as a laundry room. In 1935, William encased the exterior walls with concrete to prevent the further erosion of the sod from wind and rain. William lived in the sod house until his death in 1951. His son, William Jr., remained in the house until 1959. The house then stood abandoned for more than 20 years and fell into disrepair. Deteriorated and threatened with collapse, Philip and Curtis Dowse began restoring the house they grew up in during the late 1970s. They received private donations and support from Comstock's Community Club. Historically appropriate windows and doors were donated, fallen ceilings were raised, interior walls were plastered, and the roof repaired and shingled. The house was listed in the National Register in 1987. Today the house serves as a free house museum to anyone wishing to enter.

Type Based on Chapter 6: Type IV Sod Prairie Cube

Recommendation: Listed in the National Register

Photos:

Photo #	Facing	Date	Description
1	SW	7/2/2007	Sod – 11, Northeast corner
2	SE	7/2/2007	Sod – 11, North Elevation
3	NE	7/2/2007	Sod – 11, South Elevation
4	NE	7/2/2007	Sod – 11, Interior parlor
5	NE	7/2/2007	Sod – 11, Interior kitchen



Photo: 1



Photo: 2



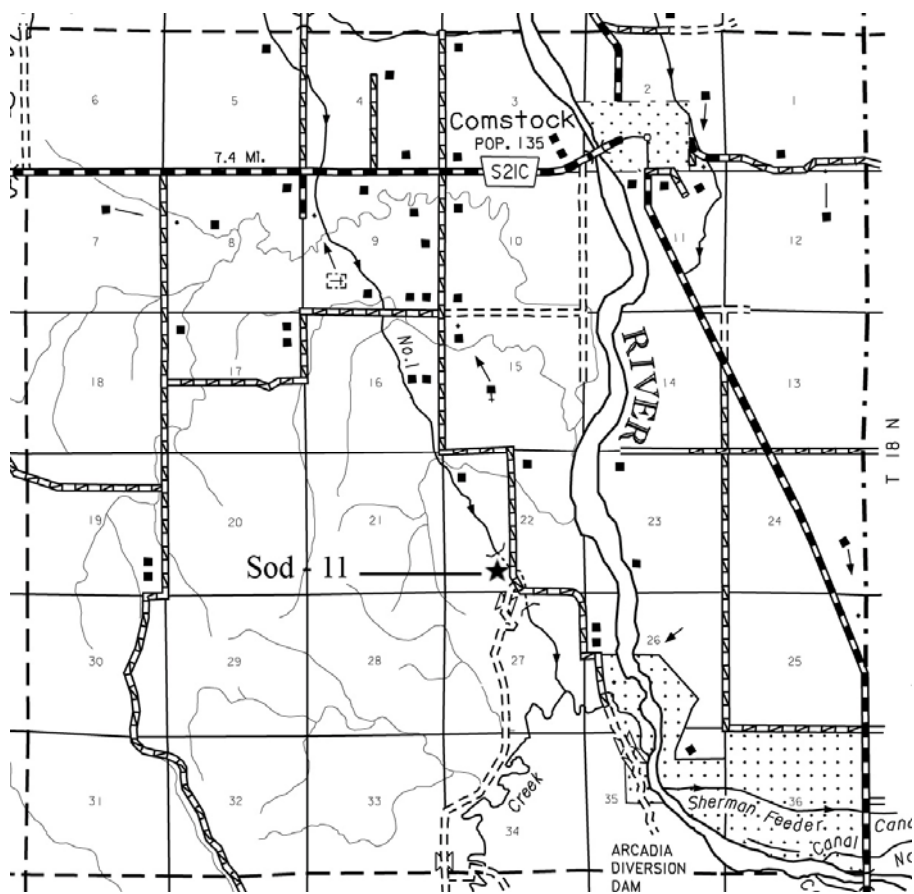
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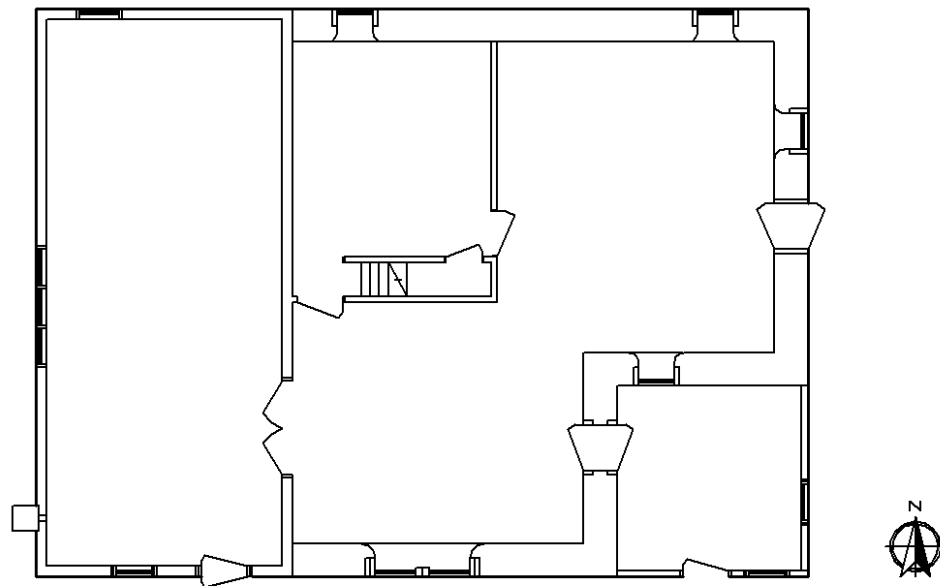
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Photo: 5



Location Map



Floor Plan
Scale: $\frac{3}{32}'' = 1'-0''$

Sod House Architectural History Inventory Form

NEHBS: --- **Field Number:** Sod - 12 **County:** CUSTER

Historic Name: Murray Family Sod House **Date:** 7/8/2007

Legal Description: NE of SW, Section 25, Township 17N, Range 17W

Current Property Owner: Steve Kaps

Current Use: Vacant **Estimated Date:** ca. 1883

Setting: Set in a valley known as Lee Park, about 1/2 mile west of Lee Creek.

FORM

Number of Stories: 1.5

General Plan: T-Plan

Roof Shape: Hip

Exterior Cladding: Concrete

Set Below Grade: No

Primary façade faces: South

Additional details: House consists of a sod square plan with a sod rectangular wing to the north. The half story is frame and only sits above the square plan. It is possible that the rectangular wing was the initial homestead and the larger square plan was added later. There is a frame one-story gabled porch and hipped dormer on the south elevation.

SOD CORE

Plan: T-Plan

Plan Dimensions: 31' x 37' (square); 22' x 26'-10" (rectangle)

Block Dimensions: 24" x 9" x 4"

Grass: 1"; laid grass side down

Coursing: Two course common

Wall depth: 38" = 32" (sod) + 5" (concrete) + 1" (plaster)

Additional details: Walls are laid three wythes deep. Walls on square plan are taller than walls of rectangular portion.

WINDOWS

Location: North, West, South, East

Original/Replaced: Original

Placement: Recessed

Bevel: Angled on the exterior

Pegged: No

Type: Two-over-two, four-over-four, and one-over-one double-hung wood sash

Additional details: 5'-6" long lumber lintels placed above window frames; 1'-6" of sod placed above lintels.

DOORS

Location: West, South, East

Original/Replaced: Original

Placement: Recessed with decorative exterior screens

Bevel: Angled on the exterior

Pegged: No

Type: Four panel wood and vertical board wood

Additional details: ---

ROOF

Framing Material: Sawn Lumber

Original/Replaced: Original

Framing System: 2"x 4" rafters set into sod and joined to 2"x 6" ceiling joists; two 2"x 8" form top plate above the sod walls

Decking: Horizontal wood planks (1"x 5") **Roofing Material:** Wood shingles

Additional details: Additional sod blocks were laid above the top plate on square portion to place the rafters and ceiling joists. Appears the initial rectangular sod house had a hipped roof, which was partially covered by the hip roof of the square plan addition. Eaves display exposed rafter ends.

ADDITIONS

Number of Stories: 1

Estimated Date: c.1910

Location: Northeast corner

Framing: Sawn lumber

Roof Shape: Shed

Exterior Cladding: Clapboard and concrete

Additional details: ---

INTERIOR DETAILS

Number of Rooms (sod core): 6

Partition Framing: Sawn lumber

Walls: Plaster covered with wall paper

Floors: 3-1/2" wood tongue-and-groove

Plumbing: No

Electricity Hook-up: No

Height to ceiling: 8'-3"

ASSESSMENT

Condition: VERY POOR. House has been vacant for nearly fifty years. Large portions of the sod walls are collapsed on every elevation. Several window frames have fallen out of place and large holes exist in the roof. Concrete and plaster is severely cracked and falling apart. Interior wall joints are separating, especially at the corners. Vegetation is growing into the walls. Interior wood contains significant amounts of rot. Ceiling of rectangular wing has completely collapsed, preventing entry into that portion of the house. Frame shed addition has also completely collapsed. House is dangerous to enter since the wood floor is so badly rotted, it can barely handle anything more than 100 pounds.

Historical Notes:

This property sits very close if not on the quarter line in Section 25, therefore it is difficult to acquire the precise ownership history for this property. Assuming its location in the NE quarter of the SW quarter, William Murray filed Homestead Claim #4874 for this 160-acre parcel of land in 1883. He acquired the patent to the land on November 11, 1885. The local history book, *Arcadia 1885-1978*, lists William Murray as the brother of Joseph Murray, both who moved their families to Lee Park in Custer County sometime in the late 1870s. It is unknown which exact member of the Murray family occupied this sod house, as many members of the Murray family lived in the area. The local history book gives mention to the family farm located 1/2 mile north of the Catholic cemetery, which would be the accurate location for this sod house.

Many members of the Murray family lived on the family farm at one time or another, but it appears that Joseph Murray built the sod dwelling. He gave it to his son Frederick Murray around ca. 1910, when he built a new concrete block house just west of the sod house. Fred Murray and his family lived in the house until 1918, when he moved the family to another nearby farm. It is known that the sod house and farm remained in the family until sometime in the 1950s. Bessie Murray, Frederick's widow, was the last known occupant and owner of the house, until it was deeded to William Hudson in 1952. Due to the deterioration exhibited on the house, and its lack of electricity and plumbing, it is believed that the house was vacated upon its transfer to William Hudson.

Type Based on Chapter 6: Type IIIB Standard Plan and Type V Sod Palace

Recommendation: Eligible for the National Register

Photos:

Photo #	Facing	Date	Description
1	NW	7/8/2007	Sod – 12, South Elevation
2	NW	7/8/2007	Sod – 12, East Elevation
3	SW	7/8/2007	Sod – 12, North Elevation
4	N	7/8/2007	Sod – 12, West Elevation
5	S	7/8/2007	Sod - 12, Interior



Photo: 1



Photo: 2



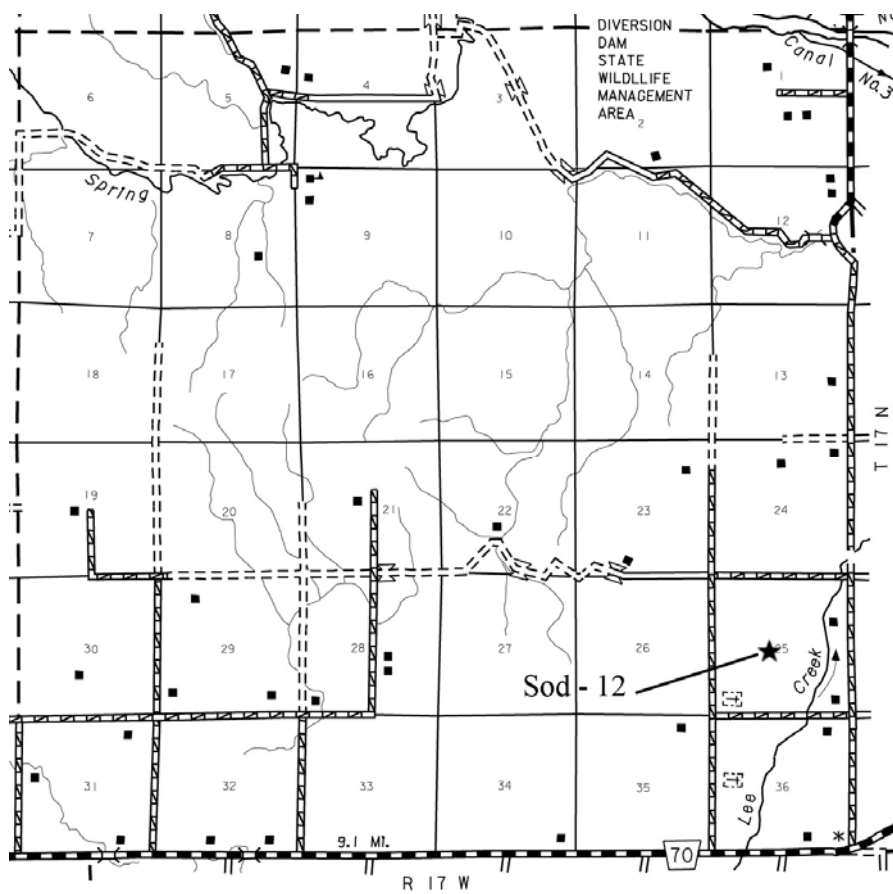
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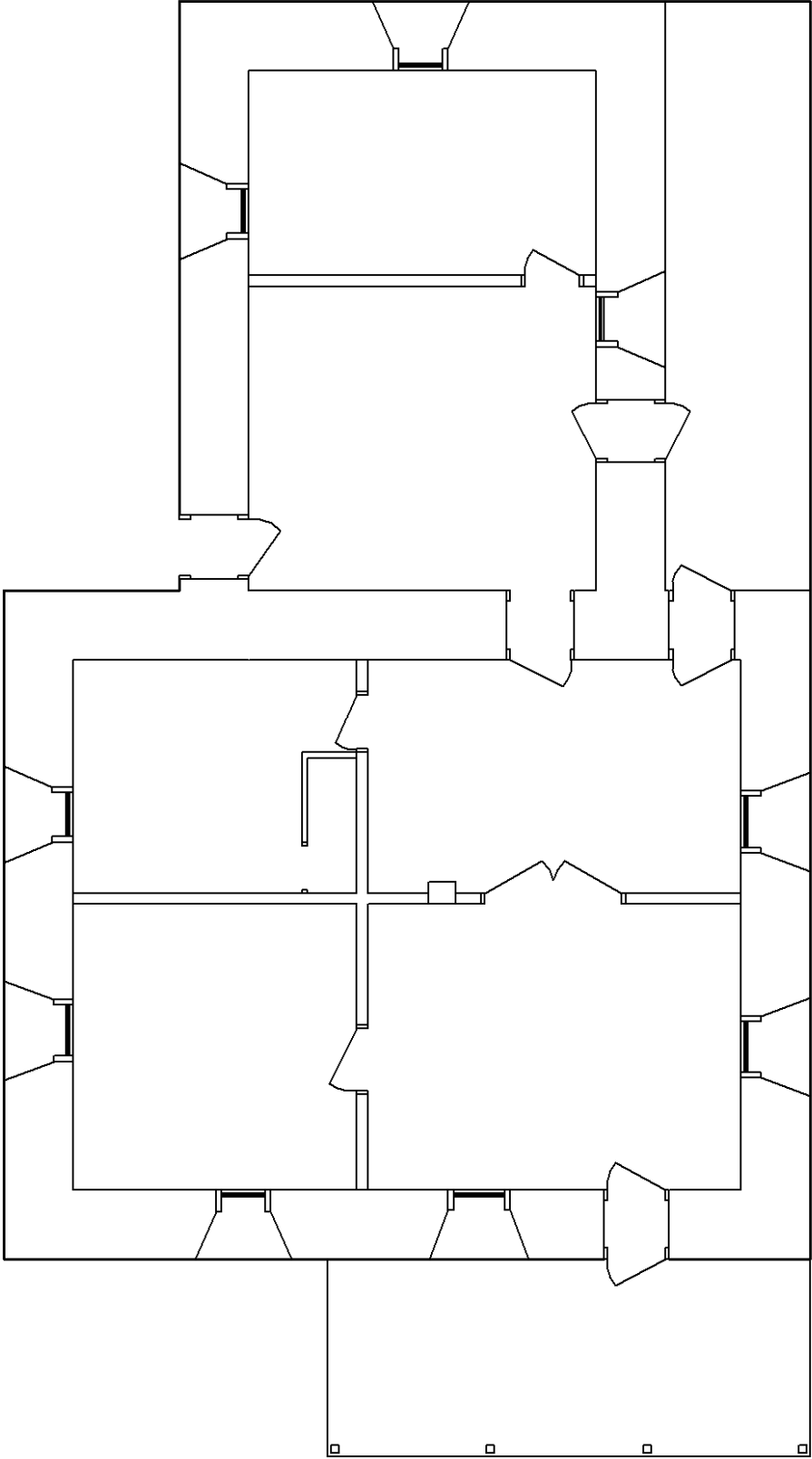
Photo: 4



Photo: 5



Location Map



Floor Plan
Scale: 1/8" = 1'-0"

Sod House Architectural History Inventory Form

NEHBS: --- **Field Number:** Sod - 13 **County:** CUSTER

Historic Name: Rebecca Perkins Sod House **Date:** 7/10/2007

Legal Description: SE of SE, Section 36, Township 17N, Range 19W

Current Property Owner: Lowell Baillie

Current Use: Vacant **Estimated Date:** ca. 1913

Setting: Located on a hill along a private drive. House is heavily obscured by vegetation and not visible from the public right-of-way.

FORM

Number of Stories: 1	General Plan: Rectangular
Roof Shape: Hip and shed	Exterior Cladding: Plaster, Concrete
Set Below Grade: Yes; appx. 1'	Primary façade faces: South

Additional details: Rectangular hipped sod house with a rectangular shed roof sod wing on the south elevation. It is possible that the shed roof rectangular wing was the initial homestead and the larger rectangular sod house was added later.

SOD CORE

Plan: Rectangular	Plan Dimensions: 21'-6"x16' (shed); 20'x35'-8" (hip)
Block Dimensions: 29"x 13"x 4"	Grass: 1/4"; laid grass side down
Coursing: One course common bond	Wall depth: 22"

Additional details: 6" concrete sill surrounds the perimeter of the sod house. Wood stakes are driven approximately 10" into the sod from the top plate to secure the roof.

WINDOWS

Location: West, South, East	Original/Replaced: Original; replaced
Placement: Flush	
Bevel: Rounded on the interior	Pegged: ---

Type: One-over-one, four-over-four, and six-over-six double-hung wood sash

Additional details: ---

DOORS**Location:** West, South**Original/Replaced:** Original**Placement:** Recessed**Bevel:** None**Pegged:** ---**Type:** Wood vertical board**Additional details:** ---**ROOF****Framing Material:** Sawn lumber**Original/Replaced:** Original**Framing System:** Rafters are joined to ceiling joists and rest on built up top plate of sawn lumber.**Decking:** Horizontal wood planks**Roofing Material:** Wood shingles and standing seam metal**Additional details:** ---**ADDITIONS****Number of Stories:** ---**Estimated Date:** ---**Location:** ---**Framing:** ---**Roof Shape:** ---**Exterior Cladding:** ---**Additional details:** It is believed that the rectangular hipped portion of the house was an addition to the initial shed roof portion of the house. It is possible that the roof shape was changed on the initial sod house when the larger addition was built.**INTERIOR DETAILS****Number of Rooms (sod core):****Partition Framing:** Sawn lumber; sod**Walls:** Plaster and wallpaper applied directly to sod**Floors:** 5-1/2" wood tongue-and-groove**Plumbing:** No**Electricity Hook-up:** Yes**Height to ceiling:** 7'-7" (hip); 6'-10" (shed)**ASSESSMENT****Condition:** VERY POOR. House is heavily overgrown with brush and tree branches are resting on the roof. Plaster exterior has almost completely eroded which has left the sod exposed on each elevation, except the north elevation where the poured concrete exterior

is intact. The exposed sod is dry and crumbling and the blocks are beginning to loosen. The house has significantly shifted and the east and west walls have each separated in multiple places. Portions of east and west walls have collapsed, especially around the door and window frames. Interior sod partition wall between the two portions of the house contains a large hole, which is threatening the stability of the remaining wall and roof above. The roof contains large holes and the framing near the sod walls is heavily rotted.

Historical Notes:

Rebecca Perkins received the deed to the school land located on the southeast quarter of Section 36 in 1913. She sold the property to Arthur Perkins in 1917, who remained on the land until 1982 when he sold the property to Avalo G. Baillie. Lowell Baillie acquired the property in 2006.

Type Based on Chapter 6: Type II Common Homestead and Type IIIB Standard Plan Variation

Recommendation: Eligible for the National Register

Photos:

Photo #	Facing	Date	Description
1	N	7/10/2007	Sod – 13, South Elevation
2	SW	7/10/2007	Sod – 13, East Elevation
3	NE	7/10/2007	Sod – 13, West Elevation
4	SE	7/10/2007	Sod – 13, Interior
5	NW	7/10/2007	Sod – 13, Interior



Photo: 1



Photo: 2



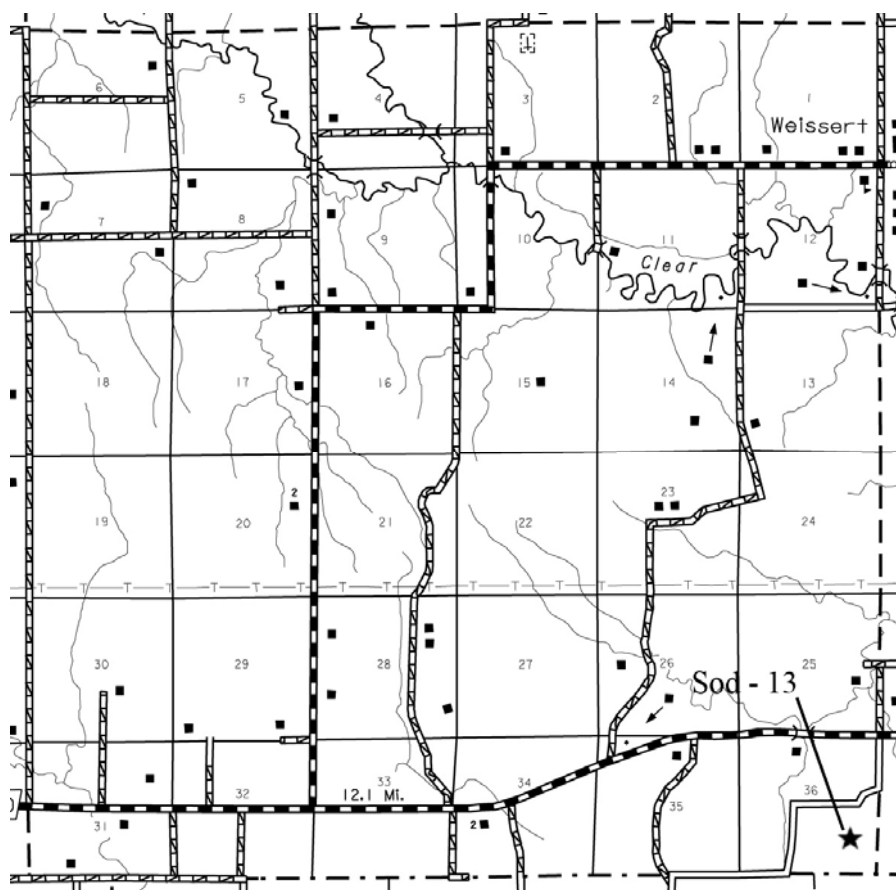
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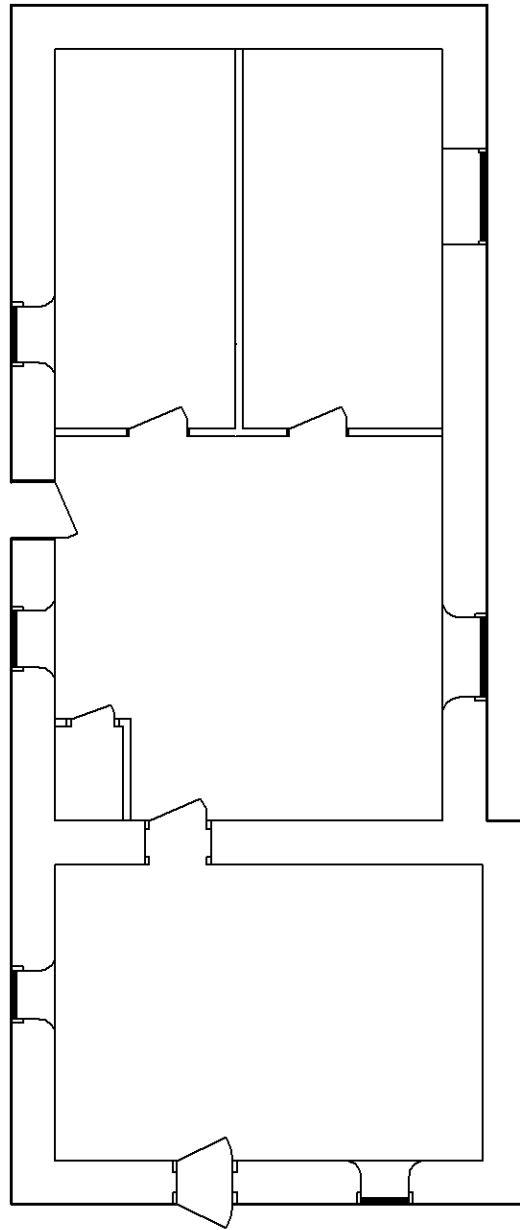
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Photo: 5



Location Map



Floor Plan
Scale: 1/8" = 1'-0"

Sod House Architectural History Inventory Form

NEHBS: --- **Field Number:** Sod - 14 **County:** CUSTER

Historic Name: Lewis Fischer Sod House **Date:** 7/9/2007

Legal Description: SW of SW, Section 16, Township 16N, Range 19W

Current Property Owner: Clyde and Pearl Loy

Current Use: Vacant **Date:** 1934

Setting: Property is located on former school land just west of the Berwyn city limits. House sits about 1/8 mile north of Muddy Creek and a 1/4 mile north of Highway 2/Burlington Railroad tracks.

FORM

Number of Stories: 1.5 **General Plan:** Rectangular

Roof Shape: Side Gable **Exterior Cladding:** Stucco

Set Below Grade: No **Primary façade faces:** South

Additional details: Half story is constructed of frame. One-and-one-half story porch on south elevation is original, as well as cement and stucco exterior.

SOD CORE

Plan: Rectangular **Plan Dimensions:** 30'-4" x 19'-3"

Block Dimensions: 16" x 12" x 4" **Grass:** 1/2" (buffalo grass); laid grass side down

Coursing: One course common **Wall depth:** 20"

Additional details: Sod was laid with a clay/sand mortar.

WINDOWS

Location: North, West, South, East **Original/Replaced:** Original/Replaced

Placement: All flush

Bevel: Rounded on the interior **Pegged:** ---

Type: One-over-one double-hung wood sash. Former paired windows on south and east elevations were also one-over-one, but were replaced with fixed wood sashes.

Additional details: ---

DOORS

Location: West, South

Original/Replaced: Original

Placement: Recessed and flush with no exterior screens

Bevel: No

Pegged: ---

Type: Three and five panel wood

Additional details: ---

ROOF

Framing Material: Sawn Lumber

Original/Replaced: Original

Framing System: 3" x 3" rafters set into the sod top plate

Decking: Horizontal wood planks

Roofing Material: Asphalt shingles covered with corrugated metal

Additional details: Eaves contain exposed rafter ends.

ADDITIONS

Number of Stories: 1

Estimated Date: c.1950

Location: West

Framing: Concrete block

Roof Shape: Flat

Exterior Cladding: None

Additional details: ---

INTERIOR DETAILS

Number of Rooms (sod core): 2

Partition Framing: Sawn lumber

Walls: Plaster (2 coats)
groove

Floors: 3-1/2" and 6" wood tongue-and-

Plumbing: Yes

Electricity Hook-up: Yes

Height to ceiling: N/A

ASSESSMENT

Condition: FAIR. House has been vacant for at least a decade and is invested with insects and vermin. Several windows are broken and exterior stucco is beginning to detach from the sod in a few places. Structural cracks are present on interior walls near

the corners of windows. Interior plaster is cracked and detaching from wall, exposing sod blocks. Roof appears secure.

Historical Notes:

There is no deed record for this property since it is located on former school land, which was leased to inhabitants over the years. Historical information, however, was gathered from an excerpt on this property in a local history text, *Muddy Creek Meanderings*, by Lavina Foster.

The Lewis Fischer family moved to Berwyn in March 1934 from their ranch in Brown County, Nebraska. They had to wait a short time before their school lease on 40 acres of unimproved land was available. During the spring of 1934 Lewis and his sons cut buffalo grass sod in the pasture area of the school lease for their new sod house. They hauled the blocks with a team of horses and a wagon. The blocks were laid grass side down and mortared with a mixture of clay-sand. The house was one-and-one-half stories with two rooms downstairs and two rooms upstairs. The roof and half-story were framed with bridge planks gathered from a bridge that was rebuilt just south of the house. Lewis constructed a small sawmill to cut the planks into usable lumber.

The sod walls were shaped with a spade on the interior and exterior, which formed the base for the exterior cladding. The exterior was covered with chicken wire for lath and covered with stucco. The interior did not contain any lath, but did include a base coat for the plaster. Construction continued into the summer of 1934, and by spring 1935 the Fischer family moved into their new sod house. Lewis passed away in 1950, but his widow likely lived in the house until the early 1960s. The property was sold to the Loy's in the 1970s, but they only rented it. The house was occupied until the mid-1990s.

Type Based on Chapter 6: Type IIIB Standard Plan Variation

Recommendation: Eligible for the National Register

Photos:

Photo #	Facing	Date	Description
1	NE	7/9/2007	Sod – 14, Southwest corner
2	SE	7/9/2007	Sod – 14, Northwest corner
3	W	7/9/2007	Sod – 14, East Elevation
4	S	7/9/2007	Sod – 14, Exposed sod blocks
5	NW	7/9/2007	Sod - 14, Interior



Photo: 1



Photo: 2



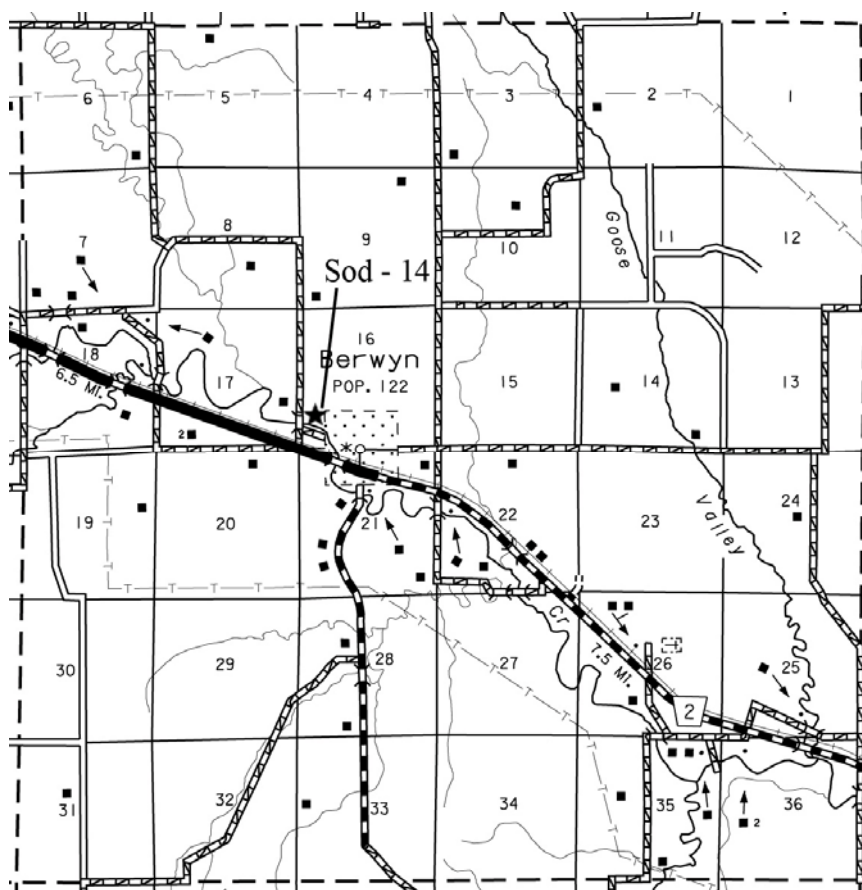
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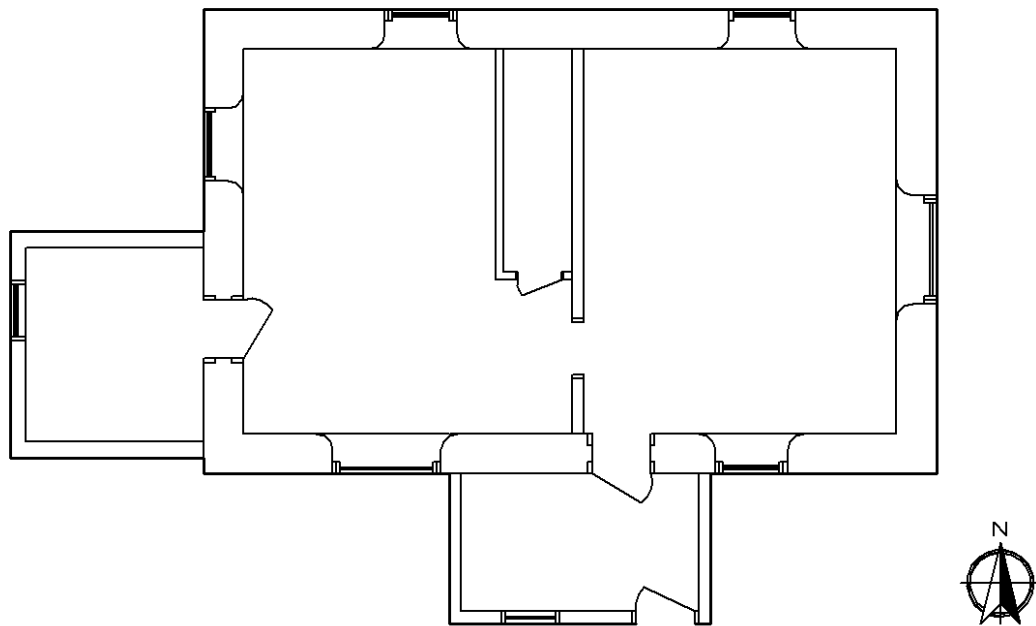
Photo: 4



Photo: 5



Location Map



Floor Plan
Scale: 1/8" = 1'-0"

Sod House Architectural History Inventory Form

NEHBS: CU00-021 **Field Number:** Sod - 15 **County:** CUSTER

Historic Name: Albert Calhoun Sod House **Date:** 7/7/2007

Legal Description: SE of NW, Section 1, Township 13N, Range 20W

Current Property Owner: Gilbert Horn

Current Use: Vacant **Estimated Date:** ca. 1885

Setting: Located at a crossroads on flat land immediately south of the South Loup River.

FORM

Number of Stories: 1	General Plan: T-Plan
Roof Shape: Hip and gable	Exterior Cladding: Stucco
Set Below Grade: Yes; appx. 1'	Primary façade faces: East

Additional details: Sod portion has hip roof and rear wing has gable roof.

SOD CORE

Plan: Rectangular	Plan Dimensions: 20'-4"x 40'-7"
Block Dimensions: 25"x 12"x 4"	Grass: 1/2" – 1"; laid grass side down
Coursing: One course common	Wall depth: 24" – 28"

Additional details: Walls are slightly battered from 28" near the floor to 24" at the top plate. Wood stakes are driven approximately 16" down into the sod from the top plate. 4" concrete sill surrounds the perimeter of the house.

WINDOWS

Location: North, West, South, East	Original/Replaced: Original
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Placement: Flush

Bevel: Rounded on the interior	Pegged: ---
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Type: Four-over-four and two-over-two double-hung wood sash

Additional details: Set of paired two-over-two windows on the east elevation, which were likely added with the frame addition.

DOORS

Location: East **Original/Replaced:** Replaced (historic)
Placement: Flush**Bevel:** Angled on the interior **Pegged:** ---**Type:** Wood four panel with window with historic screen**Additional details:** ---**ROOF**

Framing Material: Sawn lumber **Original/Replaced:** Original?
Framing System: Rafters are set into sod and connect to ridge beams.**Decking:** Horizontal wood planks **Roofing Material:** Wood shakes covered with asphalt shingles**Additional details:** Unable to fully determine framing system.**ADDITIONS**

Number of Stories: 1 **Estimated Date:** ca. 1900 (North), ca. 1930 (West)
Location: North, West **Framing:** Sawn lumber**Roof Shape:** Hip (North), Gable (West) **Exterior Cladding:** Clapboard covered with rolled asphalt**Additional details:** Sod house was extended to the north in ca. 1900. In ca. 1930 the rear kitchen wing was added to the west elevation, which removed the northwest corner of the sod walls.**INTERIOR DETAILS**

Number of Rooms (sod core): 2 **Partition Framing:** Sawn lumber
Walls: Plaster **Floors:** Dirt**Plumbing:** No **Electricity Hook-up:** Yes**Height to ceiling:** 6'-8"**ASSESSMENT**

Condition: FAIR to POOR. Large portions of stucco are missing from the exterior, which expose the weathered sod walls. Sod blocks near the southeast corner have crumbled completely, allowing the corner joints to separate, which leave very large cracks in the wall. Window frames are warped due to the shifting of the sod walls and the glazing is broken in several panes. A very large hole on the rear roof of the gable

wing has allowed excessive moisture, heat, insects, and vermin to enter the house. Interior walls are also beginning to shift and warp door frames due to the shifting sod in the southeast corner. Interior of house shows signs of water damage. Although house is still standing and appears in relatively fair condition, the buckling of the southeast corner threatens the stability of the remaining sod walls.

Historical Notes:

Albert Calhoun filed Homestead Claim #5853 for the northwest quarter of section 1 in 1885. He received the patent to the land in September 1886. Two years later, Calhoun sold the land to Alonzo Davis. The residence appears on the 1904 plat map of Custer County, but belongs to William Davis. Alonzo officially sold the property to William in 1907. It is assumed that William passed away, because the 1938 plat map lists Lenore Davis as the occupant of the 160-acre property. Lenore sold the land to Leonard Horn in 1950. Louise Horn lived in the house until the 1970s, when sold the property to Gilbert Horn. Gilbert continues to own the property today, but Louise was the last inhabitant.

Type Based on Chapter 6: Type IIIB Standard Plan Variation

Recommendation: Eligible for the National Register

Photos:

Photo #	Facing	Date	Description
1	W	7/7/2007	Sod – 15, East Elevation
2	N	7/7/2007	Sod – 15, South Elevation
3	SE	7/7/2007	Sod – 15, West Elevation
4	NE	7/7/2007	Sod – 15, West Elevation
5	SE	7/7/2007	Sod – 15, Interior



Photo: 1



Photo: 2



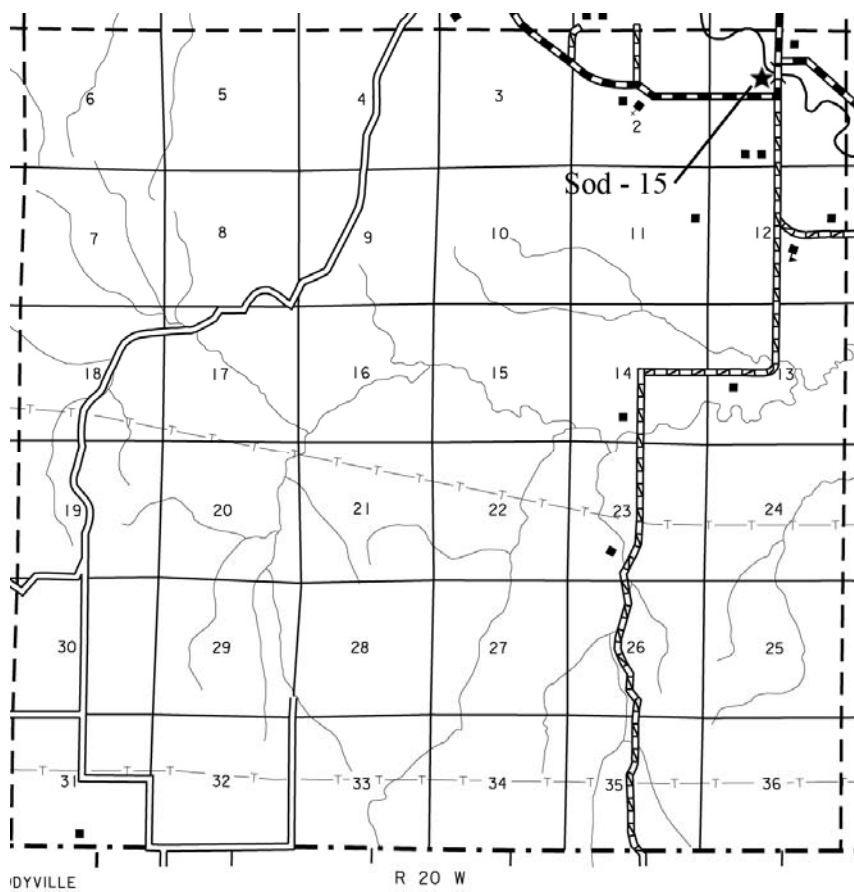
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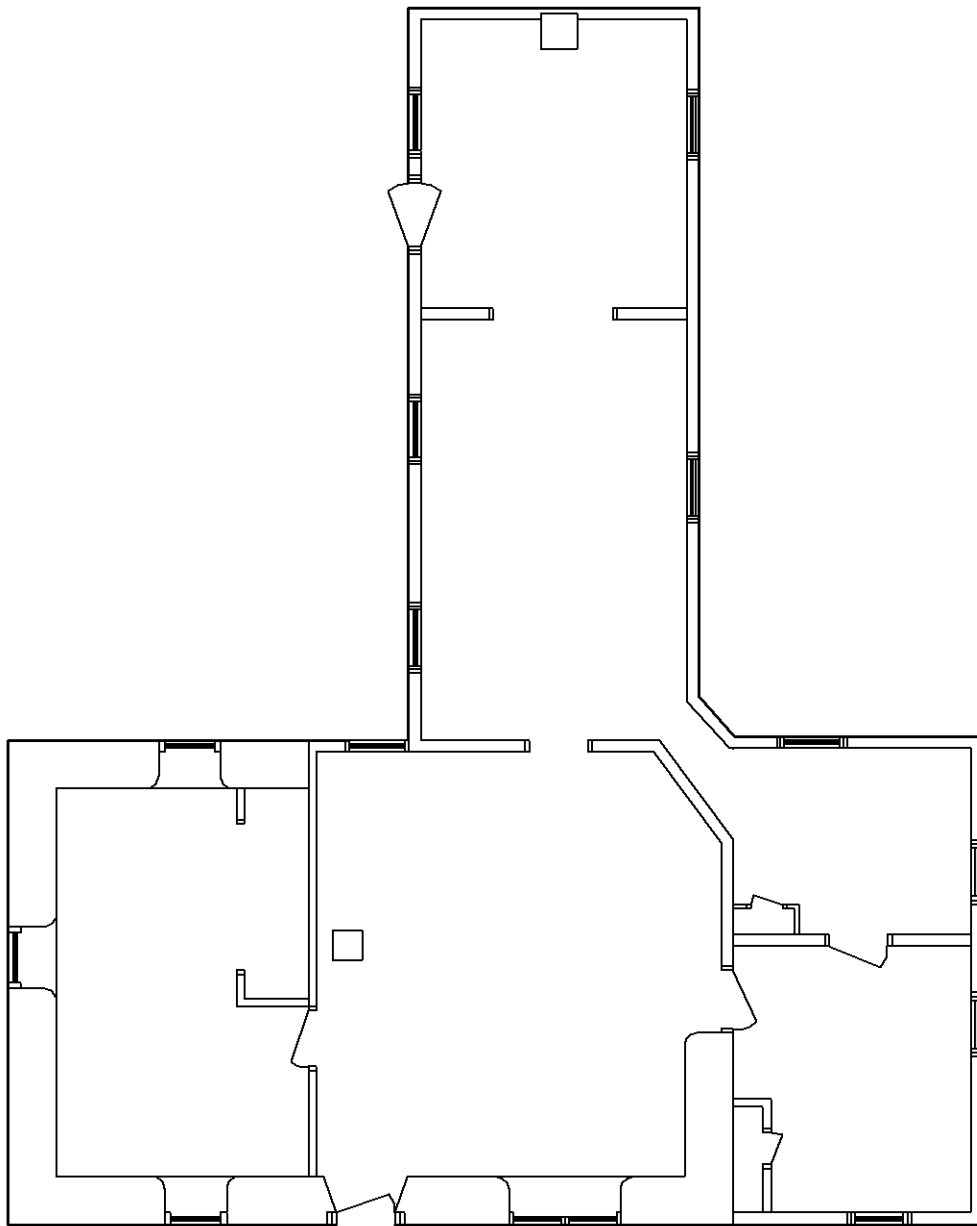
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Photo: 5



Location Map



Floor Plan
Scale: $\frac{1}{8}'' = 1'-0''$

Sod House Architectural History Inventory Form

NEHBS: CU00-023 **Field Number:** Sod - 16 **County:** CUSTER

Historic Name: William Minks Sod House **Date:** 7/2/2007

Legal Description: NE of NE, Section 14, Township 15N, Range 21W

Current Property Owner: Lawrence Tierney

Current Use: Vacant **Estimated Date:** ca. 1889

Setting: Set in a valley of rolling hills devoid of vegetation.

FORM

Number of Stories: 1

General Plan: L-Plan

Roof Shape: N/A

Exterior Cladding: Concrete

Set Below Grade: No

Primary façade faces: N/A

Additional details: ---

SOD CORE

Plan: L-Plan

Plan Dimensions: 24'-6"x 29'-3"

Block Dimensions: 24"x 10"x 3-1/2"

Grass: sod is nonextant

Coursing: One course common

Wall depth: 18"?

Additional details: Walls were entirely encased in concrete. Dimensions come from sod blocks impressions left in the concrete.

WINDOWS

Location: N/A

Original/Replaced: Nonextant

Placement: N/A

Bevel: N/A

Pegged: N/A

Type: N/A

Additional details: ---

DOORS

Location: N/A

Original/Replaced: Nonextant

Placement: N/A

Bevel: N/A

Pegged: N/A

Type: N/A

Additional details: ---

ROOF

Framing Material: N/A

Original/Replaced: Nonextant

Framing System: N/A

Decking: N/A

Roofing Material: N/A

Additional details: ---

ADDITIONS

Number of Stories: N/A

Estimated Date: N/A

Location: N/A

Framing: N/A

Roof Shape: N/A

Exterior Cladding: N/A

Additional details: House did not appear to have any additions.

INTERIOR DETAILS

Number of Rooms (sod core): N/A

Partition Framing: N/A

Walls: N/A

Floors: N/A

Plumbing: N/A

Electricity Hook-up: N/A

Height to ceiling: N/A

ASSESSMENT

Condition: NONEXTANT. The sod walls are no longer standing. Only a partial wall of concrete with the imprints of sod blocks remains.

Historical Notes:

William Minks filed claim #2661 for the northeast quarter of Section 14 in 1889. He received the patent to the land in July 1893 for the 160 acre property. The property changed owners twice until it was sold to Thomas and Alice Finlen in 1911. Alice Finlen owned the property until 1943 when it was sold to Inez Kearney. Cornilius Tierney

bought the property in 1951. The property continues to remain in the Tierney family. The current owner, Lawrence, acquired the deed in 1994.

Type Based on Chapter 6: Type IV Sod Prairie Cube

Recommendation: Not eligible for the National Register

Photos:

Photo #	Facing	Date	Description
1	SW	7/2/2007	Sod – 16, North Elevation
2	NE	7/2/2007	Sod – 16, Rear of north wall
3	N	7/2/2007	Sod – 16, Rear of north wall
4	S	7/2/2007	Sod – 16, Detail of north wall exterior
5	N	7/2/2007	Sod – 16, Detail of sod imprints



Photo: 1



Photo: 2



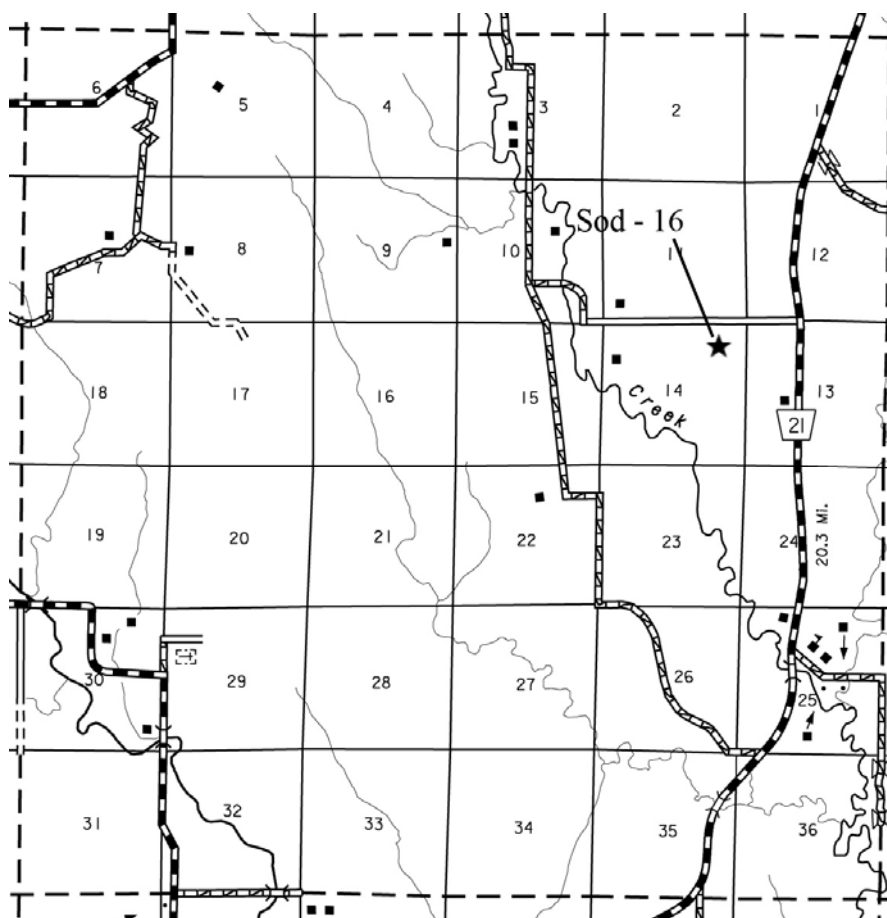
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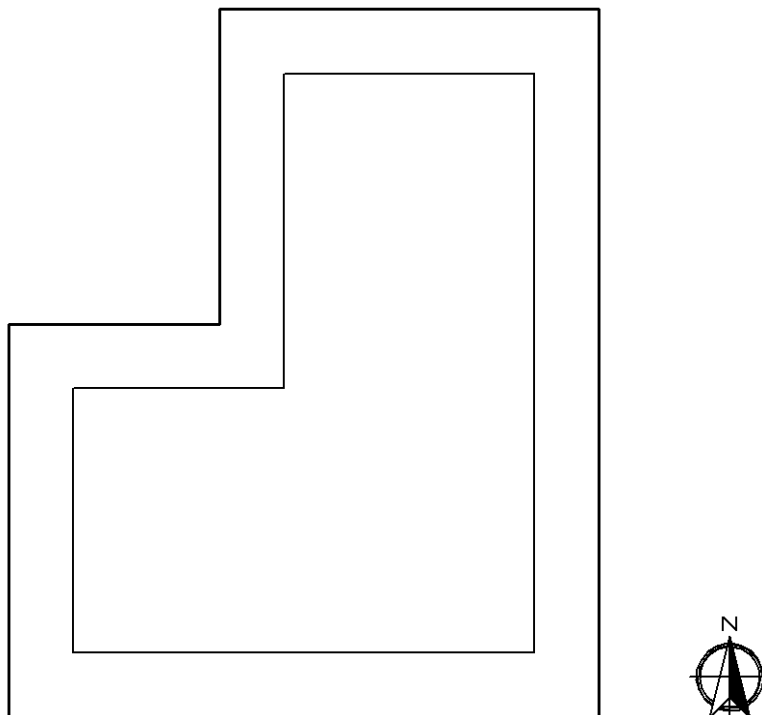
Photo: 4



Photo: 5



Location Map



Floor Plan
Scale: $1/8'' = 1'-0''$

Sod House Architectural History Inventory Form

NEHBS: CU00-211 **Field Number:** Sod - 17 **County:** CUSTER

Historic Name: Daniel McNulty Sod House **Date:** 7/3/2007

Legal Description: NW of NW, Section 12, Township 13N, Range 22W

Current Property Owner: Gary and Linda Bomberger

Current Use: Vacant **Estimated Date:** ca. 1907

Setting: Set in a small grove of trees in a valley among rolling hills. Property is visible from the public right-of-way.

FORM

Number of Stories: 1	General Plan: Rectangular
Roof Shape: Side gable	Exterior Cladding: Stucco (partial)
Set Below Grade: Yes; appx. 1'	Primary façade faces: South (current), East (original)

Additional details: House originally faced east, but frame addition shifted main entrance to south elevation.

SOD CORE

Plan: Rectangular	Plan Dimensions: 16' x 35'-3"
Block Dimensions: 24"x 9"x 3-1/2"	Grass: 3"; laid grass side down

Coursing: Two rows of headers alternating with single row of stretchers **Wall depth:** 22"

Additional details: Gable end is filled with sod.

WINDOWS

Location: West, South, East	Original/Replaced: Original
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Placement: Flush; one window on west elevation is set in center of frame

Bevel: Rounded on the interior **Pegged:** Yes

Type: Four-over-four double-hung wood sash

Additional details: Window on west elevation was formerly an entrance. Two 2"x 10" lintels are placed side by side above the window frame. Three to four courses of sod are placed above the lintels.

DOORS**Location:** West, East**Original/Replaced:** Missing**Placement:** Unknown, all historic doors and hardware are missing.**Bevel:** Slightly rounded on the interior**Pegged:** No**Type:** All historic doors are missing.**Additional details:** Window on west elevation was formerly an entrance as evidenced by the lack of sod beneath the sill.**ROOF****Framing Material:** Sawn lumber**Original/Replaced:** Original**Framing System:** Five-beam construction with frameless sheathing. Rafters appear to have been added later and were placed beneath the beams. End of rafters were tied together with rafter chords, which were set into the east and west sod walls.**Decking:** 1"x 12" vertical wood planks**Roofing Material:** Wood shingles covered with rolled asphalt and corrugated metal**Additional details:** At corners of house, eaves were tied down to the ground with wire.**ADDITIONS****Number of Stories:** 1**Estimated Date:** ca. 1935**Location:** East elevation**Framing:** Sawn lumber**Roof Shape:** Shed**Exterior Cladding:** Horizontal wood planks covered with rolled asphalt**Additional details:** ---**INTERIOR DETAILS****Number of Rooms (sod core):** 2**Partition Framing:** Sawn lumber**Walls:** Plaster**Floors:** Dirt; 3-1/4" wood tongue-and-groove**Plumbing:** Yes**Electricity Hook-up:** Yes**Height to ceiling:** 7'-2"**ASSESSMENT****Condition:** VERY POOR. Nearly 50% of the west wall has collapsed. The northwest and northeast corners of the house are also missing and the southwest corner is heavily eroded. Most the stucco on the exterior is missing, and the exposed sod is greatly

weathered and eroded. Large holes exist in the roof and the interior ceiling is fully collapsed. The house is infested with rodents and insects, and the cattle from the pasture nearby are allowed to rub and enter the house. House is severely threatened with a full collapse due to the instability of the eroded sod walls.

Historical Notes:

Daniel McNulty filed Homestead Claim #7758 in 1907 and received the patent to the land in September of that year. McNulty remained on his 160-acre homestead until he sold it to John Crowe in 1913. The property changed owners multiple times until Frederick Hickenbottom purchased it in 1929 and the acreage was increased to 480 acres. He owned the property until 1944 when Ray Trayer bought the large plot of land. The Trayer's sold the property to the Bomberger's in 1969, and Gary acquired it 1988. It is unknown when the house was last inhabited.

Type Based on Chapter 6: Type IIIA Standard Plan

Recommendation: Eligible for the National Register

Photos:

Photo #	Facing	Date	Description
1	NW	7/3/2007	Sod – 17, South Elevation
2	SE	7/3/2007	Sod – 17, West Elevation
3	S	7/3/2007	Sod – 17, North Elevation
4	SW	7/3/2007	Sod – 17, Northeast corner
5	E	7/3/2007	Sod – 17, Interior



Photo: 1



Photo: 2



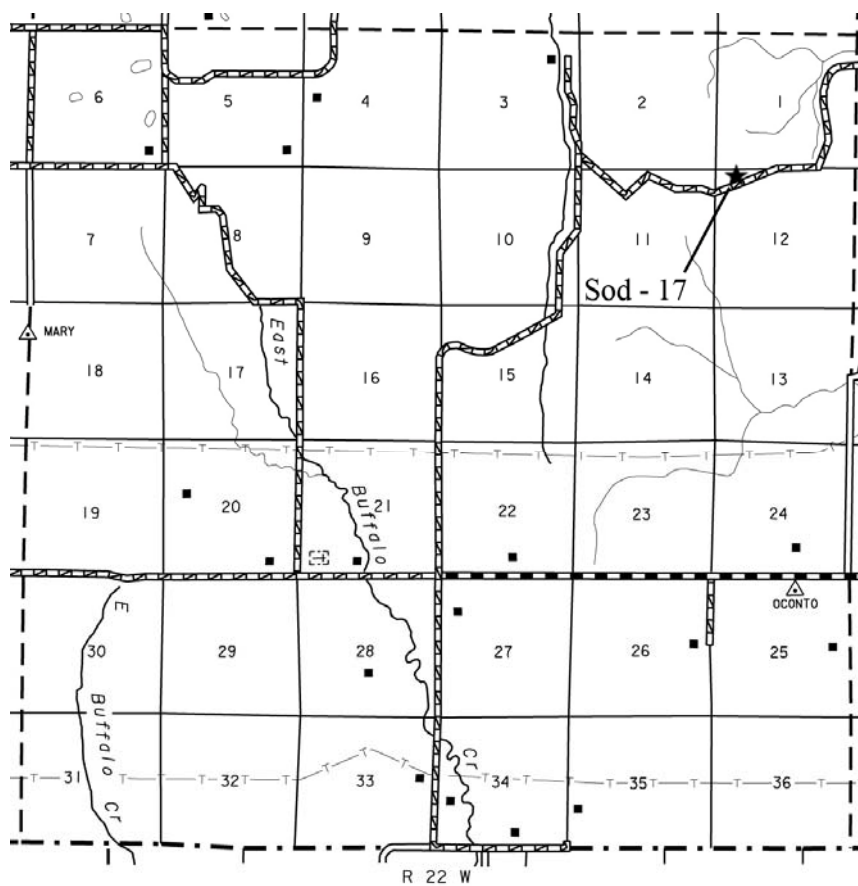
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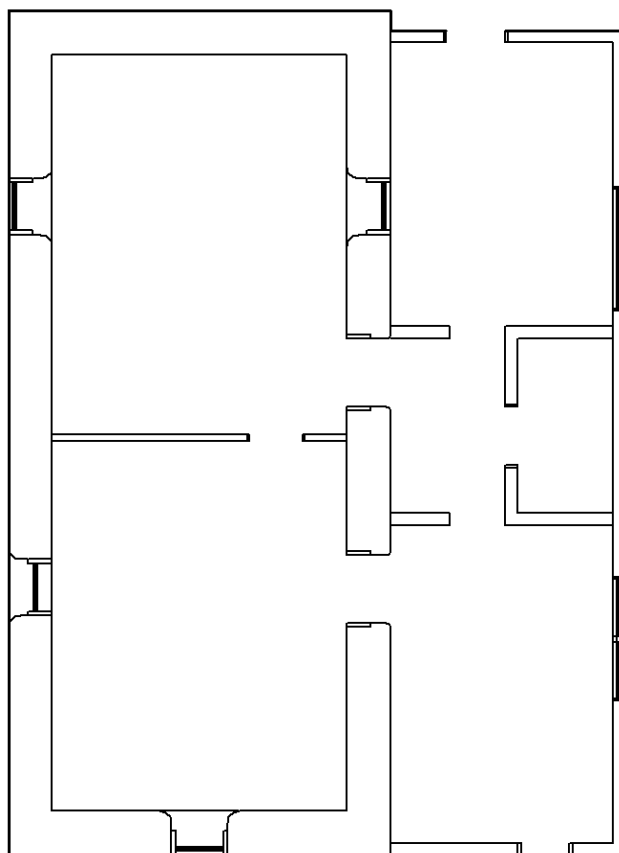
Photo: 4



Photo: 5



Location Map



Floor Plan
Scale: 1/8" = 1'-0"

Sod House Architectural History Inventory Form

NEHBS: --- **Field Number:** Sod - 18 **County:** CUSTER

Historic Name: Robert Krembzow Sod House **Date:** 7/4/2007

Legal Description: SW, Section 12, Township 16N, Range 22W

Current Property Owner: Gary Cook

Current Use: Vacant **Estimated Date:** ca. 1909

Setting: Set on a hill that rises to the east from a deep valley in Custer Canyon.

FORM

Number of Stories: 1 - 1.5 **General Plan:** Rectangular

Roof Shape: Front gable **Exterior Cladding:** Stucco

Set Below Grade: Yes; appx. 2' **Primary façade faces:** Unknown

Additional details: House possibly consisted of a gabled sod core, with a much larger sod addition to the north.

SOD CORE

Plan: Rectangular **Plan Dimensions:** 19' x 32'

Block Dimensions: 24"x 14"x 3" **Grass:** No grass

Coursing: Two course common bond **Wall depth:** 30"

Additional details: Sod extends into the gable on the east wall. Wood stakes are driven into the sod from the top plate

WINDOWS

Location: East **Original/Replaced:** Original

Placement: Flush

Bevel: Rounded on the interior **Pegged:** Yes

Type: One-over-one double-hung wood sash

Additional details: Most of house has collapsed and only one window remains.

DOORS**Location:** N/A**Original/Replaced:** N/A**Placement:** N/A**Bevel:** N/A**Pegged:** N/A**Type:** N/A**Additional details:** All door frames and doors are nonextant.**ROOF****Framing Material:** N/A**Original/Replaced:** N/A**Framing System:** N/A**Decking:** N/A**Roofing Material:** N/A**Additional details:** Roof is nonextant.**ADDITIONS****Number of Stories:** 1**Estimated Date:** N/A**Location:** North**Framing:** Brick**Roof Shape:** N/A**Exterior Cladding:** Brick**Additional details:** Only a small portion of a brick wall is remaining on the north elevation.**INTERIOR DETAILS****Number of Rooms (sod core):** 2?**Partition Framing:** N/A**Walls:** N/A**Floors:** N/A**Plumbing:** N/A**Electricity Hook-up:** N/A**Height to ceiling:** N/A**ASSESSMENT****Condition:** VERY POOR. House has completely collapsed and only three partial sod walls remain. Footprint of house is difficult to determine because house is heavily overgrown with trees and brush. Remaining sod walls are massive and thick, but heavily eroded. Only one window frame remains, but the glazing is broken. Portions of the brick

addition can be seen to the north, but it is difficult to see where it connected to the sod house.

Historical Notes:

Robert Krembzow received the patent to his Homestead claim on the southwest quarter of Section 12 in November 1909. It is unknown when Mr. Krembzow filed the claim. The property remained in the Krembzow family until 1960 when Carl Krembzow sold the land to August Hauser. The Hauser family owned the property until 2007 when Gary Cook acquired the deed.

Type Based on Chapter 6: Type IIIB Standard Plan Variation

Recommendation: Not eligible for the National Register

Photos:

Photo #	Facing	Date	Description
1	SW	7/4/2007	Sod – 18, East Elevation
2	SE	7/4/2007	Sod – 18, Interior of east wall
3	N	7/4/2007	Sod – 18, Interior of inner sod wall
4	S	7/4/2007	Sod – 18, North Elevation
5	SW	7/4/2007	Sod – 18, Detail of east wall



Photo: 1



Photo: 2



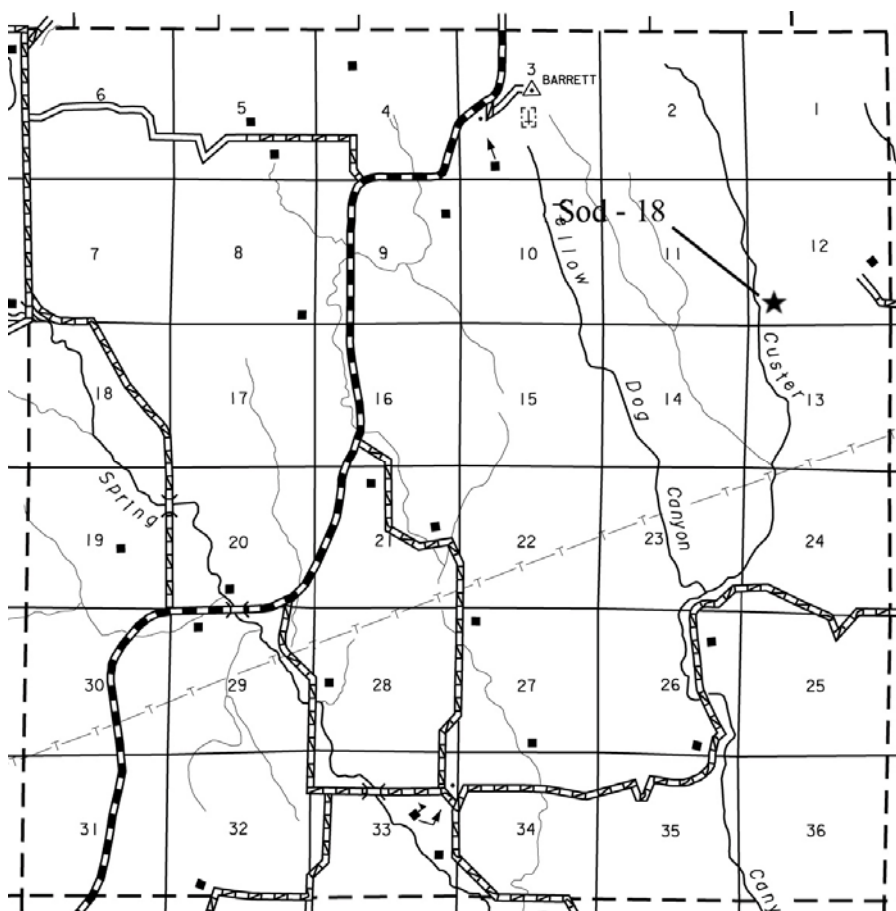
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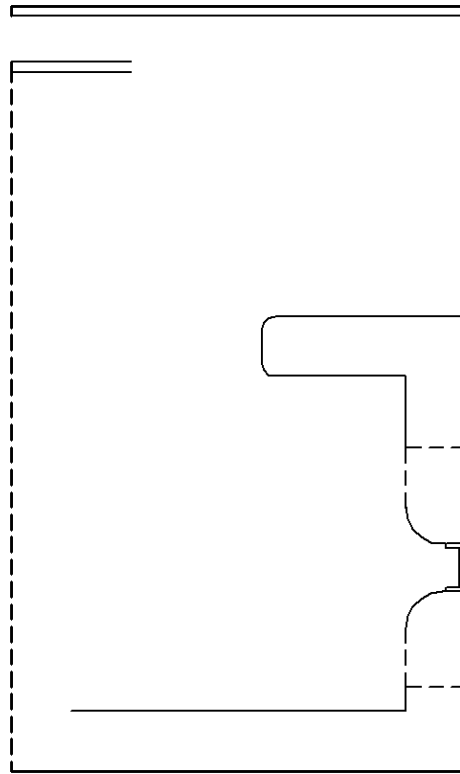
Photo: 4



Photo: 5



Location Map



Floor Plan
Scale: $1/8'' = 1'-0''$

Sod House Architectural History Inventory Form

NEHBS: --- **Field Number:** Sod - 19 **County:** CUSTER

Historic Name: Alexander Smith Sod House **Date:** 7/2/2007

Legal Description: SW of NE, Section 35, Township 16N, Range 23W

Current Property Owner: Lawrence Woodward

Current Use: Work in progress **Estimated Date:** ca. 1892

Setting: Set in a valley of high rolling hills. Property is not visible from the public right-of-way.

FORM

Number of Stories: 1	General Plan: T-Plan
Roof Shape: Pyramid, gable	Exterior Cladding: Wood
Set Below Grade: No	Primary façade faces: South

Additional details: Primary façade originally faced east until the frame addition changed the main entrance to the south elevation.

SOD CORE

Plan: Square	Plan Dimensions: 22' x 24'
Block Dimensions: 24"x 9"x 4"	Grass: 1/4"; laid grass side down
Coursing: Two course common	Wall depth: 24'-10" to 25'-4"

Additional details: Walls were slightly battered. Stakes were driven through the walls every three to four courses.

WINDOWS

Location: North, South, East	Original/Replaced: Replaced
Placement: Flush; set of paired windows on south elevation	
Bevel: N/A	Pegged: ---

Type: Originally six-over-six double-hung wood sash. Currently six-over-six single-hung vinyl sash.

Additional details: Interior window wells have been encased with wood.

DOORS

Location: East	Original/Replaced: Original, replaced
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Placement: Recessed

Bevel: No

Pegged: ---

Type: Wood vertical board

Additional details: ---

ROOF

Framing Material: Sawn lumber	Original/Replaced: Original
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Framing System: N/A

Decking: N/A

Roofing Material: Standing seam metal

Additional details: The shape of the hipped roof is original but rotted roof framing members were replaced and covered in insulation during the rehabilitation.

ADDITIONS

Number of Stories: 1	Estimated Date: 1911
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Location: West

Framing: Sawn lumber

Roof Shape: Side gable

Exterior Cladding: Clapboard covered with rolled asphalt

Additional details: ---

INTERIOR DETAILS

Number of Rooms (sod core): 3	Partition Framing: Sawn lumber
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Walls: Plaster

Floors: Concrete (2003), formerly wood (1940)

Plumbing: No

Electricity Hook-up: Yes (1948)

Height to ceiling: The ceiling was raised during the rehabilitation.

ASSESSMENT

Condition: GOOD. Since 2003, the house has been rehabilitated into a summer cottage and therefore many of the problems have been remedied. The original wood frame wall partitions in the sod core were rotted and removed. The windows were replaced and boxed in and the ceiling was raised. Parts of the roof system were replaced with modern lumber due to rot. The wood floors were removed and replaced with a concrete floor.

The sod walls were heavily damaged from water and had begun to collapse, but the current stabilized them with wood logs.

Historical Notes:

Alexander Smith filed Homestead claim #3718 for the northeast quarter of section 35 in 1892. The property was sold eight times until Cecilia Nusbaum bought the property in 1908 and Smith received the patent to the land in May 1909. It is unknown who exactly built the sod house. Ms. Nusbaum sold the property in 1919 to Jesse Woodward, who lived in the house until he sold it to Merrill Woodward in 1938. Merrill's son Cecil bought the property in 1990, but sold it in 2003 to Lawrence Woodward, who began the rehabilitation.

Type Based on Chapter 6: Type IV Sod Prairie Cube

Recommendation: Eligible for the National Register

Photos:

Photo #	Facing	Date	Description
1	NW	7/2/2007	Sod – 19, Southeast corner
2	SW	7/2/2007	Sod – 19, Northeast corner
3	SE	7/2/2007	Sod – 19, Northwest corner
4	NE	7/2/2007	Sod – 19, Southwest corner
5	SE	7/2/2007	Sod – 19, Interior of sod core



Photo: 1



Photo: 2



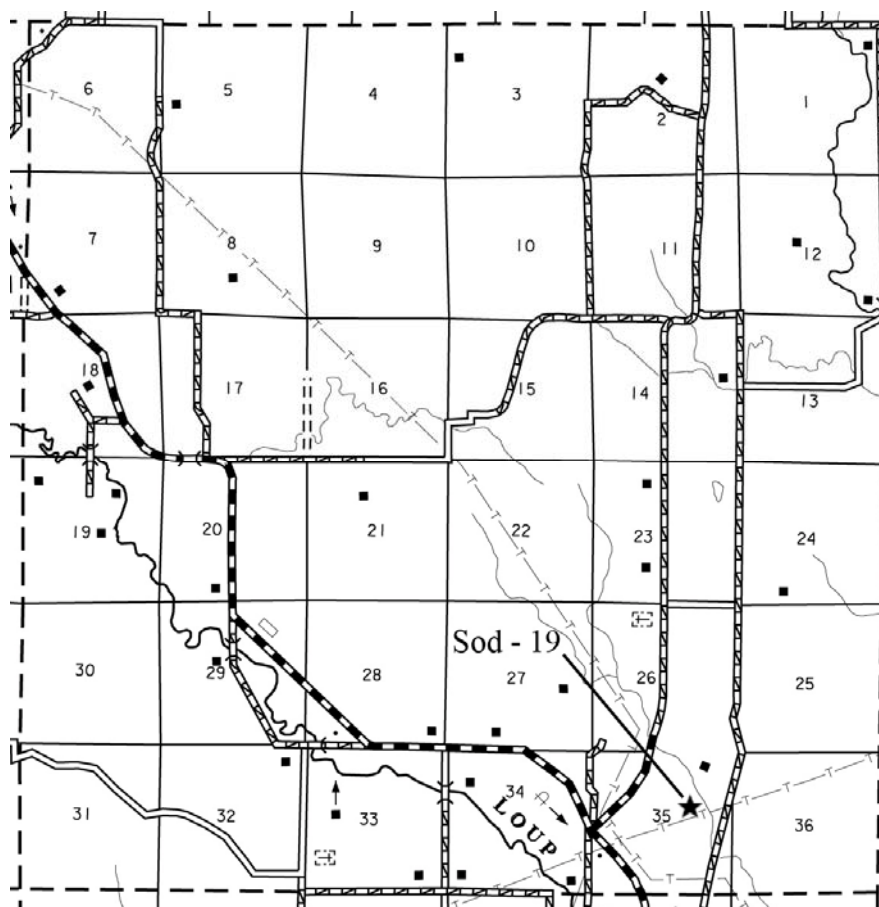
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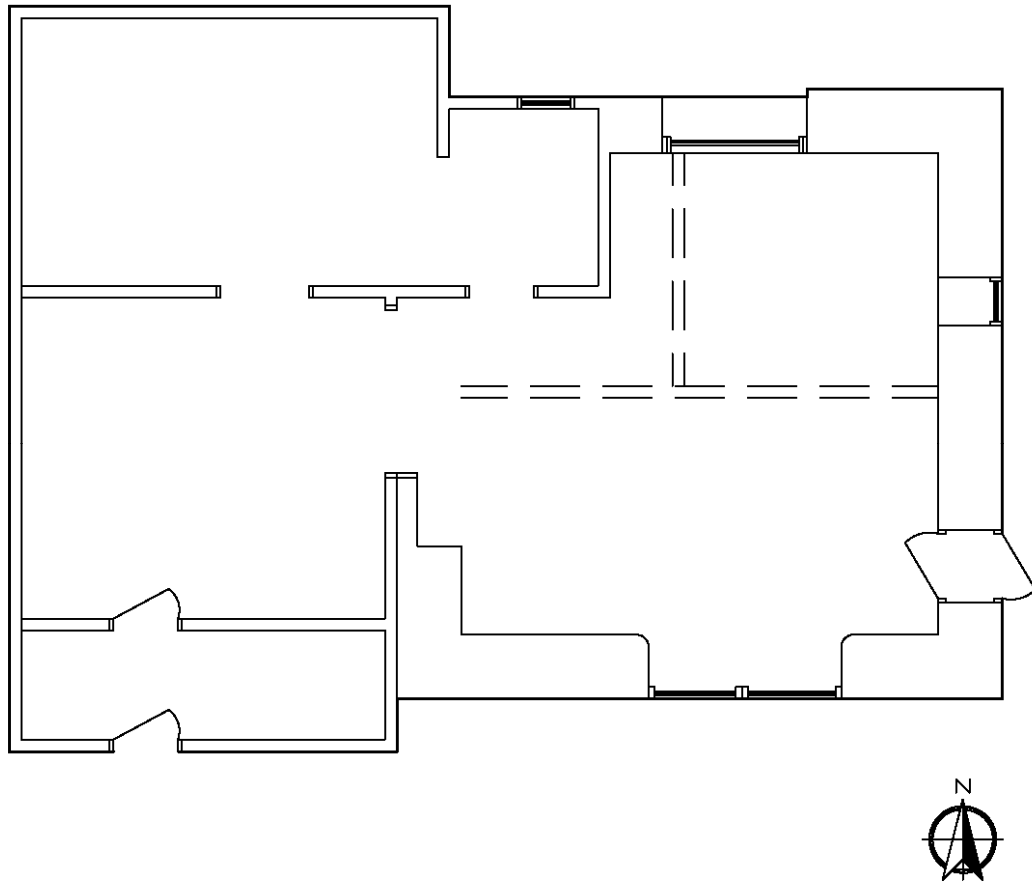
Photo: 4



Photo: 5



Location Map



Floor Plan
Scale: $\frac{1}{8}'' = 1'-0''$

Sod House Architectural History Inventory Form

NEHBS: --- **Field Number:** Sod - 20 **County:** CUSTER

Historic Name: George Luck Sod House **Date:** 7/10/2007

Legal Description: SE of SE, Section 15, Township 16N, Range 23W

Current Property Owner: Charley Lloyd

Current Use: Vacant **Estimated Date:** ca. 1890

Setting: Set on a hill in a thick grove of trees. Property is not visible from the public right-of-way.

FORM

Number of Stories: 1	General Plan: Irregular
Roof Shape: Hip; gable	Exterior Cladding: Clapboard
Set Below Grade: No	Primary façade faces: East

Additional details: Primary façade initially faced south until frame addition moved the entrance to the east elevation.

SOD CORE

Plan: Rectangular	Plan Dimensions: 28'-1" x 20'-1"
Block Dimensions: 3-1/2" thick (unable to get rest of dimensions)	
Coursing: Two course common bond	Wall depth: 27"

Additional details: 12" concrete sill surrounds the perimeter of the house

WINDOWS

Location: West, South, East	Original/Replaced: Replaced
Placement: Flush	
Bevel: Rounded on the interior	Pegged: ---

Type: One-over-one double-hung wood sash

Additional details: One replacement window has been downsized. Another window on the south elevation of the original sod core has been boarded.

DOORS

Location: South	Original/Replaced: Original
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Placement: Recessed**Bevel:** No**Pegged:** ---**Type:** Five-paneled wood**Additional details:** ---**ROOF**

Framing Material: N/A	Original/Replaced: N/A
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Framing System: N/A**Decking:** Vertical wood planks**Roofing Material:** Asphalt shingles**Additional details:** Unable to determine roof structure because it was not visible.**ADDITIONS**

Number of Stories: 1	Estimated Date: ca. 1925
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Location: South**Framing:** Sawn lumber**Roof Shape:** Gable**Exterior Cladding:** Clapboard**Additional details:** ---**INTERIOR DETAILS**

Number of Rooms (sod core): 2	Partition Framing: Sawn lumber
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Walls: Plaster**Floors:** 3-1/2" wood tongue-and-groove**Plumbing:** No**Electricity Hook-up:** Yes**Height to ceiling:** ---**ASSESSMENT**

Condition: GOOD. House appears structurally sound with no evidence of significant settling, shifting, or warping. The paint has worn off the exterior clapboard and there are signs of mildew near the base of the house. The interior of the house shows signs of water damage in both the sod core and the addition. Interior walls reveal exposed sod where the plaster has worn off. Where bead board has covered the sod, the wood is rotted and heavily deteriorated.

Historical Notes:

George Luck filed claim #5240 for the southeast quarter of Section 15 in 1890. The property changed owners five times before Mr. Luck received the patent to the land in March 1909. That same year the property was sold to J.O Baker, who then sold it to L.V. John Whipple in 1913. Local residents know this property as the L.V. Whipple Place. It is possible that L.V. John Whipple built the current sod house on the property in circa 1913, but it is not known for sure. Local history books state that L.V. moved to “town” in 1953. Arthur Whipple bought the property from his brother in 1964 and lived there until 1975. It is believed that this was the last time the property was occupied. They continued to own the property until 1984 when it was sold to Norman Johnson. Charley Lloyd, the current owner, acquired the property in 2004. Charley’s wife, Reita, was a member of the Whipple family.

Type Based on Chapter 6: Type IIIB Standard Plan Variation

Recommendation: Eligible for the National Register

Photos:

Photo #	Facing	Date	Description
1	NE	7/10/2007	Sod – 20
2	SW	7/10/2007	Sod – 20, East Elevation
3	SE	7/10/2007	Sod – 20, North Elevation
4	SE	7/10/2007	Sod – 20, West Elevation
5	SE	7/10/2007	Sod – 20, Interior



Photo: 1



Photo: 2



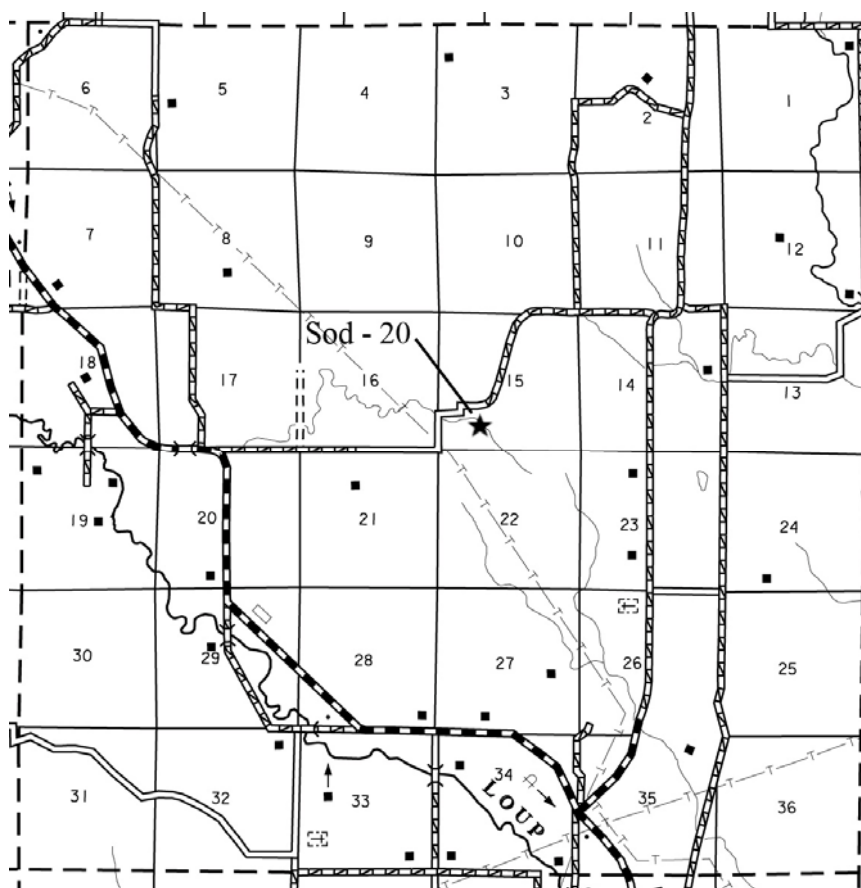
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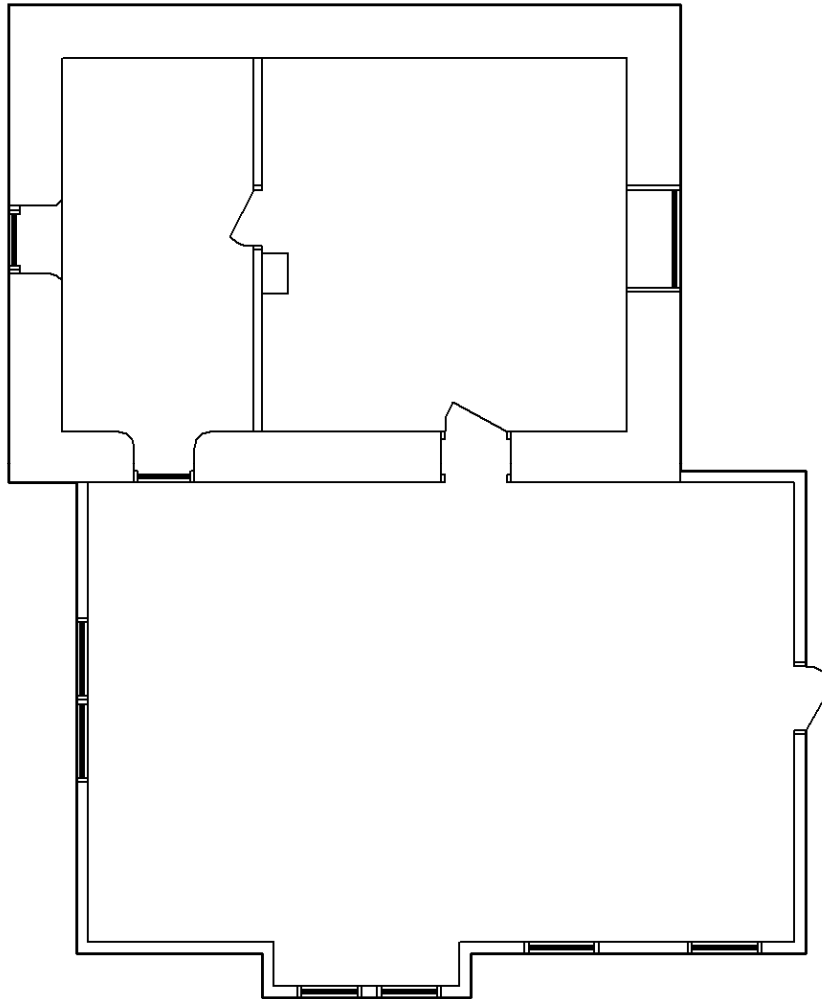
Photo: 4



Photo: 5



Location Map



Floor Plan
Scale: 1/8" = 1'-0"

Sod House Architectural History Inventory Form

NEHBS: ---

Field Number: Sod - 21County: CUSTERHistoric Name: Adolf Geschwind /John Christensen Sod HouseDate: 7/6/2007Legal Description: SW of SW, Section 9, Township 16N, Range 23WCurrent Property Owner: Laura SengCurrent Use: Secondary dwellingEstimated Date: ca. 1895

Setting: Part of a larger farmstead complete with a modern dwelling and barn. Farmstead includes mature hardwood trees and house sits on a slight swelling of grade to the north of the property.

FORM

Number of Stories: 1

General Plan: Rectangular

Roof Shape: Side gable

Exterior Cladding: 1/2" thick concrete

Set Below Grade: No

Primary façade faces: South

Additional details: Sod appears to be extended into gable.

SOD CORE

Plan: Rectangular

Plan Dimensions: 32'-9"x 20'-6"

Block Dimensions: (no exposed sod)

Grass: N/A

Coursing: N/A

Wall depth: 24" - 26"

Additional details: Walls are battered and measure from 26" at the floor to 24" near the top plate. 4" concrete sill surrounds the perimeter of the house.

WINDOWS

Location: North, West, South, East

Original/Replaced: Original

Placement: Flush

Bevel: Rounded on the interior

Pegged: ---

Type: Six-over-six double-hung wood sash

Additional details: ---

DOORS**Location:** North, South**Original/Replaced:** Replaced**Placement:** Recessed with historic screens**Bevel:** No**Pegged:** ---**Type:** N/A for exterior; interior doors are wood vertical board**Additional details:** ---**ROOF****Framing Material:** Sawn lumber**Original/Replaced:** Replaced (1983)**Framing System:** Seven-beam construction**Decking:** Unknown**Roofing Material:** Asphalt Shingles**Additional details:** ---**ADDITIONS****Number of Stories:** N/A**Estimated Date:** N/A**Location:** N/A**Framing:** N/A**Roof Shape:** N/A**Exterior Cladding:** N/A**Additional details:** ---**INTERIOR DETAILS****Number of Rooms (sod core):** 3**Partition Framing:** Sawn lumber**Walls:** Plaster
groove**Floors:** 3-1/2" wood inch tongue-and-**Plumbing:** No**Electricity Hook-up:** No**Height to ceiling:** ---**ASSESSMENT****Condition:** GOOD. House was "restored" between 1983 and 1986. Roof was replaced, interior plaster and broken glazing were repaired, and exterior was likely covered with concrete. Cracks are present on the exterior concrete, but interior walls appear sound.

Historical Notes:

Adolf Geschwind was born in Switzerland in the early 1860s, just before his family moved to the United States. The family settled for a few years in Ohio and immigrated to Custer County in 1882. Adolf grew up in Custer County on the Geschwind family homestead near Triumph, but established two other homesteads nearby in the 1890s. He filed Timber Claim #910 for the southwest quarter of section 9 in 1895, however he did not receive the patent for the land until November 1918. The residence appears on the 1904 plat map of Custer County, which affirms the construction date for this sod house.

Adolf Geschwind sold the property, which he had then increased the acreage from 240 acres to 440 acres, to John Christensen in November 1919. Christensen was recently married to Ida Murphy, and the couple lived on the farmstead until his death in 1964. Ida is believed to be the last inhabitant of the house and sold the property to Ernest Hyslop the following year. Mr. Hyslop then sold the property to the John and Pam Witthuhn who restored the deteriorating sod house from 1983 to 1986.

Type Based on Chapter 6: Type IIIB Standard Plan Variation

Recommendation: Eligible for the National Register

Photos:

Photo #	Facing	Date	Description
1	N	7/6/2007	Sod – 21, South Elevation
2	W	7/6/2007	Sod – 21, East Elevation
3	SW	7/6/2007	Sod – 21, North Elevation
4	SW	7/6/2007	Sod – 21, Interior
5	SW	7/6/2007	Sod - 21, Interior window detail



Photo: 1



Photo: 2



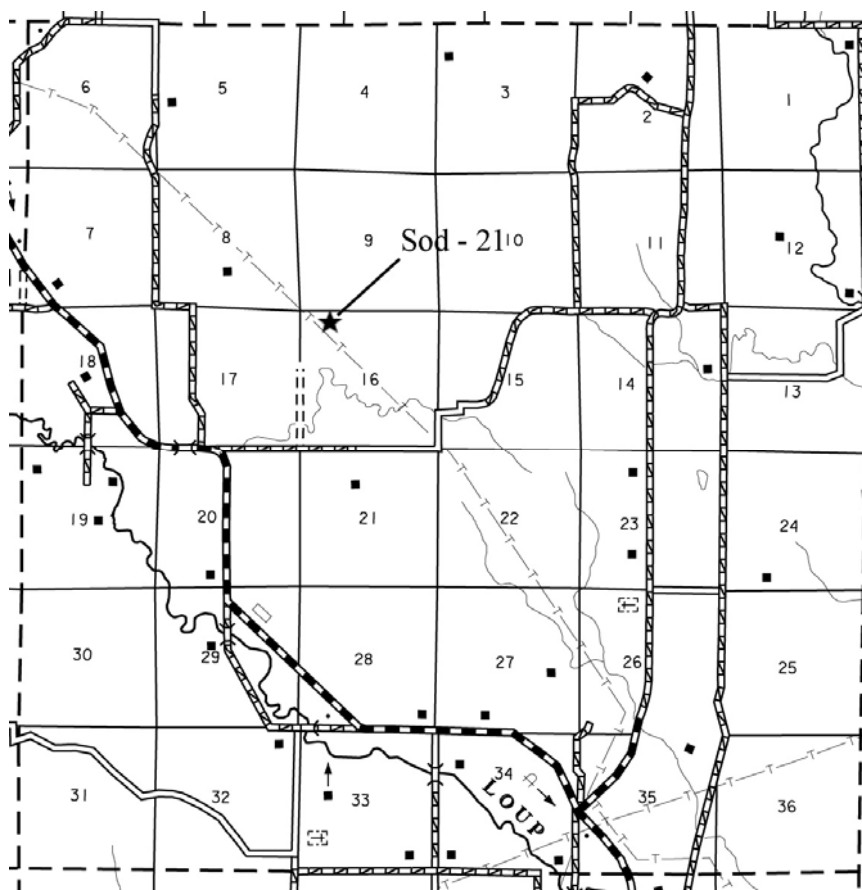
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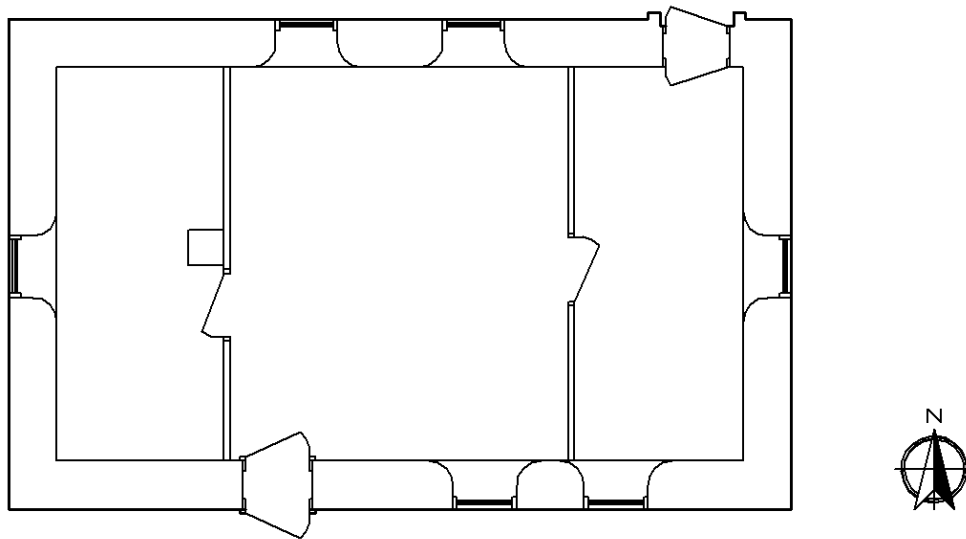
Photo: 4



Photo: 5



Location Map



Floor Plan
Scale: 1/8" = 1'-0"

Sod House Architectural History Inventory Form

NEHBS: --- **Field Number:** Sod - 22 **County:** CUSTER

Historic Name: Henry Kruser Sod House **Date:** 7/4/2007

Legal Description: NE of SW, Section 17, Township 16N, Range 24W

Current Property Owner: Diane Finch

Current Use: Vacant **Estimated Date:** ca. 1894

Setting: Set in a valley near the South Loup River. A small hill swells to the northwest of the former house.

FORM

Number of Stories: 1 **General Plan:** Rectangular

Roof Shape: Side gable **Exterior Cladding:** ---

Set Below Grade: N/A **Primary façade faces:** East

Additional details: ---

SOD CORE

Plan: Rectangular **Plan Dimensions:** 18' x 26'

Block Dimensions: N/A **Grass:** Sod is nonextant

Coursing: N/A **Wall depth:** N/A

Additional details: ---

WINDOWS

Location: West, South, East **Original/Replaced:** Nonextant

Placement: Flush

Bevel: N/A **Pegged:** ---

Type: Originally four-over-four double-hung wood sash

Additional details:

DOORS

Location: East **Original/Replaced:** Nonextant

Placement: Recessed

Bevel: N/A

Pegged: ---

Type: N/A

Additional details: ---

ROOF

Framing Material: Lumber

Original/Replaced: Nonextant

Framing System: Three beam construction method with frameless sheathing

Decking: Vertical wood planks

Roofing Material: ---

Additional details: Unable to determine roofing material from historic photograph.

ADDITIONS

Number of Stories: N/A

Estimated Date: N/A

Location: N/A

Framing: N/A

Roof Shape: N/A

Exterior Cladding: N/A

Additional details: ---

INTERIOR DETAILS

Number of Rooms (sod core): 4

Partition Framing: Sawn lumber

Walls: N/A

Floors: N/A

Plumbing: N/A

Electricity Hook-up: N/A

Height to ceiling: N/A

ASSESSMENT

Condition: NONEXTANT. House has completely collapsed and melted into the earth. Only a mound of dirt and remnants of sawn lumber remain. Footprint of house was determined by former concrete sill that surrounded the perimeter of the house.

Historical Notes:

Henry Kruser filed Homestead Claim #4578 on the southwest quarter of Section 17 in 1894. He received the patent to the land in March 1903 for the 160 acre property. The homestead was one-half mile south of the Swain Finch Ranch. Kruser sold the property to Fred Halouska in 1910. The Halouska's raised their family of sixteen

children in the four room sod house, and lived on the property until 1954 when it was sold to John Halouska. John Halouska sold the property in 1961 to Patsy Kilmer, who then sold it to Faylin Finch in 1974. Diane Finch acquired the property in 2006. It is unknown when the house was last occupied, but it was still fully standing in the 1970s according to a local resident.

Historical information on exterior appearance was gathered from a historical photograph published in *One Hundred Years on the South Loup: A History of the Arnold Community from 1883-1983* by Norene Mills. Interior plan of house was recalled by a local resident who visited the house in the 1970s.

Type Based on Chapter 6: Type IIIA Standard Plan

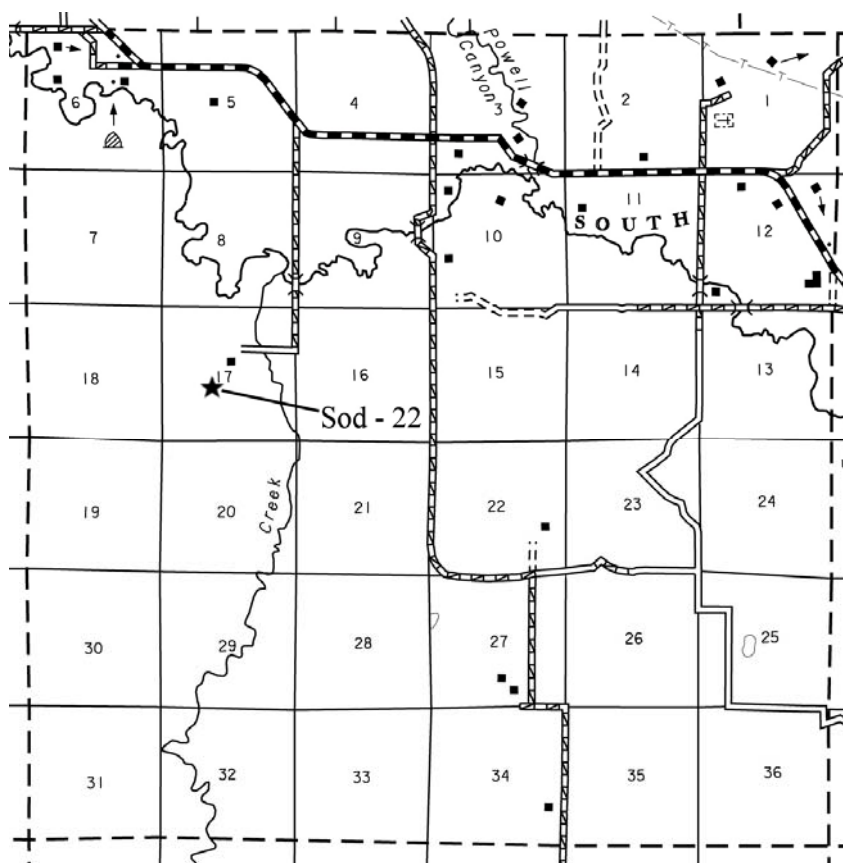
Recommendation: Not eligible for the National Register

Photos:

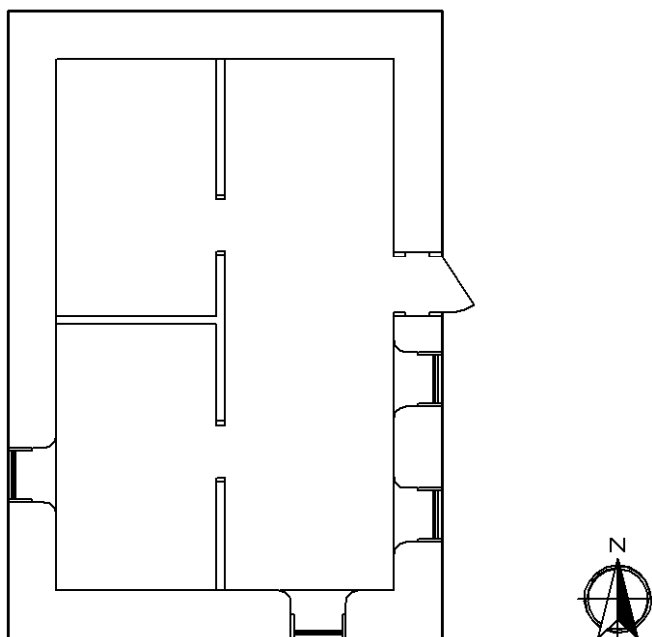
Photo #	Facing	Date	Description
1	NW	7/4/2007	Sod – 22, Mound of remaining sod house



Photo: 1



Location Map



Floor Plan
Scale: $\frac{1}{8}'' = 1'-0''$