Grant-Kohrs Ranch
National Historic Site

Deer Lodge, Montana

Cultural Landscape Report
Part One

Landscape History, Existing Conditions,

and Analysis and Evaluation

July 2004



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NATIONAL HISTORIC SITE
DEER LODGE, MONTANA

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Deer Lodge, Montana

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Chapter One: Introduction

CHAPTER 1: INTRODUCTION

Management Summary

A Cultural Landscape Report (CLR) is the primary report that documents and evaluates the history, significance and treatment of a cultural landscape, including any changes to its geographical context, features, materials, and use. The primary goal of this CLR is to provide the National Park Service (NPS) with a contextual evaluation of how the Grant-Kohrs Ranch National Historic Site (NHS) is situated within regional ranching history and broader national historic themes.

This report includes Part I, Site History, Existing Conditions, and Analysis, which documents the evolution of the site's cultural landscape resources, and determines the origin and significance of existing landscape features within the site's boundaries. It includes a physical history of the landscape's evolution, historic photographs and illustrations, existing conditions documentation and base maps, a comparative analysis of existing and historic conditions, identification and evaluation of significant character-defining features, and evaluation of historic integrity.

Part II, Treatment, which recommends appropriate treatment guidelines, strategies, and plans for preservation and enhancement of cultural landscape resources, will be completed in the future under a separate task order.

Historical Summary

The Grant-Kohrs Ranch, established by John Grant in 1862 and operated by Conrad Kohrs from 1866-1920, is an outstanding representation of the days of the open range cattle industry in the American West during the 19th and early 20th centuries. Grant's and Kohrs' dominance of the regional beef market demonstrated the possibilities available to entrepreneurs on the developing frontier, and the ability to run cattle over a virtual empire of open and free grassland. The National Historic Landmark period of significance for the site--1862-1919--extends from the initial development of John Grant's ranch to the dissolution of the greater Kohrs Ranch.[1]

While the current boundaries of the site encompass approximately 1,618 acres, this is only a fraction of what was once a much larger ranch. During the 1890s, the ranch extended over 27,000 acres, with feed, water, and grazing rights over ten million acres of public land that spanned across Montana, parts of Utah, Idaho, Wyoming, Colorado, and the Canadian province of Alberta, Saskatchewan. The Home Ranch, a term that historically defined the Grant-Kohrs ranch home and building complex and its adjacent lands, extended beyond the current boundary to the east approximately 1.75 miles and west from one to five miles to reach grazing leases on state lands and the Deer Lodge National Forest. Other holdings in the Deer Lodge Valley included Dog Creek Pasture (9,129 acres) and Humber Ranch (1,160 acres) to the northeast, and the Upper Ranch (also known as Nick Bielenberg place, 4,800 acres) to the southeast (see Figure 1-1).[2]

[1] Ann Hubber, *National Historic Landmark Boundary Study, Grant-Kohrs Ranch* (Denver: National Park Service, Intermountain Support Office, August 31, 2001; approved 2002), 30-31.
[2] Ann Hubber, *National Register of Historic Places Registration Form, Grant-Kohrs Ranch/Warren Ranch* (Denver: National Park Service, Intermountain Support Office, January 4, 2002; signed 2003), 5.

The Grant-Kohrs Ranch NHS encompasses both the Grant-Kohrs Ranch home and building complex as well as the Warren Hereford Ranch and residence. Operated by Conrad Warren from 1929-1982, the Grant-Kohrs Ranch/Warren Ranch, which has been nominated to the National Register of Historic Places, represents the modernization of cattle ranching on the Great Plains of the American West, specifically in the era that began in the early 20th century and which marked the close of the open range. Conrad Warren, the grandson of Conrad Kohrs, moved to his grandfather's former ranch in 1929. In 1932 Warren assumed management of the Conrad Kohrs Company Ranch, and transformed the relatively small financial and physical remnants of his grandfather's once vast cattle empire into a modern cattle breeding and sales complex. Warren ran the ranch for over 50 years. The period of significance of the Warren Ranch is 1929-1958.[3]

Altogether, the Grant-Kohrs Ranch NHS represents changes in agriculture, and the continuum of cattle ranching from the days of the open range into the modern era. Its landscape encompasses the cultural and physical resources that help interpret the story of continuity of ownership and the evolution of western cattle ranching operations throughout the 19th and 20th centuries.

Administrative Context

Grant-Kohrs Home Ranch was designated a National Historic Landmark (NHL) on December 19, 1960 as part of the Mission 66 program of the National Park Service.[4] The ranch, then owned by Conrad Warren, grandson of Conrad Kohrs, was one of five sites identified in a 1959 NHL "Westward Expansion: Cattlemen's Empire" theme study as having exceptional value or quality in illustrating or interpreting the heritage of the United States.[5] The ranch is significant under NHL Criterion 1 in the areas of Agriculture and Developing the American Economy.

In August, 1972 Congress authorized establishment of Grant-Kohrs Ranch National Historic Site (Public Law 92-406, 86 Stat. 632) "to provide an understanding of the frontier cattle era of the Nation's history, to preserve the Grant-Kohrs Ranch, and to interpret the nationally-significant values thereof for the benefit and inspiration of the present and future generations."[6] Administratively listed on the National Register as a result of this designation, the ranch is nationally significant under criteria A and C in the areas of agriculture and exploration/settlement.

The National Historic Landmark Boundary Study for the ranch was signed and approved January 4, 2002. The boundary for the Grant-Kohrs Ranch NHL district established in the nomination encompasses all the extant resources historically associated with the ranch's period of significance, 1862-1919.[7] This boundary includes all the lands within the NHS boundary, except for the Warren Hereford Ranch and the development zone.

In 2002 the 20th century Grant-Kohrs Ranch/Warren Ranch historic district was nominated by the NPS to the National Register for its significance to the state of Montana under Criteria A and C in the areas of agriculture and architecture. It has been found eligible by the Montana State Historic Preservation Office (SHPO), and was listed July 11, 2003. Its period of significance spans the years 1929-1958, during which time Conrad Warren operated the ranch. The boundary for this district amends and defines the boundary for the National Register district listed in 1972. This

[3] Hubber, 2002, 5.
[4] Douglas C. McChristian, *Ranchers to Rangers: An Administrative History of Grant-Kohrs Ranch* (National Park Service, Rocky Mountain Cluster, July 1997), 2.
[5] A later study of the southwest identified an additional four sites.
[6] Ann Hubber, 2001, 30.
[7] Ann Hubber, 2001, 29.

boundary encompasses all of the land within NHL boundary, as well as the land comprising the Warren Hereford Ranch. This boundary excludes the development zone.[8]

Within the site boundary of the Grant-Kohrs Ranch NHS, the NPS continues to conduct ranching activities involving livestock grazing, hay production, irrigation, fencing, and noxious weed control. The NPS preserves 88 structures on the List of Classified Structures dating from 1860-1960; a site-original 29,000 object museum collection; and intact 1860s-1980s ranch archives.

Interpretation
The draft Comprehensive Interpretive Plan calls for an interpretive focus on the frontier, open-range cattle era, secondarily including conditions and events leading up to this period, and subsequent evolution of cattle ranching up to the mechanized feedlot operations. A variety and evolution of time periods are interpreted as visitors circulate through the ranch and are exposed to structures and scenes from different eras of the ranch's history. Primary interpretive themes are as follows:[9]

- The open-range cattle industry played a major role in American frontier history and has had a profound effect on American culture and environment, in reality, as well as romance.
- The American cattle industry resulted from unique and interacting environmental, economic, political, and social conditions. Over time it evolved into something quite different from its now-mythical heyday—all the while adapting to changes in those same conditions.
- The epic drama of the open-range cattle industry requires many stages, acts, and players: from the sweeping prairies of central and eastern Montana, to the home ranch; from the headiness of roundup and trail drive, to the comfortable routine of everyday life; from the cattle king, to the common cowboy; each place, each scene, and each character an important part of the whole.
- Grant-Kohrs Ranch and its people were unique and fascinating; yet they were also representative of the evolving American cattle industry.

Management Objectives
The 1993 EIS/GMP/DCP proposed management of the park as a working ranch, which was in-keeping with its historic use and association. Management objectives of the park are as follows:

- To provide opportunities for the visitor to understand the cattle industry and its evolution from the open range of the mid-1860s, to mechanized feedlot operations that began in the 1930s and extended until establishment of the park in the 1970s.
- To maintain historic structures, buildings, objects, and landscapes in such a manner as to complement the ranch's primary purpose and enhance visitor understanding and appreciation of cattle ranch operations.
- To manage natural resources in such a manner as to compliment the historic context of the ranch and cattle ranching operations.[10]

Natural resource management supports the park's primary purpose of preserving and interpreting a working ranch. Several challenges are associated with the overall management strategy of

[8] Ann Hubber, 2002, 1-2.
[9] US Department of the Interior, National Park Service Rocky Mountain Region, *Grant-Kohrs Ranch National Historic Site Environmental Impact Statement for a General Management Plan and Development Concept Plan* (March 1993), 10, 20.
[10] US Department of the Interior, National Park Service Rocky Mountain Region, *Grant-Kohrs Ranch National Historic Site Environmental Impact Statement for a General Management Plan and Development Concept Plan* (March 1993), 3.

managing natural resources as part of a ranch operation that stresses natural processes and biotic resources. Since Grant-Kohrs Ranch NHS is a working cattle ranch, questions arise as how to best balance the practices of agricultural use, hay production, livestock grazing, exotic weed control, wildlife and water quality protection and control, as well as the appropriateness of non-native grass species.

For instance, there are several challenges associated with the ranch's need to be economically viable, while at the same time, ensuring that the interpretive mission of the park not be compromised by commercialization. Vegetation and pest management practices, such as the use of controlled burning, herbicides, and pesticides must also be carefully taken into consideration to ensure that they respect the Best Management Practices employed by the NPS, are not harmful to the overall environment, and do not diminish the integrity of the site.

Other challenges relate to the maintenance and management of landscape features integral to working ranch operations, such as fences, gates, ditches, irrigation headgates, etc. As these features must be constantly maintained to operate effectively, their repair and reconstruction (when needed), must weigh historic construction and operation techniques and materials, with new technologies and costs.

Related to natural resource protection and interpretation are the approximate 1,100 acres of upland pasture west of the current park boundary that are held in private ownership and not managed by the NPS. This area has been identified as an area of land that is significant for its historic and visual relationship to the Grant-Kohrs Ranch, and should be included within the site boundary through the purchase of scenic easements or similar management strategy. The park is currently exploring a number of options for the future management of this land.

In addition to this is the near and long-term restoration of the riparian woodland along the Clark Fork River. Both the land and wildlife in this area have suffered damage resulting from upstream mining activities. Classified as a Superfund project, the federal government is currently conducting studies to determine how best to mitigate the effects of pollution. Any introduction of new species, particularly within the riparian corridor, must consider the historic uses of this area, as well as the native plant community structure, to evaluate how such action may impact both the ecological restoration goals and the historic integrity of the ranch. The results of these studies will have a direct impact on the ranch and will be discussed in greater detail in Chapter Three.

As the Park improves its interpretive mission, conflicts arise as to whether or not historic resources should be rehabilitated for administrative or interpretive purposes. For instance, the Warren residence has recently been rehabilitated to house NPS offices. As this resource is now under consideration for the interpretation of Warren's operation of the ranch, demands for much-needed administrative space will be shifted to other areas of the site, possibly requiring new construction.

While treatment recommendations are not included in Part I of this Cultural Landscape Report, the challenges mentioned above will certainly become the focus of further study. The historical research, existing conditions documentation, and integrity analysis found in this report is intended to lay the groundwork for future analysis, and the treatment recommendations that will follow.

Scope of Work/Methodology

In September 2002, the NPS commissioned John Milner Associates (formerly the Charlottesville, VA office of OCULUS), working in collaboration with Rivanna Archeological Consulting, and Susan Maxman & Partners, Architects, to complete a Cultural Landscape Report (CLR) for the Grant-Kohrs Ranch NHS.

The goal of this CLR is to help establish preservation goals for the landscape and provide the basis for making sound decisions about agricultural and grazing management, treatment that supports those goals, and use, as well as aiding in maintenance and interpretation. The purpose of the scope of work for Part I of the CLR is to:

- document the evolution of the ranch's cultural landscape, including heritage livestock and crops;
- document and evaluate existing conditions of the cultural landscape, and to identify, describe, and assess character-defining landscape elements;
- provide a Statement of Significance, including identification of period(s) of significance; and
- evaluate the historic integrity of the landscape.

This report includes Part I, Site History, Existing Conditions, and Analysis, which summarizes existing knowledge of and research on the overall landscape of the park and on specific areas of interest to its management. Part II, Treatment, which recommends appropriate treatment guidelines, strategies, and plans for preservation and management of cultural landscape resources, will be completed in the future under a separate task order.

This Cultural Landscape Report is prepared in accordance with the guidance offered in the most recent versions of various federal standards documents, and conforms to National Park Service guidelines and other precedents, including the following:

- NPS Guide to Cultural Landscape Reports: Contents, Process and Techniques (1998);
- NPS Management Policies (2001);
- NPS Director's Order 28 (Cultural Resources Management Guidelines, 1998);
- National Register Bulletin No. 15: How to Apply the National Register Criteria for Evaluation (1991)
- National Register Bulletin No. 30: Guidelines for Evaluating and Documenting Rural Historic Landscapes (1999);
- The Secretary of the Interior's Standards for Treatment of Historic Properties, with Guidelines for the Treatment of Cultural Landscapes (1996);
- The Secretary of the Interior's Guidelines and Standards for Archeology and Historic Preservation (1983);
- NAGPRA (Native American Graves Protection and Repatriation Act); and
- AIRFA (American Indian Religious Freedom Act).

Project Scope

The NPS scope of work for the Grant-Kohrs Ranch NHS CLR includes the following items:

Administrative Data

- preparation of an administrative data report section in consultation with the NPS

Landscape Physical History

- Conducting historical research of primary and secondary source materials relating to all cultural landscape elements within the project area. Levels of research for each period of landscape history are as follows:
    - Prehistory and recent tribal history to circa 1859. Limited to cursory research, with focus on summarizing known data contained in secondary sources and park documents. Emphasis is on determining broad patterns of land use within the study area.
    - Circa 1859 to circa 1866: Early Settlement of the Area and Establishment of the John Grant Ranch. Limited to cursory research, with focus on known primary and secondary sources to determine, to the degree possible, known landscape elements at the time of the ranch's establishment by John Grant to its sale in 1866 to Conrad Kohrs. Sources consulted are limited to known primary and secondary sources, including books, maps, and documents.
    - Circa 1866 to Circa 1910: Expansion and Consolidation of the Conrad Kohrs and John Bielenberg Ranch. Thorough research focused on understanding the overall changes of the cultural landscape within the Grant-Kohrs Ranch boundaries. Research includes development of structures, corrals, fencing, irrigation, pastures, cropland, roads, bridges, railways, etc.
    - Circa 1910 to circa 1930: Decline and caretaker status. Limited to cursory research, with focus on ranch's dissolution and retention as a remnant under administration of the Kohrs' Trust.
    - Circa 1930 to circa 1958: Conrad Kohrs Warren Era. Thorough research focused on documenting the evolution of the landscape from the management and post-1940 ownership of Con Warren to his Hereford herd dispersal sale in 1958. Research includes property acquisitions, herd management, farming practices, impact of modernization, and construction of structures and features in the earlier historic zone and Warren complex. This research relies upon known resources held by the NPS.
    - Circa 1958 to circa 1972: Post-Dispersal, Conrad Kohrs Warren Era. Limited to cursory research, with focus on ranch's cultural landscape during last phase of private ownership.
    - Circa 1972-Present: Recent Change. Thorough research focused on documenting the recent changes, repair, and maintenance of character defining elements of the cultural landscape under NPS administration since 1972, including the subsequent acquisition of lands in 1988 and the Warren Residence in 1993. This research also focused on historic ranch management practices, livestock breeds, and crops, and relied upon known resources held by the NPS.

- preparation of an annotated cultural landscape chronology outlining notable periods of the landscape development and key characteristics and components of the landscapes during the historic period(s) and preparation of a narrative physical history.
- preparation of landscape history maps and images that illustrate the evolution of the landscape over time.
- preparation of period plans with one graphic for each notable period of landscape development. Key characteristics and components of the landscapes present during the historic period(s) are identified on the maps.

Existing Conditions Documentation

- conducting field surveys to inventory and document existing conditions in the project area;

- where existing base maps are inadequate, conducting additional fieldwork in the study area and preparation of an accurate planning-level base map indicating all built and natural features;
- photographic documentation of the site including representative features and incorporation of selected existing conditions photographs into the report;
- undertaking, when practicable, existing conditions photography in locations of historic ground photographs for the purpose of comparative analysis;
- preparation of existing conditions photographic station point maps documenting the location and orientation of photographs;
- preparation of existing conditions base maps for the entire ranch and each of its landscape zones.

Landscape Significance and Analysis of Integrity

- preparation of a statement of significance for the Grant-Kohrs Ranch NHS;
- analysis and evaluation using landscape characteristics identified by the National Register of Historic Places and in the *Guide to Cultural Landscape Reports*;
- identification of characteristics that are significant and contribute to the integrity of the cultural landscape; identification of characteristics and elements that are supporting, non-contributing, or missing; and locating/labeling contributing, supporting, non-contributing features on a site plan;
- preparation of integrity assessment of the resource, using National Register criteria, the CLR scope of work, and guidance in the *Guide to Cultural Landscape Reports*.

Project Methodology

Basic services and project methodology are as follows:

Task 1: Project Start-up Meeting

On 7 October, 2002, the National Park Service initiated a conference call to discuss project start-up considerations, such as NPS objectives, park issues relative to the cultural landscape, and management concerns. Conference participants also reviewed the scope of work and finalized the project schedule. Participants included:

- Jill Cowley, NPS Intermountain Region, Santa Fe, incoming COTR
- Tom Keohan, NPS Intermountain Region, Denver, outgoing COTR
- Darlene Koontz, Grant-Kohrs Ranch NHS, Superintendent
- Chris Ford, Grant-Kohrs Ranch NHS, Curator
- Mike McWright, Grant Kohrs Ranch NHS, Facility Manager
- Matt Connor, Grant Kohrs Ranch NHS, Interpretive Ranger
- Jesse Harris, Grant Kohrs Ranch NHS, Rancher
- Anita Dore, Grant Kohrs Ranch NHS, Administrative Officer
- Benjamin Ford, Rivanna Archeological Consulting, Landscape Historian
- Rob McGinnis, JMA, Project Manager
- Krista Schneider, JMA, Project Landscape Architect
- Matt Whitaker, JMA, Project Designer

Task 2: Data Collection and Research

This task involved the collection and review of relevant data provided by the Grant-Kohrs Ranch NHS, including recent natural and cultural resource management documents. Research of known sources, particularly those in the park and NPS archives, were emphasized. These include, but are not limited to the following: the "National Historic Landmark Boundary Study for the Grant-Kohrs Ranch," 2001 (approved 2002); the "National Register of Historic Places Registration

Form for the Grant-Kohrs Ranch/Warren Ranch," 2002 (signed 2003); *Administrative History of the Grant-Kohrs Ranch*, 1997; G*rant-Kohrs Ranch Historic Resource Study, Historic Structure Report and Historical Data*, 1977; Grant-*Kohrs Ranch National Historic Site Environmental Impact Statement for a General Management Plan and Development Concept Plan*, 1993; *Cultural Landscape Inventory and Analysis*, 1991; Draft *Conrad and Nellie Warren Residence Historic Structure Report*, 2001; Draft *Cultural Landscape Inventory*, 1997; Draft *Warren Hereford Ranch Historic Structure Report*, 2001; Draft *Level II Cultural Landscape Inventory for the Grant-Kohrs Ranch House*, 2003; historic photographs and maps provided by the park; and the Geographic Information Systems (GIS) data that served as the basis for existing conditions base maps. See the bibliography at the end of this report for full citations.

The purpose of the research phase was to consolidate and summarize the ample historic research already conducted for Grant-Kohrs Ranch, emphasizing the evolution of the cultural landscape. For areas where historic information was complete, research was not duplicated, but rather incorporated into the CLR. New research was limited to the use of primary and secondary source materials relating to component landscapes that were not already documented.

The data collection and research occurred in several phases throughout the study. Prior to the site visit, JMA received a shipment of documents originating from the park archives. During the site visit in October 2002, Rivanna Archaeological Consulting landscape historian, Benjamin Ford, worked with park curator, Chris Ford, to conduct directed research. This task involved gathering and copying primary and secondary sources, including manuscripts, and historic maps and photographs, beyond those that had already been provided, relevant to the project scope. Subsequent to the site visit, data collection of resources in other repositories including the University of Virginia and the Bureau of Land Management, as well as other information requests directed to NPS personnel, were conducted via the internet and telephone. Once the initial directed research was completed, a more thorough review of the data was undertaken in order to begin drafting the CLR. Grant-Kohrs Ranch NHS staff also conducted extensive research to provide JMA and Rivanna Archeological Consulting with additional information on NPS-era ranching and natural resource management. Throughout the project, JMA has continued to maintain communication with Grant-Kohrs Ranch NHS personnel regarding the development of the report.

Task 3: Site History Documentation

Based upon guidance provided in the scope of work and research conducted in preparation of the site physical history, this chapter is divided into 12 separate periods. These periods were defined both by the documented changes to the landscape and the cultural contexts of their occupation:

- the PaleoIndian Period ca. 11,000 – 8,000 before present (BP);
- the Archaic Period, ca. 8,000 to 4,000 BP;
- the Late Prehistoric Period, ca. 4,000 BP to 1700;
- The Pend d'Oreille, Flathead, Shoshone, and the early European settlement of Western Montana, ca. 1700 – 1860;
- The establishment of the John Grant Ranch, Cottonwood, and incipient stock raising, 1860-1866;
- The Conrad Kohrs Home Ranch and the Growth and Development of the Ranching Industry on the Northern Plains, 1866-1887;

- The Decline of the Open Range and Dissolution of the Kohrs-Bielenberg Ranch, 1877-1922;
- The Conrad K. Warren Era: Rebuilding the Ranch and the application of scientific advances in veterinary medicine, breeding, feed, crops and mechanical systems, 1922-1940;
- The Warren Hereford Ranch, 1940-1958;
- Post-Dispersal and efforts to establish a National Park, 1958-1972;
- The National Park Service and Early Conservation Efforts, 1972-1988; and
- Acquisition of the Con Warren Ranch, 1988-2002.

Each chronological period is preceded by a brief introduction that summarizes the history and development of the period. This is followed by a more detailed contextual and site specific historical narrative. The narrative is followed by a chronological outline of landscape features. The landscape features are adopted from the *Guide to Cultural Landscape Reports: Contents, Process, and Techniques* (1998).

A series of period plans at the scale of the entire ranch have also been created to graphically demonstrate the changes in the overall landscape between 1859 and the present. These are digital maps, created by combining historical map information with current GIS mapping:

- John Grant Development, circa 1865;
- Kohrs-Bielenberg Ranch, circa 1895;
- Kohrs-Bielenberg Ranch, circa 1920;
- Warren Hereford Ranch, circa 1955;
- NPS Ownership and Management, circa1982; and
- Existing Conditions, circa 2003.

Task 4: Site Visit and Existing Conditions Field Investigations
In October 2002, JMA and Rivanna Archaeological Consulting personnel traveled to the Grant-Kohrs Ranch NHS to meet with park personnel and conduct research and existing conditions documentation. Project objectives were also discussed with park personnel during a meeting that took place on October 17, 2002, and involved review of preservation and resource management goals regarding the Grant-Kohrs Ranch cultural landscape. A ranch orientation tour was narrated by the NPS personnel during which time cultural resource issues were discussed.

The following people were in attendance during the orientation meeting:

- Chris Ford, Grant Kohrs Ranch NHS, Curator
- Mike McWright, Grant Kohrs Ranch NHS, Facility Manager
- Ben Bobowski, Grant Kohrs Ranch NHS, Natural Resource Specialist
- Jesse Harris, Grant Kohrs Ranch NHS, Rancher
- Peggy Gow, Grant Kohrs Ranch NHS, Museum Technician
- Lyndel Meikle, Grant Kohrs Ranch NHS, Interpretive Ranger
- Benjamin Ford, Rivanna Archaeological Consulting, Landscape Historian
- Rob McGinnis, JMA, Project Manager
- Krista Schneider, JMA, Project Landscape Architect
- Matt Whitaker, JMA, Project Designer

Between October 17-21, JMA CLR project team members Rob McGinnis, Krista Schneider, and Matt Whitaker conducted field investigations. Existing conditions base maps, generated from

GIS data provided by the park, were evaluated for accuracy. Team members annotated the base maps to include revisions and additional details that would be incorporated into the electronic file. Photographs were taken of representative landscape features, with photographic station points indicated on the base maps.

Task 5: Existing Conditions Documentation
The documentation of existing conditions is provided in this report through cross-referenced narrative, graphic, and photographic material. Landscape features are discussed within a framework established in *A Guide to Cultural Landscape Reports; Content, Process, and Techniques* and National Register Bulletin #30, *Guidelines for Evaluating and Documenting Rural Historic Landscapes*, which identify various landscape characteristics through which existing conditions documentation can be organized and presented.

Existing conditions documentation was prepared through the review and compilation of information derived from existing conditions base mapping, field investigations, review of photographs taken in the field, and examination of park planning documents, park files, and NPS reports. For the purpose of this CLR, the Grant-Kohrs Ranch NHS landscape features are described according to the following landscape characteristic categories: natural systems, spatial organization, land use (which includes livestock/grazing practices), circulation, topography, vegetation (natural as well as cultural), buildings and structures, views, small-scale features, and missing & archeological resources.

Photographs of representative landscape features are included in the existing conditions chapter of the CLR and are referenced in the text. A documentation notebook containing all existing conditions photographs, negatives, and electronic copies on CD will be provided to the NPS to supplement the representative photographic coverage included in the report.

Existing conditions documentation and plans were compiled for the overall ranch and for each of the nine component landscapes. The existing conditions plans for the component landscapes serve as combination period plans and existing conditions plans because they include both historical and existing conditions information. These plans also identify contributing, supporting, non-contributing, and missing elements through cross-referenced inventory tables.

Task 6: Analysis and Evaluation
JMA and Rivanna Archaeological Consulting evaluated the significance of the site based on the information contained in the site's National Register nomination, the NHL Boundary Study, and on the site physical history and context elaborated in Chapter Two. This evaluation explains the relationship of the landscape to National Register criteria, proposed historic contexts, and recommends a period of significance based upon the further study and evaluation of the cultural landscape contained within this report.

The analysis and evaluation section assesses the integrity of the cultural landscape, and is based upon a comparative analysis of historic period(s) of significance features and existing landscape features. These features are also assessed as contributing, supporting, non-contributing, or missing under National Register criteria. The historic integrity of the Grant-Kohrs Ranch is assessed based on integrity of location, design, setting, materials, workmanship, feeling, and association. Three additional criteria relating to biotic resources (species composition, biotic community organization, and land management techniques), which replace material, design, and workmanship, respectively, are also considered. Integrity is assessed for the overall landscape, as well as for each of the component landscapes.

Study Boundaries

The CLR study area conforms to the official boundaries of the Grant-Kohrs Ranch National Historic Site (see Figure 1-2). Located in the intermountain grassland region of west central Montana and nestled in the Clark Fork River valley between the Flint Creek Mountain Range to the west and the Continental Divide to the east, the site lies adjacent to the city of Deer Lodge with easy access to Interstate 90. The Deer Lodge and Butte National Forests frame the valley on both sides. Deer Lodge, the historic trading town that was established by John Grant and other fur trade era settlers in the late 1850s, forms the park's southeastern boundary. Missoula is about 80 miles northwest and Butte is 40 miles south of the historic ranch. Mountains on either side provide a dramatic backdrop to the long, broad, semi-arid Deer Lodge Valley.

The immediate vicinity of Grant-Kohrs Ranch is relatively developed with urbanization on the south and east boundaries of the site. Yet despite the proximity of the town, the ranch setting remains relatively pastoral with views to the north and west dominated by pastureland of the western foothills and the meandering Clark Fork River.

When Congress established the Grant-Kohrs Ranch NHS in 1972, authorization was given to acquire not more than 2,000 acres of land in the Deer Lodge Valley for the purpose of preserving and interpreting the site. Land acquisitions and scenic easements throughout the 1980s and 1990s increased the size of the site from its original 217 to 1,618 acres. Within the bounds of the historic site, 1,326 acres of land are fee owned by the federal government (see Figure1-3). These lands comprise the developed areas of the Grant-Kohrs and Warren Hereford Ranches, as well as the pasture land and hay fields on either side of the Clark Fork River. Approximately 165 acres of land along the site's northern boundary, currently owned by Lars Olsen, are under scenic easements with the NPS, while the City of Deer Lodge retains ownership of approximately 70 acres for sewage treatment. The remaining 57 acres remains under ownership of the Union Pacific Railroad which leased the rail line to the Burlington Northern Railroad until 2003, when Burlington Northern Railroad purchased the line. This line remains active.

Of particular note is the land encompassing the view shed along the ranch's western boundary. Containing approximately 1,130 acres, this land has been identified as an area to be included within the site boundary through the purchase of scenic easements or similar management strategy. In both the 1991 Cultural Landscape Analysis and the 1993 Development Concept Plan, this property was identified as an area of land that should be protected from future development, as it has a high degree of integrity that contributes to the historic significance of the site. While the scope of work for this CLR does not include detailed historical investigation or documentation of this land, this study will provide a general overview of the existing conditions, significance, and integrity associated with this upland pasture area.

Summary of Findings

Based on the research, analysis, and documentation conducted for preparation of this CLR, the Grant-Kohrs Ranch NHS cultural landscape has been found to possess national significance according to National Historic Landmark Criterion 1 in the areas of Agriculture and Exploration/Settlement, as well as state and national significance under National Register Criteria A, B, and C in the areas of Agriculture, Architecture, and Engineering.

In addition to the theme 'Establishment and Growth of the Home Ranch and the Development of the Ranching Industry on the Northern Plains, 1862-1919' identified in the National Historic Landmark significance statement, this CLR recommends that the Grant-Kohrs Ranch National

Historic Site be considered significant at a state and national level for its associations with modern ranching techniques and practices. The National Register documentation identified the Grant-Kohrs/Warren Ranch District as possessing significance at a state and national level under Criterion A for its significant associations with the history of agriculture, and at a state and national level under Criterion C for its vernacular architecture. The National Register District predominantly focused on the Warren era historic resources that had a state level of significance, but also included all 68 historic resources (23 contributing, 45 noncontributing) that were previously identified as part of the National Historic Landmark District. The existing National Register documentation also did not find that the Grant-Kohrs Ranch / Warren Ranch historic district possessed significance according to Criterion B. Based on the research, analysis, and documentation conducted for the preparation of this study, this CLR agrees with the National Register documentation that the Grant-Kohrs Ranch NHS cultural landscape has been found to possess significance according to National Register Criterion A at a state and national level, and Criterion C at a state and national level, but also recommends that the Grant-Kohrs Ranch NHS cultural landscape be considered significant according to Criterion B at both a state and national level for its association with the lives of Johnny Grant, Conrad Kohrs, and Conrad Warren.

In order for Warren era resources associated with modern ranching techniques and practices to be evaluated as a nationally significant, the keeper of the National Register and the National Park Service National Historic Landmark staff have determined that such a finding would require a national theme study of twentieth century cattle ranches. This theme study would evaluate the Grant-Kohrs Ranch/Warren Ranch within the broader national context of ranching and agricultural activities in the West, and would need to evaluate the Grant-Kohrs Ranch/Warren Ranch in terms of its significance and physical integrity, as compared to all other historic twentieth-century cattle ranches. This process is identical to the theme study that resulted in the designation of Grant-Kohrs Ranch as a National Historic Landmark (for its associations with the open range era of cattle ranching) in 1960. The authors of this CLR recommend that such a twentieth-century ranching theme study be completed, and believe that it may result in a recommendation of national significance for the Conrad Warren era resources at the ranch.

Based on an evaluation of the CLR's physical history and historic context, the authors recommend a period of significance of between 1862 and 1982 for the Grant-Kohrs Ranch National Historic Site. The 1862-1982 period of significance includes two sub-periods. The first period of significance, as identified in the National Historic Landmark Boundary Study, begins with the establishment of the Johnny Grant ranch in 1862 and ends with the dissolution of Kohrs and Bielenberg cattle empire in 1919. The second period of significance, as identified in the National Register documentation, begins with Conrad Warren's arrival at the Kohrs Ranch in 1929 and ends with his retirement from active ranching in 1982. This end date of the period of significance extends the end date of the period identified in the National Register documentation (1958) to include the ranching adaptations that Warren made to adjust to economic conditions until his retirement in 1982. These ranching adaptations made by Warren, and the physical features of the Warren Ranch cultural landscape that supported them, are characteristic of small rancher responses to increased corporate control and the implementation of the feedlot system nationwide. During a period of sweeping change in the ranching industry in the greater northwest, the actions of Conrad Warren and the physical features of the Warren Ranch cultural landscape are representative of the larger region and nationwide context of ranching during the mid-twentieth century.

Overall, the Grant-Kohrs Ranch National Historic Site retains a relatively high degree of integrity to the 1862-1982 period of significance. The landscape resources present on the ranch illustrate a 120 year continuum of cattle ranching operations that includes the Grant, Kohrs, and Warren

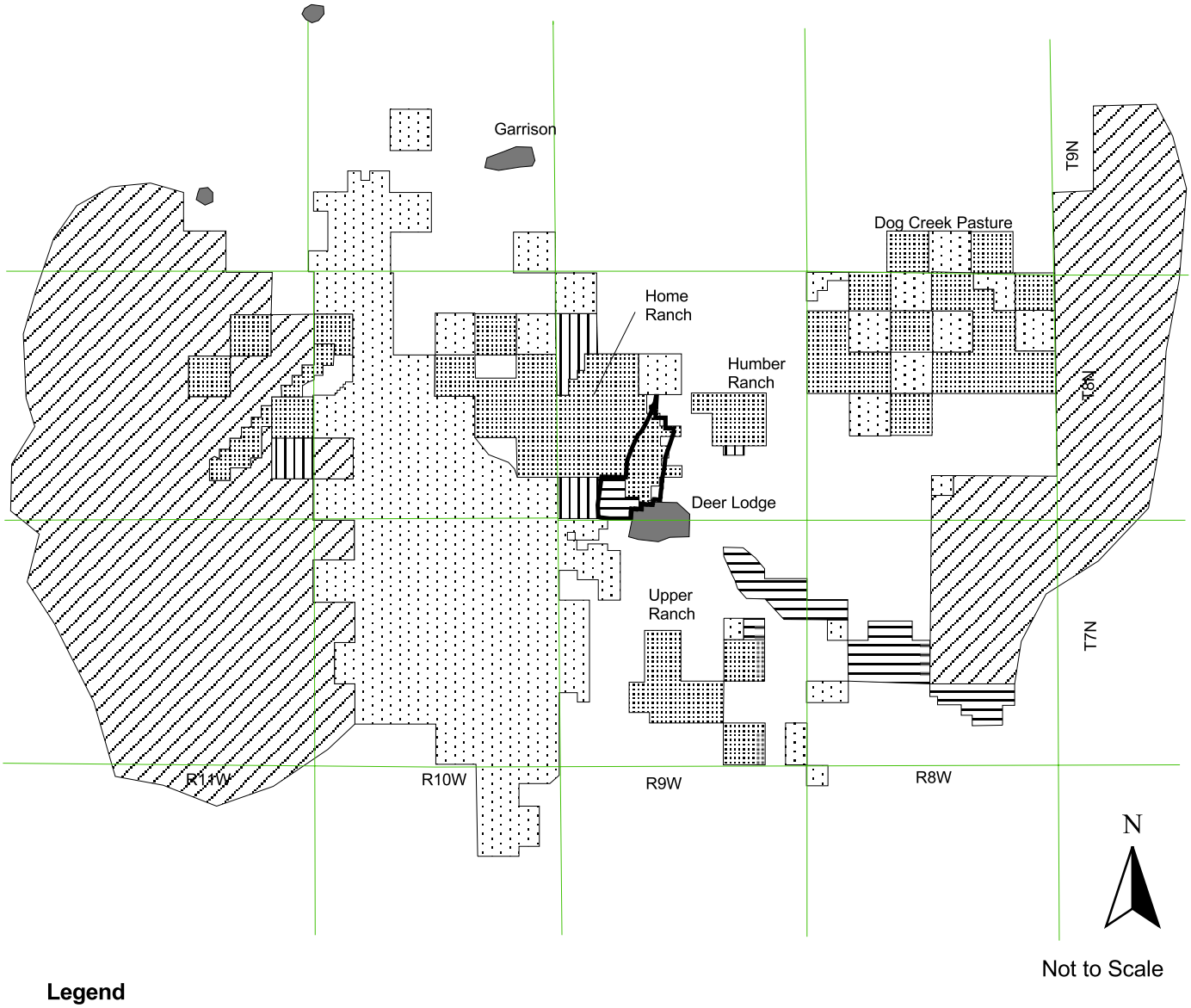
periods of ownership and management. Responses to natural features and systems, patterns of spatial organization, physical construction, and functional relationships of buildings, structures, fences, fields, corrals, views, roads, and constructed water features very well convey the historical significance of the ranch to Park visitors. While the intensity of land use and diversity of livestock has been reduced during the period of NPS ownership, the landscape still conveys the character and use of the historic period.

Description of Component Landscapes

While the park has identified a number of important areas within the Grant-Kohrs Ranch, it was ultimately JMA's responsibility to define and determine the exact number of component landscape areas and their boundaries. These areas are primarily the result of design, construction, and agricultural/grazing practices under Kohrs/Bielenberg and Warren. These component landscapes are discussed in detail in Chapter Three of this report, and are as follows:

- **Home Ranch Complex:** This area includes all landscape features associated with the core complex of the Grant-Kohrs Ranch. It is bounded by the railroad corridor on the east, the riparian corridor of the Clark Fork River on the west, and consists of the Lower Yards, Lower House Yards, Bunkhouse Yards, Johnson Creek Field, West Corrals, and West Feedlots.
- **East Feed Lot/Warren Hereford Ranch**: This area consists of the area east of the railroad corridor, which was developed by Con Warren. It contains the land bordered by the main entry road on the south, the park boundary on the east, the rail corridor on the west, and the south edge of Front Field on the north;
- **Grant-Kohrs Residence:** This consists of the features contained with the domestic landscape immediately surrounding the ranch home built by John Grant, and later, Conrad Kohrs;
- **Warren Residence:** This consists of the features contained with the domestic landscape immediately surrounding the home built by Conrad Warren;
- **Pasture/Hay Field:** This area includes the irrigated and low-lying lands bordering the Clark Fork riparian corridor. It consists of Stuart Field, the Lower Yard Fields, the North Meadows, L-Barn Fields, Western Hay Fields, Olson Fields, as well as the Front Field located to the north of the East Feed Lot.
- **Upland Pasture:** This area includes the land west of the Westside Ditch, and includes Big Gulch, Little Gulch, and Taylor Field, as well as the ranges and hilltops in between. While this area contains both hay fields and pasture land, it is considered a separate component landscape because of its relative sense of isolation from the rest of the ranch.
- **Riparian Area/Woodland:** This area consists of the riparian woodlands found along the Clark Fork River corridor, Johnson Creek, Cottonwood Creek, and the Olson property along the park's northern boundary.
- **Railroad Bed & Barrow Pit/Wetland:** This area consists of the linear railroad corridor and utility lines associated with it. It also includes the depressed wetland areas (barrow pits) bordering the railroad corridor.
- **Development Zone:** This area contains the Visitor Center building, restrooms, curatorial building, and visitor parking lot. A portion of Johnson Creek comprises the southern boundary of this zone.

Map Sources: Geographic Information Systems (GIS) data of lands owned/leased was provided by the National Park Service, Grant-Kohrs Ranch NHS electronic archives, titled "CLI-Poly." Land ownership/lease information provided by Grant-Kohrs Ranch NHS.



Legend

- Township/Range boundaries
- Grant-Kohrs Ranch NHS
- Kohrs & Bielenberg lands (much of which was later owned by Warren)
- Settlements
- State Lands. Available to yet not necessarily leased by Kohrs, Bielenberg, and Warren
- Unresolved ownership history; discrepancies between Albright (1976) and Powell Co. Courthouse records
- National Forest lands. Available yet not necessarily leased by Kohrs, Bielenberg, and Warren
- Lands purchased or leased by Conrad Warren during the Warren era. Not associated with Kohrs & Bielenberg

Figure 1-1: Extent of lands owned, leased or available for lease to Kohrs, Bielenberg, and Warren, 1866-1982.

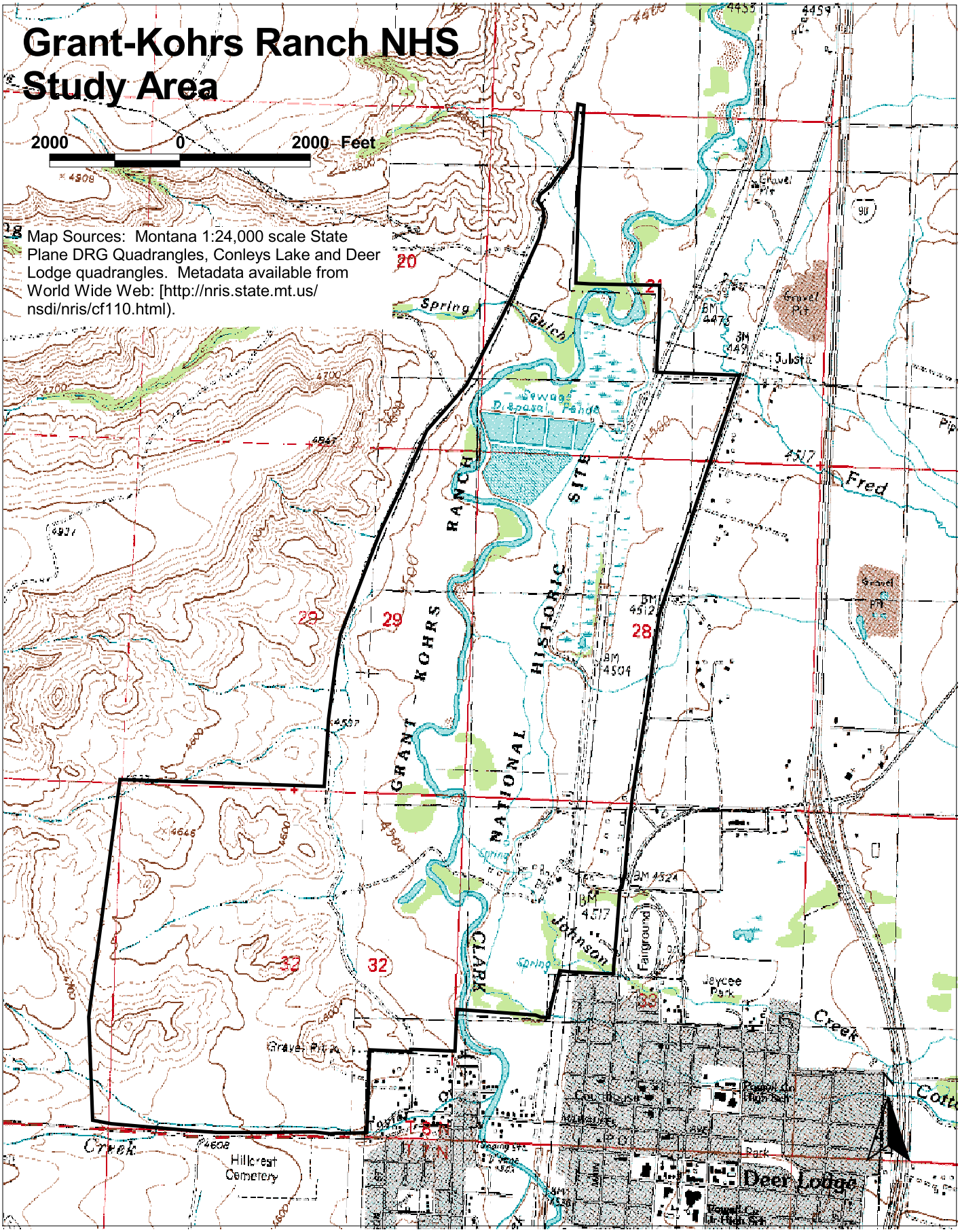


Figure 1-2: Study Area

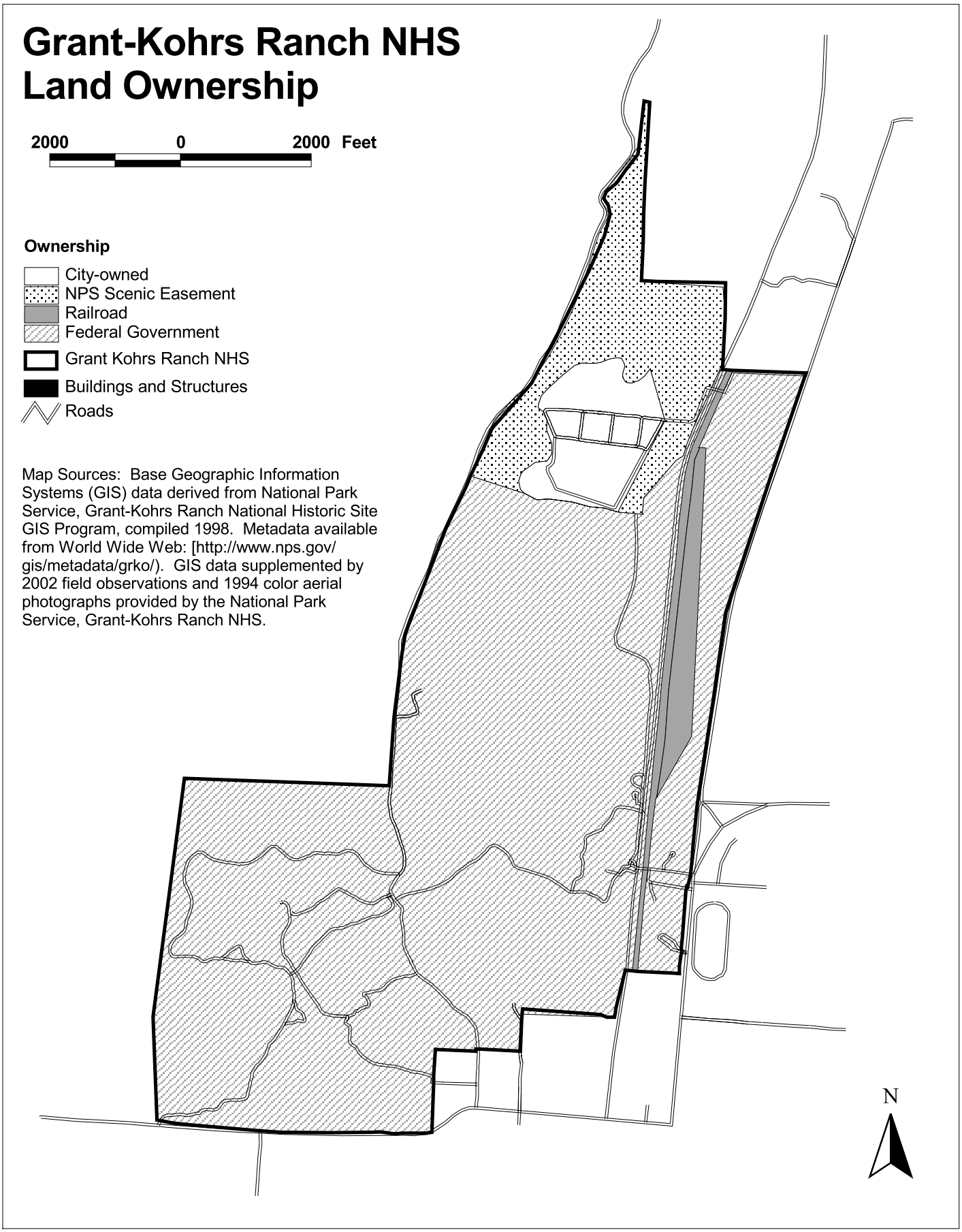


Figure 1-3: Land Ownership

Chapter Two: Landscape Physical History

CHAPTER 2: LANDSCAPE PHYSICAL HISTORY

Introduction

Based upon guidance provided in the scope of work and research conducted in preparation of the site physical history, this chapter is divided into 12 separate periods. These periods were defined both by the documented changes to the landscape and the cultural contexts of their occupation:

Period I: PaleoIndian Period ca. 11,000 – 8,000 before present (BP);
Period II: Archaic Period, ca. 8,000 to 1,500 BP;
Period III: Late Prehistoric Period, ca. 1,500 BP to 1700;
Period IV: Pend d'Oreille, Flathead, and the early European settlement of Western Montana, ca. 1700 – 1860;
Period V: The establishment of the John Grant Ranch, Cottonwood, and incipient stock raising, 1860-1866;
Period VI: The Conrad Kohrs Home Ranch and the Growth and Development of the Ranching Industry on the Northern Plains, 1866-1887;
Period VII: The Decline of the Open Range and Dissolution of the Kohrs-Bielenberg Ranch, 1887-1922;
Period VIII: The Conrad K. Warren Era: Rebuilding the Ranch and the application of scientific advances in veterinary medicine, 1922-1940;
Period IX: The Warren Hereford Ranch, 1940-1958;
Period X: Post-Dispersal and efforts to establish a National Park, 1958-1972;
Period XI: The National Park Service and Early Conservation Efforts, 1972-1988; and
Period XII: Acquisition of the Con Warren Ranch, 1988-2002.

PaleoIndian Period, ca. 11,000 to 8,000 BP

Introduction

The earliest human occupation of North America can be dated to the PaleoIndian period. PaleoIndian peoples were required to adapt to a rapidly changing environment. Like many of the subsequent occupants of the Deer Lodge Valley, PaleoIndian peoples were migratory groups that followed seasonally adaptive subsistence strategies. Based on the scarce material culture left behind, archeologists believe that they were predominantly hunters who relied upon killing large mammals. No archeological sites from the PaleoIndian period are known to exist within the project area.

Historical Context

Towards the end of the Pleistocene,[1] a general global warming took place as glaciers retreated northward and melting of the expansive ice sheets created a wetter and cooler climate. As a result, water became plentiful and numerous lakes were created. Lush vegetation, including grasses and other steppe plants dominated the valleys and steppes of the regional Plateau environment. Coniferous forests, with Douglas Fir predominating, became more widespread and grew at much lower elevations.[2]

Over the 4,000-years that define the PaleoIndian period,[3] the climate of the region changed dramatically. After the glacial retreat, the region slowly began to turn both warmer and dryer. Elk, bison, deer, mountain sheep and pronghorn antelope dominated the terrestrial fauna of the Columbia Basin. Circa 9,500 to 6,400 BP, the southern and eastern Plateau region became even drier, and by 6,500 BP a cooler climate had begun to develop.[4]

The earliest human history of the larger northwest region is generally termed the PaleoIndian period. With the retreat of the glaciers, most of the eastern Plateau region would have been opened up to human habitation by 12,000 BP at the latest. The PaleoIndian period is generally divided up into two distinct cultural entities, early and late, and is characterized by the material culture remains of the peoples who occupied the area. The earliest PaleoIndian complex is characterized by the Clovis and subsequent Folsom cultures.[5] The types of material culture most commonly identified from these cultures are distinctive fluted, lanceolate projectile points found predominantly at Plains kill and butchering sites associated with extinct mega-fauna. Archaeologists believe that Clovis and Folsom peoples were highly nomadic foragers traveling in small groups and following a generalized subsistence with an emphasis on hunting. Because they depended to a large degree on hunting, they likely followed the migrations of regional fauna. Towards the end of the early PaleoIndian period as Folsom peoples began to more efficiently

[1] The Pleistocene, commonly referred to as the Ice Age, began approximately two million years ago and gave way to the Holocene around 10,000 years BP.
[2] James C. Chatters, "Environment," in *Handbook of North American Indians*, Volume 12, Plateau, Deward E. Walker Jr., ed. (Washington, D.C.: Smithsonian Institution Press, 1998), 43; James C. Chatters and David L. Pokotylo, "Prehistory: Introduction," in *Handbook of North American Indians*, Volume 12, Plateau, Deward E. Walker Jr., ed. (Washington, D.C.: Smithsonian Institution Press, 1998), 73.
[3] Within the larger U. S., the PaleoIndian period is roughly defined as between 13,000 – 9,000 BP, however in the Powell County vicinity, strong evidence for PaleoIndian occupation of the area occurs only between 11,500 – 9,000 BP.
[4] Chatters, "Environment," 44-45.
[5] Within the project area, there is no material evidence for Clovis or Folsom occupation. In the broader eastern Plateau region, PaleoIndian presence is represented by scattered findings of points. Because of this, the discussion of the PaleoIndian period will necessarily focus to a large degree on the larger north west region as it speaks to the specific project area.

utilize native flora, it is likely that specific ecological niches were repeatedly visited on a seasonal basis and that plant gathering may have been initiated on a seasonal basis. Habitations most likely consisted of temporary camps in the open and in caves and rock shelters. Clovis and Folsom points however are found infrequently in the eastern Plateau region. Faunal remains from non-cultural deposits suggest that the eastern Plateau region contained a greater diversity of animals, including bighorn sheep, wapiti, mule and white tail deer, and bison, than that represented at western Plains kill sites.[6]

Later PaleoIndian complexes compose the Plano complex and are identified in the eastern Plateau region by Plainview, Midland and Agate Basin type points, found predominantly in eastern valleys. Paleo-Indians, as represented by individual finds of points and other lithics, were clearly present in the Deer Lodge Valley but there are no documented PaleoIndian sites documented within the project area. Within Powell County however, excavations at the Avon site (24PW340) have identified Agate Basin and Frederick type points. Radiocarbon dates from associated sediments have dated the site to 9,250 to 9,670 BP. Also during the later PaleoIndian period, several points typical of western Plains types begin to appear mostly along the Clark Fork River and its tributaries. This may possibly be accounted for in the precipitation of seasonal migration of small groups of late PaleoIndian peoples into the eastern most valleys and drainages in search of resources.[7]

Landscape Characteristics by Chronological Period

Natural Systems and Features

Hunting and Gathering	PaleoIndian peoples were intimately familiar with the natural environment surrounding them. Their archeological sites are found in a number of diverse environments and are directly related to the particular resource (e.g. lithic, flora, fauna) located there.
Seasonal Migration	PaleoIndian peoples were necessarily nomadic, following the migrations and habitat of native fauna and harvesting seasonally selected flora.
Expansion and Contraction	PaleoIndian peoples responded to a dramatically changing climate (e.g. milder and wetter, or cooler and drier climates) by altering their subsistence patterns to reflect the abundance or scarcity of available hunting and gathering options.

[6] Chatters and Pokotylo, "Prehistory," 73-74; Tom E. Roll and Steven Hackenberger, "Prehistory of the Eastern Plateau," in *Handbook of North American Indians*, Volume 12, Plateau, Deward E. Walker Jr., ed. (Washington, D.C.: Smithsonian Institution Press, 1998), 123-124.
[7] Roll and Hackenberger, "Eastern Plateau," 123-124.

Spatial Organization

Site Location	Archeological sites that represent the PaleoIndian period are located throughout the entire eastern Plateau region, in both mountain and valley context.

Land Use

Hunting	In general, PaleoIndian (Clovis and Folsom cultural groups) peoples hunted a variety of now extinct animals within the Eastern Plateau region including large bison, camel, horse, bighorn sheep, wapiti, deer and mammoth. Later, herds of bison were trapped and slaughtered as part of a communal activity.
Gathering	PaleoIndian peoples gathered a variety of regional flora for dietary, medicinal, functional or ceremonial uses.

Circulation

Valley Floors and Mountain Passes	The circulation networks utilized by PaleoIndian peoples likely followed the natural corridors dictated by regional topography and characterized by valleys and mountain passes. Circulation routes were chosen because of their ability to lead PaleoIndian peoples to selected resources. Many of these circulation routes were used on a seasonal basis.

Buildings and Structures

Caves and shelters	PaleoIndian peoples utilized available caves and other permanent shelters throughout the region.

Archaic Period, ca. 8,000 to 1,500 BP

Introduction

Evidence from archeological sites dating to the Archaic Period on the Northwestern Plains generally reflects a gradual transition to a broader, more diverse subsistence base that included both hunting and gathering. Material culture from the Archaic period is characterized by smaller triangular shaped points that were used to hunt bison and other small to medium sized animals. Also during this period, evidence suggests that plant foods became a more important part of the human diet. Most of the known Archaic archeological sites within the project area date to the Middle Archaic period, ca. 5,000 – 3,000 BP.

Historical Context

Environmental conditions in the eastern Plateau region during the first 1,500 years of the Archaic period appear to be unchanged from the PaleoIndian period. The lowlands continued to become warmer and more arid. By about 6,500 BP however, the regional environment cooled and a slight increase in moisture occurred. This resulted in the gradual descent of conifer forests dominated by Douglas Fir and Ponderosa pine, and the consequent shrinking of grasslands. Following the diminishing grasslands, ungulate populations migrated to the areas where they were concentrated, most likely on valley bottoms.[8]

Material culture characteristic of the Early Plains Archaic period (ca. 8,000 – 5,000 BP) are larger triangular side-notched, lanceolate un-notched points, including Bitterroot, Salmon River, and Mummy Cave types. No Early Archaic sites are known to exist within the project area however in the larger region several important sites including the Mummy Cave Site (48PA201) in northwestern Wyoming and the Indian Creek site and Canyon Ferry Reservoir Basin are known.[9]

During the Middle Plains Archaic (ca. 5,000 – 3,000 BP), Oxbow type points, and later what is now identified as the McKean complex, a wide assortment of points and tools that include McKean, Duncan and Hanna points are representative of the period. The diversity of the McKean complex appears to reflect adaptations to abundant resources and generally speaking, a broadened subsistence base that include the communal hunting of bison, and dependence on a variety of small and medium sized animals. The Middle Archaic is also significant in that the first artifacts documenting extensive plant consumption, ground stone tools and roasting pits, date to this period. The earliest evidence of foraging for roots, most likely camas tubers, appears ca. 6,400 BP with the presence of earth ovens. Frison has also proposed that 'tipi' rings or stone circles first begin to appear during the Middle Archaic. Settlement pattern analysis appears to show a transition from terrace and upland utilization early in the Archaic, to increasingly prevalent floodplain and lowland utilization during the middle and later part of the Archaic period. It is thought that this trend may reflect an overall adaptation to migrating fauna.[10]

Surrounding the park, Middle Plains Archaic sites have been identified within the Deep Creek - French Creek and Canyon Ferry Reservoir areas. Within the project area, site 24PW1076 may

[8] Chatters, "Environment," 44-45; Chatters and Pokotylo, "Prehistory," 74; Roll and Hackenberger, "Eastern Plateau," 125, 131.
[9] Midwest Archeological Center, "Grant-Kohrs Ranch National Historic Site, Archeological Overview and Assessment" (Revised 1998), 5-8.
[10] Chatters, "Environment," 44-45; Chatters and Pokotylo, "Prehistory," 74-76; Roll and Hackenberger, "Eastern Plateau," 125-128, 131-132; Midwest Archeological Center, "Grant-Kohrs Ranch," 5-8.

possibly date to the Middle Archaic period. While the site contains two, and possibly a third stone circle, no diagnostic artifacts were found in association with it. This and the fact that stone circles are found in the larger region from the Middle Archaic through the historic period, make accurately dating 24PW1076 difficult. In addition, investigations at two other sites within the park, 24PW1078 and 24PW1079, recovered points and point fragments that "resemble Middle Archaic Points of the Columbia Plateau more than any other points common to the area." However like 24PW1076, few diagnostic types were recovered to provide a chronological and cultural indicator for the sites.[11]

Late Plains Archaic (ca. 3,000 – 1,500 BP) material culture is characterized by the disappearance of the McKean complex and the presence of corner notched and corner removed points, including Pelican Lake and later Besant points. Like former periods, subsistence strategies pursued were broadly diverse and intensified. Although none have been documented in the project area, Late Archaic sites have been recorded and are present within the larger region at both Deep Creek – French Creek, and at the Schmitt Quarry site in the Three Forks area.[12]

Landscape Characteristic by Chronological Period

Natural Systems and Features

Hunting and Gathering	Archaic peoples were intimately familiar with the natural environment surrounding them. Their archeological sites are found in a number of diverse environments and are directly related to the particular resource (e.g. lithic, flora, fauna) located there.
Seasonal Migration	Archaic peoples were necessarily nomadic, following the migrations and habitat of native fauna and harvesting seasonally selected flora.
Expansion and Contraction	Archaic peoples responded to a dramatically changing climate (e.g. milder and wetter, or cooler and drier climates) by altering their subsistence patterns to reflect the abundance or scarcity of available resources.
Hunting traps	Archaic peoples utilized unique natural features such as cliffs, box canyons, and hunting blinds to surprise and kill herds of bison and other large mammals.

[11] Midwest Archeological Center, "Grant-Kohrs Ranch," 7-8; Floyd W. Sharrock, "An Archaeological Survey of the Grant-Kohrs Ranch National Historic Site," 6-9, University of Montana Statewide Archaeological Survey, 1973.
[12] Midwest Archeological Center, "Grant-Kohrs Ranch," 8-9.

Spatial Organization

Site Location	Archeological evidence for the larger region suggests that Archaic peoples settled near mountain slope resources and high terraces during the early part of the period, but began to settle the floodplain lands adjacent to major drainages more intensively towards the middle and late parts of the period.

Land Use

Hunting	Archaic peoples continued to hunt a variety of large game including bison, mountain sheep and goats, alpine caribou, and deer. Herds of bison continued to be trapped and slaughtered as part of a communal activity. Smaller mammals supplemented this diet including but not limited to rabbits, mice, wood rats, fish, and marmots.
Gathering	Archaic peoples continued to gather a variety of regional flora for dietary, medicinal, functional or ceremonial uses. The archeological record suggests that the gathering of flora resources such as berries, pine nuts, bitterroot, biscuit root and camas may have been intensified during this period.

Cultural Traditions

Artwork	Archaic peoples recorded their presence in pictographs and painted rocks throughout the eastern Plateau region. Rock art generally takes four forms, anthropomorphic figures, zoomorphic figures, tally marks, and geometric figures.

Circulation

Valley Floors and Mountain Passes	The circulation networks utilized by Archaic peoples likely followed the natural corridors dictated by regional topography and characterized by valleys and mountain passes. Circulation routes were chosen because of their ability to lead Archaic peoples to and from selected resources. Many of these circulation routes were utilized on a seasonal basis.

Buildings and Structures

Caves and shelters	Archaic peoples utilized available caves and other permanent shelters throughout the region.
Lodge / Tipi	Due to their migratory subsistence patterns, Archaic peoples constructed conical shelters called lodges or tipi. Lodges were constructed against saplings or trees, or constructed of poles and were covered with mat, brush, bark or animal skin. Archeological evidence suggests that these conical lodges were frequently associated with shallow pits and surrounded by small rings of rock. The lodges generally served as nuclear family dwellings.

Small-Scale Features

Stone circles	Two and possibly three stone circles located within the park may date to the Middle Plains Archaic period or later. The stones may have been used as weights to hold down a tipi shelter.
Pit ovens	Archeological evidence suggests that ovens were constructed to roast camas and other flora gathered during the later part of the period, ca. 5,000 to 6,000 BP. Pit ovens are usually found in association with semi-permanent or permanent camp sites.

Archeological Sites[13]

Stone circles (24PW1076)	Two, and possibly three stone circles were identified in 1973 at this site. The absence of diagnostic artifacts recovered suggests that the site could have been occupied as early as the Middle Plains Archaic period to as late as the Protohistoric period.
Lithic scatter (24PW1078)	A prehistoric lithic scatter identified in 1973 with points and point fragments resembling Middle Archaic points of the Columbia Plateau, may date to as early as the Middle Plains Archaic period, or as late as the Protohistoric period.
Lithic scatter (24PW1079)	A prehistoric lithic scatter identified in 1973 with points and point fragments resembling

[13] More updated information on archeological resources is available in the new DRAFT Archeological Survey for Grant-Kohrs NHS.

Middle Archaic points of the Columbia Plateau, may date to as early as the Middle Plains Archaic period, or as late as the Protohistoric period.

Late Prehistoric Period, ca. 1,500 BP to 1700

Introduction

Some of the most important characteristics of the Late Prehistoric period are the adoption of the bow and arrow and the use of ceramics. The adaptive strategies of Late Prehistoric peoples were expanded to include a more diverse range of seasonal flora and fauna.

Historical Context

The trend of an increasingly cooler and moister environment from the Archaic period continued well into the Late Prehistoric period. Conifer forests continued to expand at the expense of grassland areas to reach their maximum during the Holocene period. By the end of the Late Prehistoric period, ca. 2,800 BP however, temperatures began to warm considerably and precipitation lessened with the subsequent result that conifer forests retreated. Vegetation began to resemble modern conditions.[14]

By about 1,500 BP, the bow and arrow was in common use throughout the eastern Plateau region. Presence of the bow and arrow is evidenced by small side notched and corner notched points such as the Avonlea, Prairie side-notched, and later 'Old Women's' types. Ceramics and stone bowls also are first seen during the Late Prehistoric period. In general, throughout the Late Prehistoric period, settlement patterns reflect the gradual increase from smaller hamlets to larger, more permanent village sites with a continued focus on lowland drainage areas. Large groupings of house sites become common with many containing evidence for storage pits and ovens. Subsistence during the Late Prehistoric period again reflects a dependence on a broad diversity of local resources with a particular intensification of plant resources. Deer and other medium sized mammals appear to dominate the Late Prehistoric period diet. Bison also begin to become a more reliable faunal resource as their population flourished during the later part of the Late Prehistoric period. Bison jump sites are abundant throughout the larger region.[15]

Late Prehistoric sites are found in great abundance throughout the larger region including the County Line site (24MO197), a site (24DL151) in the Deep Creek – French Creek area, and the Antonsen sites. Within the project area, Sharrock has tentatively dated the four sites 24PW1076, 24PW1077, 24PW1078, and 24PW1079 to the Late Prehistoric or Historic period, "judging from projectile points seen or reported." [16]

[14] Chatters, "Environment," 45-46; Chatters and Pokotylo, "Prehistory," 76-77.
[15] Chatters, "Environment," 45-46; Chatters and Pokotylo, "Prehistory," 76-80; Roll and Hackenberger, "Eastern Plateau," 132-133.
[16] Midwest Archeological Center, "Grant-Kohrs Ranch," 9-11; Sharrock, "Archaeological Survey," 10-11.

Landscape Characteristic by Chronological Period

Natural Systems and Features

Hunting and Gathering	Late Prehistoric peoples were intimately familiar with the natural environment surrounding them. Their archeological sites are found in a number of diverse environments and are directly related to the particular resource (e.g. lithic, flora, fauna) located there.
Seasonal Migration	Late Prehistoric peoples were necessarily nomadic, following the migrations and habitat of native fauna and harvesting seasonally selected flora.
Expansion and Contraction	Late Prehistoric peoples responded to a dramatically changing climate (e.g. milder and wetter, or cooler and drier climates) by altering their subsistence patterns to reflect the abundance or scarcity of available resources.
Hunting traps	Late Prehistoric peoples utilized unique natural features such as cliffs, box canyons, and hunting blinds to surprise and kill herds of bison and other large mammals.

Spatial Organization

Site Location	Archeological evidence for the larger region suggests that Late Prehistoric peoples settled predominantly on floodplain lands adjacent to major drainages.

Land Use

Hunting	Late Prehistoric peoples continued to hunt a variety of large game including bison, mountain sheep and deer. While herds of bison continued to be trapped and slaughtered as part of a communal activity, deer remains appear to dominate the faunal assemblages of major archeological sites. Smaller mammals supplemented this diet including but not limited to rabbits, mice, wood rats, fish, and marmots.
Gathering	Late Prehistoric peoples continued to gather a variety of regional flora for dietary, medicinal, functional or ceremonial uses. The archeological record suggests that the gathering of flora resources such as berries, pine nuts, bitterroot,

	biscuit root and camas constituted a regular part of their seasonal subsistence patterns during this period.

Cultural Traditions

Artwork	Late Prehistoric peoples recorded their presence in pictographs and painted rocks throughout the eastern Plateau region. Rock art generally takes four forms, anthropomorphic figures, zoomorphic figures, tally marks, and geometric figures.

Circulation

Valley Floors and Mountain Passes	The circulation networks utilized by Late Prehistoric peoples likely followed the natural corridors dictated by regional topography and characterized by valleys and mountain passes. Circulation routes were chosen because of their ability to lead Late Prehistoric peoples to and from selected resources. Many of these circulation routes were utilized on a seasonal basis.

Vegetation

Fires set	Archeological and ethnographic evidence suggests that Late Prehistoric peoples may have set intentional woodland and prairie fires for a number of cultural reasons including forest protection, enhancement of edible or medicinal plant species, to facilitate gathering, to improve pasture and range productivity, to improve the native habitat for animals that were hunted, to clear campsites, or for communication or rituals.

Buildings and Structures

Caves and shelters	Late Prehistoric peoples utilized available caves and other permanent shelters throughout the region.
Lodge / Tipi	Due to their migratory subsistence patterns, Late Prehistoric peoples constructed portable conical shelters called lodges or tipi. Lodges were constructed against saplings or trees, or constructed of poles and were covered with mat, brush, bark or animal skin. Archeological evidence suggests that these conical lodges were frequently associated with shallow pits and

	surrounded by small rings of rock. The lodges generally served as nuclear family dwellings.
Cluster Arrangements	
Floodplain settlement	Archeological evidence for the larger region suggests that Late Prehistoric peoples settled predominantly on floodplain lands adjacent to major drainages.
Small-Scale Features	
Stone circles	Two and possibly three stone circles located within the park may date to the Middle Plains Archaic period or later. The stones may have been used as weights to hold down a tipi shelter.
Pit ovens	Late Prehistoric peoples continued to construct pit ovens to roast camas and other native flora. Pit ovens are usually found in association with semi-permanent or permanent camp sites.
Archeological Sites[17]	
Stone circles (24PW1076)	Two, and possibly three stone circles were identified in 1973 at this site. The absence of diagnostic artifacts recovered suggests that the site could have been occupied as early as the Middle Plains Archaic period to as late as the Protohistoric period.
Lithic scatter (24PW1077)	A prehistoric lithic scatter identified in 1973 may date to the Late Prehistoric period.
Lithic scatter (24PW1078)	A prehistoric lithic scatter identified in 1973 with points and point fragments resembling Middle Archaic points of the Columbia Plateau, may date to as early as the Middle Plains Archaic period, or as late as the Protohistoric period.
Lithic scatter (24PW1079)	A prehistoric lithic scatter identified in 1973 with points and point fragments resembling Middle Archaic points of the Columbia Plateau, may date to as early as the Middle Plains Archaic period, or as late as the Protohistoric period.

[17] More updated information on archeological resources is available in the new DRAFT Archeological Survey for Grant-Kohrs NHS.

The Pend d'Oreille, Flathead, and early European occupation of Western Montana, ca. 1700-1860

"This is a valley somewhat larger than the Big Hole, …All the streams by which it is intersected are decorated with groves and thickets of aspen, birch and willow."
[Warren Ferris, 1831]

Introduction

Between the Protohistoric and Contact periods, the Deer Lodge Valley was transformed from a major thoroughfare to and from seasonal hunting and gathering grounds for Pend d'Oreille, Flathead, Shoshone and other American Indian groups, into an area that was explored, trapped and subsequently exploited for its lush grass ranges by European Americans. By the late 1850s, Johnny Grant had begun to winter his growing cattle herd in the Deer Lodge Valley. His presence initiated the first permanent European American settlement within the larger area.

Historical Context

Prior to 1700, the Flathead originally occupied the western edge of the northern Plains from the Continental Divide to Billings, Montana and north of Yellowstone National Park to the Missouri River. The Pend d'Oreille originally occupied the eastern edge of the Plateau, west of the Continental Divide but predominantly centered on the Clark Fork River and its tributaries. The Flathead depended predominantly upon hunting buffalo, usually driving them into lanes, corrals or over cliffs, prior to the horse. The Pend d'Oreille subsisted on hunting and gathering. Deer, antelope, mountain goats and smaller mammals were regularly hunted. Fish were a smaller although important part of their diet as well. Plants, roots and berries, including bitterroot, camas, serviceberries, elderberries, chokecherries and huckleberries were a significant part of the Flathead and Pend d'Oreille diets. Conical tipis or lodges made of poles covered in skin, brush, bark or grass mats served as portable shelters.[18]

During the Protohistoric / Contact period, ca. 1700 – 1800, two European influences dramatically impacted the American Indian residents of the eastern Plateau region. Disease, in general, and smallpox epidemics in particular, swept through native populations ultimately devastating cultural groups. Historians estimate that the first major epidemic in North America impacted American Indian populations in the late sixteenth century. Smallpox was most likely introduced to American Indians of the northwest by ships that frequented the west coast trading for furs during the early eighteenth century. Numerous other epidemics swept the northwest throughout the late eighteenth and nineteenth centuries. Some estimates place the population decline of the Flathead and Pend d'Oreille at 45 percent between 1770 and 1805.[19]

By the early 1700s at the latest, the Shoshone Indians had acquired horses from the Utes who had obtained them from the Spanish. Utilizing horses, the Shoshone swept over most of Montana and helped to establish the nomadic Plains Indian culture that was centered on hunting the buffalo. The Flathead and Pend d'Oreille likely had horses by 1730 at the latest, acquiring them by trade. Firearms were not likely acquired until the last quarter of the eighteenth century through the

[18] Carling I. Malouf, "Flathead and Pend d'Oreille," in *Handbook of American Indians*, Volume 12, Plateau, Deward E. Walker Jr., ed. (Washington D.C.: Smithsonian Institution Press, 1998), 297-299.
[19] Deward E. Walker and Roderick Sprague, "History Until 1846," in *Handbook of American Indians*, Volume 12, Plateau, Deward E. Walker Jr., ed. (Washington D.C.: Smithsonian Institution Press, 1998), 138; Malouf, "Flathead and Pend d'Oreille," 305.

Hudson's Bay Company and not in any great quantity until the early nineteenth century. During the early eighteenth century, the Blackfeet moved into the northern Plains with horses and firearms in an attempt to expand their territory. As a result, the Flatheads were forced to retreat westward into the Rocky Mountains and eastern Plateau region. By the late eighteenth century, the Blackfeet had established their dominance in the western Plains and began trading and raiding forays into the eastern Plateau region. The impact of the horse also influenced political boundaries and tribalization as the displaced tribes of the western Plains and eastern Plateau region, particularly the Flatheads, Pend d'Oreille, and Kootenai, formed multi-tribal confederacies in an attempt to combat the Blackfeet threat. "By 1800 the Northern Plains had become a scene of perpetual equestrian conflict."[20]

In 1670, the Hudson's Bay Company was organized as the first English fur trading company in the new world. They received a Royal Charter from the British Crown that enabled them to have control over most of what would eventually become Canada. This single event was instrumental in directing trade and contact with American Indians for the next century. By the late seventeenth century they had established a trading house in Montreal and throughout the first three quarters of the eighteenth century, slowly began to expand westward establishing trading relationships with American and Canadian Indians. In 1779 the North West Trading Company, the first serious rival to the Hudson's Bay Company, was established. North West fur traders immediately extended their trade network further westward than the Hudson's Bay Company. As a result, the balance of the fur trade from the last quarter of the eighteenth century through the first quarter of the nineteenth century was dominated by the North West Trading Company.

The first recorded exploration of Montana by Europeans was accomplished by Meriwether Lewis and William Clark. In 1805, Lewis and Clark entered what would one day become northeast Montana following the Missouri River westward to the Rocky Mountains. They eventually entered what would become southwest Montana south of the project area and Deer Lodge Valley. Lewis and Clark reported that the American Indians they encountered had interacted with white men for some time and possessed large herds of horses, various trade goods, and other European items. This suggests that during the second half of the eighteenth century, fur traders of European descent may have passed through the area. Shortly after Lewis and Clark, North West Company fur traders under the direction of David Thompson entered the Rocky Mountains in 1807 and set up trading posts or 'houses' in the mountain valleys of the Columbia River drainage. Despite the establishment of the American Fur Company in 1811 and the Rocky Mountain Fur Company in 1823, the North West Company soon came to monopolize trade in the Columbia River basin. By 1821, the North West Company and Hudson's Bay Company had merged to form the dominant fur trading organization on the continent. The international fur trade in the northwest flourished through the first quarter of the nineteenth century, but during the second quarter of the nineteenth century beaver became scarce and by the 1840s there was little profit to be obtained.

One of the earliest descriptions of the project area vicinity comes from Warren Ferris, who as a trapper for the American Fur Company traveled through the Deer Lodge Valley in 1831 describing the local wildlife, the Warm Spring mound (See Figure 2-1) and what is now the Clark Fork River.

> We crossed a mountain to the Deer Lodge Plains. This is a valley somewhat larger than the Big Hole, and like that surrounded by mountains, generally, however low, barren and naked, except to the south and east where lofty snow clad peaks appear. All the streams by which it is intersected are decorated with

[20] Walker and Sprague, "History Until 1846," 138-139; Malouf, "Flathead and Pend d'Oreille," 305.

> groves and thickets of aspen, birch and willow, and occasional clusters of currant and gooseberry bushes. The bottoms are rich and verdant, and are resorted to by great numbers of deer and elk. The several streams unite and form "La Riviere des pierres a fleches" thus named from a kind of semi-transparent stone found near it, formerly much used by the Indians for making points of arrows. This river is one of the sources of Clark's River, and flows through the valley to the northeastward. The valley owes its singular but appropriate name to a natural curiosity situated near the river a few miles from the eastern side. The curiosity referred to is a semi-spherical mound some 50 paces in circumference and fifteen feet high, rather flattened at top, and covered with turf and a sickly growth of yellow grass. …These waters are slightly impregnated with salt, which quality renders the place attractive to deer and it is seldom without visitors of this description …Clouds of vapor are continuously emanating from the mound, which at a distance on a clear cold morning might readily be mistaken for smoke --- the mound itself has much the resemblance of an Indian cabin, and hence the name by the valley is designated.[21]

Ferris also mentioned passing a camp of Pend d'Oreilles consisting of approximately 100 'lodges' in the Deer Lodge Valley.[22]

Another trapper who worked for the Hudson's Bay Company, John Work, also visited the Deer Lodge Valley in the same year. He camped on the Deer Lodge River and noting the relative scarcity of beaver commented that the area appeared to have been trapped out.[23]

In 1841 Father Pierre Jean de Smet, a Jesuit priest, led wagons and oxen into the Bitterroot Valley and constructed the St. Mary's mission by 1846. The mission closed and was purchased by 1850. De Smet also traveled through the Deer Lodge Valley and named the Deer Lodge River the "St. Ignace" River. De Smet described the Warm Springs cone or mound in Deer Lodge Valley.

> [It is] accessible on one side only, and is formed of a stony crust deposited by the spring which has risen as the mound has grown. The water bubbles up on the top, and escapes through a number of openings at the base of the mound, the circumference of which seems to be about 60 feet. The waters at the base are of different temperatures – hot, lukewarm and cold—though but a few steps distant from one to another. Some indeed are so hot that meat may be boiled in them. We actually tried the experiment.[24]

During the early 1840s, the first small numbers of American settlers began to arrive in the northwest via the Oregon Trail. The route they took passed through the southern Plateau south of the Columbia River through present-day southern Idaho. By 1843, settlers passed through the northwest in the thousands. Between 1845 and 1847, it is estimated that nearly 10,000 emigrants traveled the Oregon Trail. As a result of the increasing numbers of immigrants to the Oregon Country, Canada and the United States agreed to the settlement of their borders in 1846. The

[21] Warren A. Ferris, *Life in the Rocky Mountains: A Diary of Wanderings on the sources of the rivers Missouri, Columbia, and Colorado, from February 1830 to November, 1835* (St. Louis, 1844), 107-111, 162, 166, 170-178, 231, 321-324.
[22] Virginia Lee Speck, "The History of the Deer Lodge Valley to 1870" (Masters Thesis, Montana State University, 1946), 5-6.
[23] Speck, "History", 20-21.
[24] Speck, "History," 3-5; Anna Fay Rosenberg, "Hard Winter Endurance: Conrad Kohrs' Cattle Raising Operation, 1887-1900" (Masters Thesis, University of Montana, 1996), 5-6.

Oregon Territory, which included the western part of what would become Montana, was established two years later.[25]

By 1842, Capt. Richard Grant, a Canadian of Scottish and French ancestry and a veteran of the Northwest fur trade, was reassigned to Fort Hall (now in Idaho) as factor by the Hudson's Bay Company. As factor, he traded British goods for pelts with the local Indians. Within a year of his arrival, significant numbers of immigrants passed through the Fort Hall area. Seizing an opportunity, Richard Grant began to trade horses and flour for thin and tired cattle. He then grazed the cattle in southwestern Montana until they had recovered their weight and health and then sold them back to the continuing stream of emigrants at a profit. By 1851, Richard Grant had retired as factor but continued to remain in the Fort Hall area trading with both emigrants and local Indians.[26]

After purchasing St. Mary's Mission in the Bitterroot Valley from the Jesuits and establishing a fort there in 1850, Major John Owen entered the Deer Lodge Valley a year later describing its flora and fauna.

> [We] came over to Deer Lodge fork, trav'd in all today about 15 miles. Caught some 50 fine specked trout. One of our Lodges turned back this morning leaving us number now six lodges. We are camped on D. L. fk. Passed one of the Indian roads to buff.[alo?] called Vermillion Road. ...Raised camp late this morning it being rainy we crossed into D. L. fk. Found D. Lodge. It is quite a small butte in the prairie with boiling spring on the top. I know nothing of the qualities of the water [sic].[27]

In 1853, western Montana came under the administration of the newly created Washington Territory. During the same year, Isaac Stephens was appointed by Congress to make a survey for a possible northern railroad route. Construction was postponed for a number of years due to regional Indian wars. Four years later, Congress appropriated money for the construction of the Walla-Walla to Fort Benton wagon road, the precursor to the railroad route. The construction of the military road was begun in 1859 and was supervised by John M. Mullan. The Mullan road, as it came to be called, passed just north of Deer Lodge City and was completed in 1863. In passing through the Deer Lodge vicinity, Mullan purchased 30 head of cattle from Johnny Grant.[28]

Sometime in the late 1850s, Richard Grant and his son John Francis Grant, camped near Dillon, Montana in an effort to avoid what they perceived as an impending war due to a growing conflict between U.S. Government and the Mormons. John or 'Johnny' joined his father and continued to carry on trading for cattle mostly with Mormon emigrants. By 1857, Johnny wintered with his growing cattle herd in the Deer Lodge Valley and the following year Richard Grant moved to the Bitterroot Valley near present day Missoula. He later died in Walla Walla in June of 1862.[29]

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[25] Walker and Sprague, "History Until 1846," 148; Stephen Dow Beckham, "History Since 1846," in *Handbook of American Indians*, Volume 12, Plateau, Deward E. Walker Jr., ed. (Washington D.C.: Smithsonian Institution Press, 1998), 149.
[26] Douglas C. McChristian, *Ranchers to Rangers: An Administrative History of Grant-Kohrs Ranch National Historic Site* (National Park Service, Rocky Mountain Cluster, 1977), 1-2.
[27] Speck, "History," 31-32.
[28] Speck, "History," 106, 108; Beckham, "History Since 1846," 157; Marilyn Wyss, *The Origins and Development of the Road and Trail System in Montana* (Helena: Montana Department of Transportation, 1992), 4; Lyndell Meikle, ed., *Very Close to Trouble: The Johnny Grant Memoir* (Pullman: Washington State University Press, 1996), 76.
[29] McChristian, *Ranchers to Rangers*, 3; John Albright, *Historic Resources Study and Historic Structure Report Historical Data, Kohrs and Bielenberg Home Ranch, Grant-Kohrs Ranch National Historic Site, Montana* (Denver: Denver Service Center, National Park Service, 1977), 1*; Washington Statesman* (Walla Walla, June 28, 1862).

Granville Stuart relates that he and his brother James were the first to discover gold in what would become Montana, a strike on Gold Creek east of present day Drummond. It lay inactive until 1860 when Henry Thomas, aka 'Gold Tom,' expanded the placer mine. A small settlement called American Fork soon grew up around the gold strike. Regardless of the accuracy of Stuart's account, it is certain that gold was discovered in Bannock, Montana in 1862 when a strike was recorded on Grasshopper Creek, a tributary of the Beaverhead River.[30]

In 1859 Johnny Grant moved to the Deer Lodge Valley, settling at the confluence of the Deer Lodge River and Little Blackfoot Creek only twelve miles north of the Grant-Kohrs Ranch National Historic Site project area. He built a "rough shack of cottonwood logs" there the same year. The following spring, a second log house was built in the same location by workmen Grant hired.[31]

Landscape Characteristic by Chronological Period

Natural Systems and Features

Hunting and Gathering	Flathead and Pend d'Oreille Indians and early European fur traders and explorers were intimately familiar with the natural environment surrounding them. Their archeological sites are found in a number of diverse environments and are directly related to the particular resource (e.g. lithic, flora, fauna) located there.
Seasonal Migration	Flathead and Pend d'Oreille Indians were necessarily nomadic, following the migrations and habitat of native fauna and harvesting seasonally selected flora. With the acquisition of the horse in the late seventeenth century, traditional seasonal migrations were made easier.

Spatial Organization

Site Location	Flathead and Pend d'Oreille Indians appear to have settled along the Deer Lodge River and its drainages during fall and winter. These settlements were dispersed and may have represented many small nuclear families coming together for the winter season. Spring and summer campsites would be located near seasonal resources in more diverse topographic regions of the eastern Plateau.

[30] Michael P. Malone and Richard B. Roeder, *Montana: A History of two Centuries* (Seattle: University of Washington Press, 1976), 50-51; Granville Stuart, *Prospecting for Gold: From Dogtown to Virginia City, 1852-1864*, Paul C. Philips, ed. (Lincoln: The University of Nebraska Press, 1977), 162. Note: Granville Stuart's story of being the first to discover gold in Montana is disputed by some.
[31] McChristian, *Ranchers to Rangers*, 3; Albright, *Historic Resource Study*, 1; Meikle, *Very Close to Trouble*, 72-74.

Land Use

Hunting	Flathead and Pend d'Oreille Indians depended on hunting buffalo, antelope, mountain sheep and goats and other smaller mammals. Fish were an important although not dominant part of their diet as well.
Gathering	Flathead and Pend d'Oreille Indians practiced traditional seasonal gathering activities harvesting a variety of roots, berries and nuts including bitterroot, camas, serviceberries, elderberries, chokecherries and huckleberries.
Trapping	Early European fur traders and trappers explored the Deer Lodge Valley and regional vicinity in the pursuit of beaver. Much of the beaver's native habitat in the eastern Plateau region was trapped during the eighteenth and early nineteenth century.
Exploration	In an effort to find an overland route to the west coast, Lewis and Clark and other explorers traveled through the eastern Plateau region of what would become western Montana.
Open Range / Grazing	In 1857, Johnny Grant wintered his cattle herd in the Deer Lodge Valley, the first event where non-native fauna had grazed within the project area vicinity.
Settlement	In 1859, Johnny Grant permanently settles in the Deer Lodge Valley at the confluence of the Deer Lodge River and the Little Blackfoot Creek.

Circulation

Trails / Paths	By this period well-established Indian trails, seasonal migration routes taken to regional flora and fauna resources, could be seen by the first European traders and explorers to enter the Deer Lodge Valley.
Trails / Paths	Early European fur traders established their own and sometimes utilized earlier American Indian trails to lead them to and from known beaver habitat. These trails generally followed the region's major and minor drainages.

Buildings and Structures

Lodge / Tipi	Due to their migratory subsistence patterns, Flathead and Pend d'Oreille Indians and early European fur traders and explorers constructed portable conical shelters called lodges or tipis. Lodges were constructed against saplings or trees, or constructed of poles and were covered with mat, brush, bark or animal skin. Archeological evidence suggests that these conical lodges were frequently associated with shallow pits and surrounded by small rings of rock. The lodges generally served as nuclear family dwellings.
Log cabin	Johnny Grant builds the first recorded permanent structure by a European in the Deer Lodge Valley, a "rough shack of cottonwood logs" at the confluence of the Deer Lodge River and Little Blackfoot Creek in 1859. The following year, a second log house was built adjacent to the first.

Small-Scale Features

Pit ovens	Flathead and Pend d'Oreille Indians and early European fur traders and explorers constructed pit ovens to roast camas and other native flora and fauna. Pit ovens are usually found in association with semi-permanent or permanent camp sites.

The Establishment of the Johnny Grant Ranch, the settlement of Cottonwood, and incipient stock raising, 1860-1866

"My ranch situate on Cottonwood Creek."
Johnny Grant

Introduction

With the construction of the first log structures on a bluff overlooking the Clark Fork River in 1861, Johnny Grant initiated the development of the larger home ranch. His improvements included the construction of a domestic core and surrounding ranching outbuildings, the development of a preliminary irrigation system and experimentation with growing grain crops.

Historical Context

After settling in the Deer Lodge Valley, Grant immediately noticed that the Valley was an often used trading and hunting route. "There were six tribes of Indians who passed my place twice every year, in the spring and fall." Granville Stuart, another early settler of the Deer Lodge Valley, echoed Grant's observations. "Villages of combined Nez Perces, Yakimas, Coeur d'Alenes, and Flatheads …passed every fall on their way to the plains of the Missouri and Yellowstone to spend the winter hunting buffalo."[32]

By the summer of 1860, Grants cattle herd had become large enough to allow him to drive them to California to be sold. In doing so, Grant became the first recorded rancher in Montana to sell cattle in a distant market.[33]

In 1860, Grant had persuaded some other traders to settle near him in the Deer Lodge Valley. In Grant's own words, he "managed to induce ten or twelve families of traders to come with me. They were Descheneau, Leon Quesnell, Louis Demers, David Contois, Fred Burr, the Stuart Boys, the Cosgrove boys, Jackson, Jack Meek and two sons of my old friend, Michand Leclair. They settled on Cottonwood Creek about eleven miles from the Little Blackfoot." The small settlement was given the name of Cottonwood, due to the abundance of that type of tree in the area. [34]

The following year, Grant decided to move from his small ranch at the Little Blackfoot, closer to the larger settlement of Cottonwood. He built two small log structures adjacent to one another just north of town. In 1862, the structures were described as "a good sized log House, or rather two joined together."[35]

In 1862, Grant hired several craftsmen to build a new, larger house (See Figure 2-2).

> In the fall of 1863 [1862], I built a house in Cottonwood, afterwards called Deer Lodge. It cost me a pretty penny. I hauled lumber from the Flathead Reserve which was one hundred and fifty miles away. The house was made of hewed logs with posts in the corner. It was sixty-four feet long, thirty feet wide and sixteen

[32] Speck, "History," 11; Meikle, *Very Close to Trouble*, 72.
[33] Albright, *Historic Resource Study*, 2; Meikle, *Very Close to Trouble*, 71.
[34] Meikle, *Very Close to Trouble*, 76; McChristian, *Ranchers to Rangers*, 3; Albright, *Historic Resource Study*, 2-3.
[35] Meikle, *Very Close to Trouble*, 81 notes. These two log structures are now incorporated as part of the Bunkhouse Row, H-S2.

> feet high. I paid five dollars per day to McLeod, the hewer, and to the carpenter, Alexander Pambrun, I paid nine dollars per day. …I then went with a wagon and hauled plenty more of this kind [limestone] and burnt it. Now that I had the lime, a plasterer was needed. I got one and he charged me one hundred fifty dollars to plaster the first story, but it was very well done. I went back to the house twenty years after, and the plaster was as sound as ever.[36]

By 1862, the small settlement of Cottonwood, Grant's extensive new ranch, and the unusual grouping of inhabitants who resided there must have created a curious picture. A visitor to the town during this period reflected on the strange but peaceful appearance.

> We crossed the Deer Lodge River, a wide and fine stream at this point. Nooned at 11 a.m. …I saw several hundred cows belonging to Grant, the finest I have seen in America.[37]

> Here in this luxuriant grassy valley, abounding with game and fish – the finest brook trout I ever saw – possessed of large herds of cattle and horses, surrounded by his half breeds, Indian servants, and their families, with a half dozen old French mountaineers and trappers who have married Indian women for his neighbors, Grant lives in as happy and free a manner as did the ancient patriarchs.[38]

To one visitor, the town still retained this surreal appearance two years later as it was described as consisting of "six log cabins, some peacefully ruminating cows, a stray vaquero, and a lot of half-breed papooses, engaged in making mud pies."[39]

Conrad K. Kohrs first arrived in the Deer Lodge Valley in 1862 en route to gold prospecting in Idaho. He describes his first impression of the Deer Lodge Valley.

> About twenty miles above Deer Lodge our trail led along a river of the same name. It was a beautiful stream, the water clear and sparkling and alive with the finest trout, and the same was true of every small stream we crossed. The valley was full of antelope and many herds of fat cattle belonging to the mountaineers who lived there. …We made camp on Cottonwood just behind the present Court House in Deer Lodge and intended of prospecting in different directions in the mountains. …There was little money in the crowd and no provisions in the country except beef. Game was plentiful but no guns or pistols. We were obliged to live on fish, not even having grease to fry them in. It was a case of boiled fish varied by an occasional baking in the ashes. …The same week we broke camp and went down to Gold Creek, where we found quite a few men prospecting and a few working sluices.[40]

The first major gold rush in the Montana Territory took place in the early 1860s. By 1862 Bannack City, a mining camp, had grown up around a gold claim and had a population of 400-500 by the fall. Conrad Kohrs eventually settled temporarily in Bannack and set up a butcher

[36] Meikle, *Very Close to Trouble*, 86.
[37] "Diary of James Harkness, of the Firm of LaBarge, Harkness, and Company: St. Louis to Fort Benton by the Missouri River and to the Deer Lodge Valley and Return in 1862" (Reprint 1966).
[38] Meikle, *Very Close to Trouble*, 82 notes.
[39] Speck, "History," 69.
[40] Conrad K. Kohrs, *Conrad Kohrs: An Autobiography* (Deer Lodge: Platen Press, 1977), 19-20.

shop working for Hank Crawford. When Crawford abandoned him, he partnered with Ben Peel and moved to another mining camp at Alder Gulch in 1863. The town of Virginia City soon grew up around this gold claim.[41]

Although not recorded until six years later, in 1862 a group of men calling themselves the Deer Lodge Company, including W. B. Dance, James Stuart, John S. Pemberton, Granville Stuart, Leon Quesnelle, Louis Decheneau, and Frank Truchet, located 640 acres for the town of Deer Lodge City. During the same year, a Captain Joseph LaBarge and partners set up a merchant store in Cottonwood. A year later, La Barge, John S. Pemberton and Leon Quesnell, platted a town on Cottonwood Creek and named it LaBarge City (See Figure 2-__). However the small town's name reverted to Cottonwood after LaBarge's business was abandoned a short time later. A pre-emption claim was filed in October 1864 by the Deer Lodge Town Company for 320 acres. It did not however fulfill the requirements of the law.[42]

In 1863, Idaho Territory was created out of Washington Territory. It embraced what is now the entire state of Montana. At the same time, Deer Lodge County was also created. It is during this period, ca. 1863-1864, that the town of Cottonwood most likely adopted the name of Deer Lodge City.[43]

In an effort to find a more direct northern route to the gold regions of Montana, Capt. James L. Fisk organized a second expedition in 1863. Upon his arrival in the Deer Lodge Valley, he described Johnny Grant's new ranch and the small but growing ranching and agricultural town.

> Traveled through the valley of the Little Blackfoot and over the mountains to Livingstone Creek descending into the Deer Lodge River near Johnny Grants ranch. …Mr. Grant owns some 4,000 head of cattle and 2,000 to 3,000 ponies. The miners of Virginia City and Bannock get most of their meat from him, and he trades ponies at Salt Lake for flour, and c. He is reported to be worth $300,000 or $400,000. Cottonwood City is springing up near here on the Deer Lodge. It contains about 30 houses and 150 inhabitants. Messrs. Higgins and Moran have a large store, with supplies of all kinds for the miners. The Deer Lodge is a fine stream of pure water running to the north. After receiving the Little Blackfoot it takes the name of the Hell Gate River. The Deer Lodge Valley is an admirable tract for grazing and farming. Wheat and oats grow luxuriantly at Dempsey's farm, and vegetables of all kind are raised. The grass is sweet and excellent, and there is fine timber on the mountain sides. The climate is warm and mild; snow seldom falls to more than the depth of 2 to 3 inches, and melts during the day. Grant's cattle range the valley the whole winter; many of these animals are so fat that their appearance is similar to that of Berkshire shoats fed for the fair. Some of my party of 1862 left work cattle here in the fall that were thin and worn out with the journey across the Plains; in April they were very fat, and were sold for beef cattle. Gold has been discovered here not far from the American Fork of Hell Gate River. The claims paid about $10 per day to the man, but were deserted for the Stinking water diggings. …There are plenty of trout in this stream; 2 or 3 of our party caught 60 …in an hour or two.[44]

[41] Malone, Michael P. and Richard B. Roeder, *Montana: A History of two Centuries* (Seattle: University of Washington Press, 1976), 50-51; Kohrs, *Autobiography*, 22-27.
[42] Speck, "History," 66-67; The Deer Lodge River, Deer Lodge County, and Deer Lodge City were apparently named for the natural Warm Springs Mound called 'Deer Lodge' because of its conical lodge-like shape and the fact that deer were attracted to its salt encrusted sides as a salt lick.
[43] Speck, "History," 67.
[44] James L. Fisk, *Expedition of Captain Fisk to the Rocky Mountains* (Washington, 1864), 26-27.

Ca. 1862, it appears that Johnny Grant began to cultivate one or more fields adjacent to his ranch house, most likely located in the rich bottomlands between his ranch and the Deer Lodge River. Water rights records document that Grant established three separate claims during this year, one from the Clark Fork River, and two others from unnamed springs. These water claims were used for both stock watering and irrigation purposes. In his memoirs, Grant notes at least two consecutive years of planting crops and vegetables on his land ca. 1862-1863.

> [I decided] to put in a crop on a larger scale than before. …A couple of acres of oats that I put in the year before did so well that I was encouraged to try some more. I paid five dollars a bushel for seed oats. I tried a garden too. A French-Canadian there who was gardener proposed to make a garden on shares if I bought the seeds. I agreed. Vegetables were an unknown luxury there at the time, so he paid twenty dollars for a pound of onion seed and other seeds in proportion. It cost me $200 for garden seed. That summer, Montana was visited by a plague of Colorado beetles or grasshoppers. They devoured everything green as soon as it showed itself above the ground. I was completely disgusted and made up my mind to sell and leave the country.[45]

It is likely that the first irrigation ditches within the project area were associated with the Clark Fork River and were excavated and put into operation between 1862-1863. A number of references to irrigation ditches dug in association with the cultivation of small fields suggest that dry farming was not a practical alternative in the Deer Lodge Valley. Other evidence supports some form of crop irrigation within the project area. By the mid-1860s at the latest, Grant had purchased a threshing machine that served the larger Deer Lodge Valley. On occasion, Grant sold the crops that he grew. In 1865, Conrad Kohrs also purchased oats from Grant and planted 25 acres of "recently broken land." It is not clear from the description above where Grant's vegetable garden was located, although it is possible that it may have been below the bench on the southern side of his residence in order to take full advantage of the southern exposure.[46]

By 1864, Conrad Kohrs had begun to expand his regional butchering operations with Ben Peel, eventually entering into partnerships with his three half-brothers, Charles, Nick and John Bielenberg, who had arrived in Montana. During the same year he made his first substantial purchase of beef cattle, buying 400 head and wintering them at Race Track Creek in Deer Lodge Valley. These cattle supplied his numerous butchering shops for the subsequent year and began his cattle raising business. In addition to cattle, Kohrs' autobiography mentions the purchase of a herd of several thousand Southdown sheep. Southdown sheep were valued for their ability to produce a large quantity of high quality lambs and were often used in cross-breeding with other sheep species to produce meatier lambs.[47]

The Territory of Montana was created in 1864. Deer Lodge County, Montana was organized shortly thereafter with the town of Silver Bow as the county seat. Three years later in 1867, the county seat was moved to Deer Lodge City.[48]

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[45] Meikle, *Very Close to Trouble*, 134.
[46] National Park Service, "Cultural Landscape Inventory (CLI)" (Revised Draft 1/21/1997), List of Features; Kohrs, *Autobiography*, 41-42.
[47] Kohrs, *Autobiography*, 38-39; Rosenberg, "Hard Winter," 12-13; Albright, *Historic Resource Study*, 5. Kohrs era sheep were kept in the Big Hole and Beaverhead Valley, not at the Home Ranch.
[48] Kohrs, *Autobiography*, 53; Speck, "History," 71.

By the end of the Civil War, the first detailed textual and pictorial descriptions of the Johnny Grant ranch house (HS-1) appear. In December of 1865, a Montana Post article described it as a "dwelling house, which is large and two storied, is by long odds the finest in Montana. It appears as if it had been lifted by the chimneys from the bank of the St. Lawrence, and dropped down in Deer Lodge Valley. It has twenty-eight windows, with green painted shutters, and looks very pretty. …Johnny Grant had the machinery for a grist mill, and his threshing machine works well."[49]

A drawing of the Grant ranch house (HS-1) from the southeast by Granville Stuart was done in 1865 (See Figure 2-2). It depicts the ranch house on the southern end of a grassy bench above the Clark Fork River floodplain. A generally open landscape surrounds the new residence on all sides. Two tipis and what appear to be a trough and unidentified frame apparatus (possibly for stretching hides) are present on the front or east lawn of the house. To the north of the ranch house are several wagons and carts and what appear to be two distinct log structures oriented in an east-west direction, possibly the earliest portions of the bunkhouse (HS-2). At the foot of the butte west of the ranch house, a fence of unknown type can be made out suggesting that distant pastures or fields were fenced. The immediate domestic compound is surrounded by a traditional jack-leg fence running in a north-south direction. The jack-leg fence was constructed without digging holes and usually consisted of a lodgepole pine lying between two pairs of 'legs.' This type of fencing was typical of the northwest frontier. No trees are noted to be planted anywhere around the ranch house. Southwest of the house there appear to be groupings of small trees or saplings, presumably lining the edges of the Deer Lodge River.[50]

Conrad Kohrs continued his extensive butchering and emerging cattle ranching business. Kohrs' business of supplying miners appears to have entailed more than butchering cattle. By the mid-1860s he also acquired hogs from local and regional suppliers, fattened them, and then sold the pork. Leicester sheep were also purchased, but Kohrs soon found out there was little demand for wool or mutton. Con & Peel also sold other items, including candles they had made from tallow. In 1865, Kohrs took advantage of the numerous gold strikes within the larger region. Borrowing money, he purchased as much cattle as possible and soon built a monopoly on the beef trade. "In the Spring of '65 I had all the beef in the country in my hands."[51]

By the middle of the decade, the growth of Deer Lodge City reflected the dispersed market created by the gold rush and the number of regional mining camps. In 1865, Deer Lodge City was described as containing approximately 125 log cabins with an enlarged business district including 3 to 4 stores, and several hotels, a brewery, a saloon, a cabinet-shop, a few butcher shops, a grist mill, and three steam sawmills. Placer gold mining in Montana was to reach its peak ca. 1866, declining slowly until the end of the decade when it had nearly disappeared. Con and Peel, and later Kohrs and Bielenberg, eventually lost the large local beef market when most miners moved to strikes in other states. Consequently small mining towns, such as Virginia City, went from a population of 3,000 to 500 in a week.[52]

Only a year after its creation, Montana passed a law regulating all marks and brands in the Territory. The law reflects the fact that cattle ranching was gradually becoming a substantial business in the fledgling Territory. It is during 1865 when Conrad Kohrs began to formally brand

[49] Meikle, *Very Close to Trouble*, 13?.
[50] Granville Stuart, "Residence of John Grant, near Deer Lodge City, MT, August 6, 1865, Looking northwest. No. 4," in *Diary & Sketchbook of a Journey to 'America' in 1866, & Return Trip up the Missouri River to Fort Benton, Montana*, Reprinted from the Virginia City *Montana Post* of January, 1867 (Los Angeles: Dawson's Book Shop, 1963), np.
[51] Kohrs, *Autobiography*, 37-38, 41-42.
[52] Speck, "History," 70; Malone and Reader, *Montana*, 55; Interview with Con Warren, May 9, 1985, np.

his cattle. "The system was the outcome of necessity. The whole country was community range and cattle were mixed together. Agriculture did not exist and fences were unknown so that we were compelled to brand to identify our property."[53]

Despite living in the Deer Lodge Valley for only 7 years, by 1866 Johnny Grant had decided it was time to move on. His memoirs suggest that he was tired of the "rough" country and the laws and officers that came with government. Sometime during 1865, Grant constructed an 80 x 30 foot "livery stable." Several tons of hay was stored in the loft. In February of 1866, it was destroyed by fire.[54]

> A FIRE occurred in our place, on last Saturday night, resulting in the total destruction of a fine, large barn, with a quantity of hay, the property of our well known townsman, Johnnie Grant, Esq. The loss is about $3,000. Misfortunes never come singly – and never was this saying more aptly applied than in the case of Mr. G. He has lost considerably in commercial enterprises, during the last year; and a few days since, almost his entire stock of liquors – some seven hundred gallons – was seized by the United States revenue officer here. Johnnie declares that he will clear up and go among the Indians again if his luck don't change.[55]

Landscape Characteristics by Chronological Period

Natural Systems and Features

Water resources	Water sources were important to early European settlers and frequently dictated where permanent settlement would occur. Water served early irrigation purposes and also provided a potable drinking supply for both humans and animals.
Timber resources	Early European settlers used the abundant timber resources, such as cottonwood and willow trees located along area drainages, and other non-deciduous species located on mountain sides surrounding the Deer Lodge Valley for use in their settlements.

Spatial Organization

Site location	Johnny Grant occupied lands that were adjacent to but located above a major drainage on a bluff or bench.
Fields	Fields under cultivation were placed adjacent to or nearby local drainages due to the richer bottomland soils, and the ability to irrigate

[53] Albright, *Historic Resources Study*, 5; Conrad Kohrs, "A Veteran's Experience in the Western Cattle Trade," *The Breeder's Gazette* (December 18, 1912), 1329.
[54] Meikle, *Very Close to Trouble*, 129, 134.
[55] *Montana Post* [Virginia City, Montana] February 17, 1866 as cited in Meikle, *Very Close to Trouble*, 129-130 notes.

	crops. Dryland farming was not a viable option in western Montana.
Land Use	
Hunting	Flathead and Pend d'Oreille and other Indians and European settlers hunted large and small sized game in the Deer Lodge Valley vicinity.
Gathering	Flathead and Pend d'Oreille and other Indians continued to use the Deer Lodge Valley as one of many resources to gather regional flora for dietary, medicinal, functional or spiritual uses.
Open Range / Grazing	Johnny Grant, Granville Stuart and other early European settlers used the Deer Lodge Valley vicinity as an open range upon which to graze their growing cattle herds.
Agriculture	Between 1860 and 1866, early European settlers practiced agriculture in irrigated fields. Records document the cultivation and sale of wheat, oats and other grains on a small scale.
Settlement	The small permanent settlement of Cottonwood was established in 1860 at the confluence of the Deer Lodge River and Cottonwood Creek.
Trading	Johnny Grant's earliest home site on Little Blackfoot River and the small settlement of Cottonwood served as centers of trade for regional Indian tribes including the Flathead, Pend d'Oreilles, Nez Perce, Yakima, Coeur d'Alene who passed through the Deer Lodge Valley.
Merchandising	The small settlement of Cottonwood served as a central supply depot for early regional mining camps during the 1860s.
Cultural Traditions	
Root and berry gathering	Many of Johnny Grant's American Indian wives and their families continued to practice the seasonal tradition of gathering roots and berries.
Irrigation ditches	Sometime between 1861-1866, Johnny Grant dug an informal irrigation ditch system of unknown length and orientation. It was most likely located to the west of his ranch house and drew from the Deer Lodge River.

Jack-leg fencing	An 1865 drawing of the Johnny Grant residence by Granville Stuart documents that the domestic core of the ranch was encircled by a jack-leg fence.
Cluster Arrangements	
Cottonwood Creek	Early European settlers created a small settlement at the confluence of the Deer Lodge River and Cottonwood Creek. The settlement was later given the name of Deer Lodge.
Domestic core	An 1865 drawing of the Johnny Grant residence by Granville Stuart documents the presence of two tipis on the east lawn area and suggests that the domestic core of the Grant ranch may have served as an informal trading post and camping area for Indian groups passing through the Deer Lodge Valley.
Circulation	
Mullan Road	The first military road through the region, the Mullan Road, passed just north of the small town of Deer Lodge and was completed in 1863.
Valley Road Network	According to the original survey of T8n, R9W, several formal roads traversed the Deer Lodge Valley by the mid-1860s. Many of these roads followed major and minor drainages and led to and from the region's numerous mining towns. Many of these roads may have followed pre-existing Indian paths. Two county roads led north from Cottonwood to their intersection with the Mullan Road, one unnamed road west of and adjacent to the Deer Lodge River, and the Deer Lodge – Garrison road east of and adjacent to the Grant residence, passing directly through the project area. A third major road, the Deer Lodge – Helena road, led diagonally in a northeast direction from Deer Lodge to the future state capital.
Vegetation	
Crops	Records document that the early European settlers of the Deer Lodge Valley cultivated and sold wheat and oats and other marketable grains. Ca. 1863-1864, Johnny Grant began to cultivate "a couple of acres of oats" on his ranch.

Vegetables	Records document that the early European settlers of the Deer Lodge Valley cultivated small garden plots and produced "vegetables of all kind[s]." Sometime during the early to mid-1860s Johnny Grant purchased a variety of vegetable seeds and cultivated a small garden. It is not known where this garden was located.
Buildings and Structures	
Log cabins	Log cabins appear to have been the dominant form of vernacular architecture utilized in the settlement of Cottonwood during the early to mid-1860s. By 1864, the small town was described as consisting of "six log cabins."
Bunk house (HS-2) built	Ca. 1861, Johnny Grant constructs the first structure, a log cabin (part of what is now HS-2), within the project area. The structure was described as "a good sized log house, or rather two joined together."
Ranch house (HS-1) built	In 1862, Johnny Grant hires craftsmen to build a new, larger log house. The log house was 30 x 60 feet, two stories high, constructed of regional lumber, and had a plastered first story.
Livery stable built	Ca. 1865, Johnny Grant constructed an 80 x 30 foot livery stable at an unknown location on his ranch.
Livery stable burned	In early 1866, the livery stable is destroyed by fire.
Constructed Water Features	
Irrigation Ditches	Sometime between 1861-1866, Johnny Grant dug an informal irrigation ditch system of unknown length and orientation. It was most likely located to the west of his ranch house and drew from the Deer Lodge River.
Small Scale Features	
Fence on east side of ranch house	An 1865 drawing of the Johnny Grant residence by Granville Stuart documents that the domestic core of the ranch was fenced with traditional jack-leg fencing. This fence may have served to demarcate the boundary between the public road and Johnny Grant's private lands.

Range fences	An 1865 drawing of the Johnny Grant residence by Granville Stuart documents that the range lands beyond the domestic core were also fenced with another as yet unidentifiable fence type.

The Conrad Kohrs Home Ranch and the Growth and Development of the Ranching Industry on the Northern Plains, 1866-1887

Introduction

In the two decades subsequent to acquiring the Johnny Grant Ranch in 1866, Conrad Kohrs' and John Bielenberg's ranching interests grew dramatically. They expanded from a small, local operation to a regionally dominant cattle ranching and butchering business, they improved the quality of their own stock by purchasing registered breeds, paid close care and attention to seasonal ranges and their utilization, and provided Montana and other ranchers in the northwest region with quality breeding stock. In addition, they dramatically expanded the physical facilities at the home ranch constructing barns, sheds, and other ranching features to support their needs. As a result, the Kohrs and Bielenberg operation became one of the leading ranches in Montana during the last quarter of the nineteenth century.

Historical Context

The year 1866 was a critical year for Conrad Kohrs' cattle ranching business. He bought out his former partner in the butchering business, Ben Peel. In addition he purchased the Johnny Grant Ranch. "On the 23rd of August, 1866, I bought out Johnny Grant's ranch, the land of which has not been surveyed and had no title to and the remainder of his cattle, amounting to about 350 head from yearlings up. The price paid was $19,200 on which I paid $5,000, the balance to be paid next spring. The fore part of September …I took possession of my property." The cattle herd acquired from Grant was strong in Shorthorn blood. By the end of the year he had also acquired the adjacent Louis Demers Ranch on the west side of the Deer Lodge River. The acquisition of the Grant and Demers Ranches gave him a large home base from which to run his operations.[56]

Shortly after its acquisition by Kohrs, the ranch house (HS-1) was the subject of a painting (See Figure 2-3). The 1866 image depicts the ranch house from the northeast. In the northern end of the front or east lawn of the ranch house are two long-horned (Spanish?) cattle and several horses and mules with riders. A post and rail fence with a gate to the north of the ranch house appears to contain the animals. Several cattle are pictured, presumably grazing in a field north and west of the ranch house. In the southern end of the front or east lawn are pictured two teepees. No trees are noted to be planted anywhere around the ranch house. To the north and south of the ranch house, unidentified vegetation appears to line the course of the Deer Lodge River.[57]

In 1868, Conrad Kohrs visited his mother in Iowa and before returning to Montana married Augusta Kruse, an acquaintance he had known from childhood. Con and Augusta made the long trip back to Montana and settled in his new ranch. By the time Augusta had arrived at the ranch house, it apparently showed the wear and tear of ranch life. Within a short time, Augusta had the house looking proper. In 1871, the ranch house was described by a newspaper reporter. "The residence of Mr. Kohrs is one of the largest in Montana having seven finely furnished rooms on the first floor, besides a magnificently furnished parlor and a spacious dining room, the second floor contains a large hall." During the late 1860s, Deer Lodge City continued to grow slowly. In 1867, A. K. McClure described it as "a little village of probably 200 inhabitants, situated on the river of the same name, and nearly central in the most picturesque and beautiful valley I have

[56] Kohrs, *Autobiography*, 43; Albright, *Historic Resource Study*, 6; John Clay, "The Passing of Conrad Kohrs," *Breeders Gazette* (December 1920).
[57] Anonymous, "Residence of John F. Grant, purchased by Hon. Conrad Kohrs in 1866" (Copy in the Grant-Kohrs Ranch NHS Library, Deer Lodge, Montana).

seen in Montana. There were no mining camps within ten miles of the town, and it wears the quiet, sober air of an agricultural community." By 1869, the present town plat of Deer Lodge consisting of 82 blocks was filed by D. P. Newcomer and surveyed by D. L. Griffith. The patent for the land was recorded on October 4, 1872.[58]

In the late 1860s, surveyors from the Government Land Office came through the Deer Lodge Valley and laid out the Township, Range and Section lines. A plat of T8N R9W shows four major roads to and from Deer Lodge City (See Figure 2-4). Two roads lead north of the city, the main one east of the Deer Lodge River called the 'Road to Hell Gate' leading from the center of town to its intersection in Section 4 with the U. S. Military Road, and a second also called the 'Road to Hell Gate' was located just west of the Deer Lodge River and at the foot of the mountain range. Leading north east from Deer Lodge City, a road called 'Road to Blackfoot and Helena' exited the plat on the border between Sections 1 and 12. Leading nearly due east from Deer Lodge City, a road called 'Road to Timber,' roughly paralleled the course of Cottonwood Creek. Conrad Kohrs' ranch house is shown just west of the main Hell Gate Road in the northwest quadrant of Section 33. Surrounding the ranch site to the south and west are fenced lands, presumably those belonging to the Kohrs – Bielenberg operation. Surveyors' field notes, although brief in their description, document the vegetation of the land and rate its soils. In Sections 28, 29 and 32, the timber along the Deer Lodge River is noted to be "cottonwoods and willows." The rich bottom lands on either side of the Deer Lodge River were noted to be level with first rate soils. The bench lands upon which Conrad Kohrs ranch house was located were 10 to 15 feet higher than the bottom lands and were described as level or nearly level, with first and second rate soils, but no timber present east of the Deer Lodge River. To the west of the Deer Lodge River the gravelly foothills were noted to contain several ravines with second and third rate soils and an absence of timber.[59]

Although some form of irrigation system was known to be present on the Kohrs-Bielenberg ranch, the GLO surveyors made no note of crossing any irrigation ditches in 1868-1869. Therefore it is possible that the surveyors did not cross any irrigation features, or perhaps crossed them but did not take note of them. Either way, water rights records document that Kohrs had established a new claim from Deer Lodge Creek in 1872. This claim may perhaps tie in with the establishment of the Kohrs-Manning Ditch Company ca. 1872.[60]

Throughout the late 1860s, Kohrs kept two distinct herds of cattle, one a 'beef herd' which was kept locally in the Deer Lodge Valley for supply to his butcher shops in the miners camps, and a second much larger herd of 'breeding cattle' that was kept in distant grazing lands. The rapidly disappearing local miner's market for butchered beef eventually forced Kohrs to initiate a different business strategy. As Con Warren acknowledged much later, Kohrs became a cattle baron by 'default.' On the suggestion of Tom Hooban, a trusted associate, Kohrs moved his breeding herd to the lush grasses along the Sun River, what was then known as Indian Country and perceived as the public domain. The 1870s is commonly acknowledged as the decade that the open range in Montana began. As Kohrs noted, "the cream of placer mining was past and many of our miners had followed the stampede to Nevada, White Pine and other districts. With less people in the country the demand for beef was not as great as in previous years."[61]

[58] Kohrs, *Autobiography*, 50-51; Albright, *Historic Resources Study*, 25; Speck, "History," 67-68, 71.
[59] GLO Survey, T8N R9W (1869); GLO Surveyor's Notes, T8N R9W.
[60] Albright, *Historic Resource Study*, 217; Rosenberg, "Hard Winter Endurance," 15, 35; Montana Water Rights Records, Montana Department of Natural Resources Conservation (www.dnrc.state.mt.us).
[61] Kohrs, *Autobiography*, 52, 55; James O'Barr Interview with Con Warren, April 5, 1985; Rosenberg, "Hard Winter Endurance," 17-18.

Beyond the beef ranching business, Kohrs also kept a variety of additional livestock at the home ranch during this period. Soon after Augusta arrived in 1868, the home ranch is documented as having eight milk cows, and a small band of sheep and numerous working and specialty horses that they exhibited at the regional fair. As Albright notes, "sheep apparently had a place in the operations by 1870, but never comprised a major portion of the business." By 1870, Kohrs had advertised regionally his possession of a thoroughbred horse for 'stallion service.'[62]

By 1872, substantial changes were implemented to the Kohrs-Bielenberg ranching business. John Bielenberg went to Texas to bring a herd of Longhorn stock back to the Deer Lodge Valley. Conrad Kohrs also purchased his first herd of registered Short Horn cattle from a dealer in the Midwest and sent them to his ranch at Deer Lodge. This herd was composed of half a dozen bulls and over one hundred cows and was subsequently used for breeding and improving the stock of his own herds and for sale to regional ranchers. "Bulls from my first-purchased Short Horn were used for breeding range stock, and I also purchased a whole carload of bulls in the East for service in the Sun River Country." In addition by 1874, Kohrs sold two of his registered Short Horn bulls to local ranchers. The registered Short Horn herd was regularly supplemented as reflected in additional purchases throughout the late nineteenth century.[63]

During the early 1870s there is substantial evidence that Kohrs may have expanded both hay and grain cultivation at his Deer Lodge and other regional ranches. By the end of 1872, he had acquired a ten-horse power Davenport threshing machine for use at the home ranch. In addition, the spring following the hard winter of 1872-1873, records document that Kohrs planted excelsior oats "100 pounds to the acre," presumably in an attempt to stock more winter feed for his Deer Lodge herd. This is also the period when documentation suggests that Kohrs and a Judge Manning of Deer Lodge initiated the improvement of an existing irrigation ditch dating to the Grant period. The improvements made to this ditch system would later become known as the Kohrs-Manning Ditch and the water rights were used in stock watering and irrigation. The Kohrs-Manning Ditch obtained water from the Clark Fork River just south of the home ranch and also subsequently obtained water from the smaller drainages of Peterson Creek and Reece Anderson Creek. Montana state water rights records indicate that Kohrs established water rights from Johnson Creek in 1866, and the Clark Fork River in 1872. It is presumed that ditches that drew from Johnson Creek could only have irrigated a few small meadows south of the Ranch House (HS-1), but ditches that drew from the Clark Fork River in the early 1870s could have irrigated a large expanse of riverine floodplain west of and adjacent to the Ranch House (HS-1). The Kohrs-Manning ditch system was expanded and improved upon within the home ranch lands throughout the late nineteenth century. Water rights document that Kohrs expanded his water rights to Johnson Creek and the Clark Fork River in the mid-1880s. About the same time as Kohrs began to irrigate his fields for cultivation, he also likely began to add to and or replace the pre-existing fences within the home ranch to secure his crops from stray livestock. While there are no records to substantiate it, typical ditch maintenance required the cleaning of brush on a regular seasonal basis, a process that was traditionally carried out by burning of the ditches.[64]

Kohrs' decision to expand cultivation at the Home Ranch was not an isolated one. Other ranchers and farmers in larger Deer Lodge Valley were already growing cash and grain crops on a limited

[62] Kohrs, *Autobiography*, 51; Albright, *Historic Resource Study*, 10, 23.
[63] Kohrs, *Autobiography*, 58, 72-73; Albright, *Historic Resource Study*, 28, 31, 35, 43; Kohrs, "A Veteran's Experience," 1328-1329.
[64] Albright, *Historic Resources Study*, 28-29, 32; McChristian, *Ranchers to Rangers*, np; National Park Service, "National Register of Historic Places Nomination Form: Grant-Kohrs Ranch, National Historic Site," 7-8.

scale. An 1872 assessor's report for Deer Lodge County recorded a total of 72 acres of wheat, 151 acres of barley were grown and that a total of 3,650 acres of meadow cut for hay.[65]

By 1874, Kohrs had sent his first herd of cattle to the Chicago markets and by the middle of the decade had established a long-term relationship with the Chicago beef markets, subsequently forming a partnership with the stock commissioner Joseph Rosenbaum.[66]

Despite the fact that he purchased the Johnny Grant ranch as an unsurveyed and unpatented tract of land in 1866, Conrad Kohrs did not obtain legal ownership of his home ranch property until 1874 when he initiated the homesteading process. The land patent was approved in January of 1876.[67]

Sometime between 1868 and 1880, the front or east lawn of the ranch house domestic complex was planted with a formal, grid-like pattern of cottonwood trees. The earliest image to document this planting arrangement is the 1883 Stoner *Bird's Eye View of Deer Lodge* with an insert of the Kohrs ranch house (See Figure 2-6), however the later 1884 Leeson image of the Conrad Kohrs residence published in the *History of Montana* gives much more detail (See Figure 2-7). The trees were apparently planted no later than 1880 as a letter from Conrad Kohrs to his daughter dating to the spring of 1881 documents that many if not most of the trees died during the winter of 1880-1881 and were to be replanted in the spring time. "Our trees have nearly all frozen last winter. Ande is digging them out now. We are going to plant some new ones tomorrow." Grass was apparently grown underneath the trees as the same letter notes that "our yard looks nice and green." The garden, presumably the one on the south side of the ranch house, was also noted to be present and full of flowers. "I will fix the garden all up this week and replant the strawberries." Access to the garden during this early period was from the east.[68]

It is also likely that during this period, the irrigation system that watered the front or east lawn of the ranch house and the south garden was installed. Water for the lawn and garden was obtained from a ditch that drew from Johnson Creek, a drainage south and east of the ranch house (HS-1) that drained into the Clark Fork River. The ditch passed westward under the highway and under the east picket fence enclosing the ranch house front yard, where it entered an open wooden flume for dispersion in the front lawn before re-entering the ditch where a wooden barrel was buried. A siphon drained the Johnson Creek ditch and fed water into the trough. The irrigation system on the lawn had a box running to the lilacs where it poured into a cut off barrel that was set in the ground. "Augusta would dip water from the barrel with a bucket and carry it to all the cottonwood trees on the lawn. She had to water them all by hand until they got forced water."[69]

Within the larger home ranch, substantial construction took place north of the ranch house (HS-1) in the decade of the 1870s as the cattle and horse breeding needs at Deer Lodge grew. The draft horse barn (HS-7) and oxen barn (HS-10) were erected in 1875. Also during the 1870s, three stallion barns (HS-14, HS-19 and HS-30), and the Leeds-Lyon stallion barn (HS-16) were erected."[70]

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[65] *New North West* (Deer Lodge, Montana, September 28, 1872).
[66] Kohrs, *Autobiography*, 63-64; Rosenberg, "Hard Winter Endurance," 18; Kohrs, "A Veteran's Experience," 1329.
[67] Conrad Kohrs to daughter, 5/4/1881 as cited in National Park Service, "CLI," 7.
[68] National Park Service, "CLI for Ranch House (HS-1) [2002 DRAFT]," 5.
[69] Lyndel Meikle Interview with Con Warren, May 7, 1984; Jim Taylor Interview with Con Warren, November 3, 1982.
[70] National Park Service, Historic Structure Survey Forms, Grant-Kohrs Ranch National Historic Site. Note: HS-14 was moved during 1977-1979 "thirty feet west to [its] original location in order to replace foundation". The Leeds-Lyon barn was spelled 'Leeds-Lion' in the Registration papers.

Between 1875 and 1879, western Montana witnessed a series of battles within the larger northwest between the U. S. Military and American Indian populations. As usual, the conflicts arose out of the tension between emigrating European settlers' desire for new lands and the resistance of many tribes to leave their homeland. In 1876, Sioux Indians killed Col. George Custer and over two hundred of his soldiers at Little Big Horn. A year later, in an effort to avoid going to the recently established Wallowa Reservation, Chief Joseph and his band of Nez Perce retreated from their homeland in northeastern Oregon and were ultimately captured in northern Montana. Deer Lodge and other southwestern Montana towns prepared for the retreat of Chief Joseph by arming themselves and posting lookouts. The battle of the Big Hole occurred in August 1877, only 80 miles to the south of Deer Lodge. By 1879, the Nez Perce, Sioux, Northern Cheyenne, and Crow nations had been forcibly settled on reservations.[71]

By the late 1870s, the railroads from the east were gradually making their way closer to the Plateau region. In 1877 the nearest railhead to Deer Lodge was at Pine Bluff, in southeastern Wyoming. During the same year, Father Palladino described the Deer Lodge Valley.[72]

> The traveler is treated to one of the most glorious views which fills him with wonder and delight by its surpassing beauty and impressiveness. The valley lies there smiling before him, the little town nestling in its cottonwood groves by the bank of the river. The Deer Lodge River cuts the valley in a northwesterly direction and its meandering course is made more conspicuous by the fringe of vegetation along its banks. Yonder, to the left, are the Hot Springs, while directly in front rise the bench lands which stretch back and up to the pine forests on the mountain side. And now, above the broad wooded belt, bare, bold cliffs lift up their heads, with Mount Powell, some 13,000 feet high, towering among them as a giant among pigmies; while a little to the right the eye is charmed by the snow covered crests of the Gold Creek Range.[73]

By the late 1870s, Kohrs and Bielenberg had expanded their experiment in livestock improvement through breeding of horses. In 1878, Kohrs purchased two thoroughbred stallions that were sent to the home ranch. A year later, he purchased two Clydesdale stallions and by the end of the year, "a carload of Clyde mares and two stallions" from Canada. This marked the first foray into the breeding of work horses for the ranch and farm. Breed experimentation also apparently extended to sheep as well. In 1879, the *New Northwest* noted that John Bielenberg possessed "a couple of fine Merino Rams." Merino sheep were originally bred for their fine wool, but much later were also bred for their meat qualities.[74]

Owing to a number of perceived threats, regional cattlemen formed the Montana Stock Grower's Association in 1884. Its stated goal was to protect stock from "Indians, thieves, wild animals and disease." While Indians and buffalo were largely absent from the open range, and wild animals and thieves represented only a very small part of annual losses, ranchers were most concerned with the encroachment of southern cattle herds and the potential overgrazing of the open range and risk of interbreeding and resulting dilution of stock quality that they represented. In addition, as the grazing herds began to grow, disease became a more prevalent threat to cattle ranchers of the northern plains. An outbreak of "Black Leg" occurred at the Kohrs-Bielenberg ranch in 1879,

[71] Kohrs, *Autobiography*, 68-69; Albright, *Historic Resources Study*, 41, 47; Beckham, "History Since 1846," 163.
[72] Albright, *Historic Resource Study*, 42-43.
[73] Speck, "History," 7.
[74] Kohrs, *Autobiography*, 72-73; Albright, *Historic Resource Study*, 43. Sometime after 1885, family tradition states that another breed of draft horses, Shires, were also added to the ranch house equine stock. See Albright, *Historic Resource Study*, 59; Lyndel Meikle, "GRKO Ranching Pre-1886," Subject – Sheep, nd. (Card files at the Grant-Kohrs Ranch National Historic Site Administrative Offices, Deer Lodge, Montana).

although losses were minimal. Only a few years later in 1884, Kohrs organized a meeting of local cattlemen to discuss the threat of disease to their herds brought by the cattle from Texas. They formed a committee of five to monitor the situation. [75]

By about 1880, three new structures were added to the working ranch landscape. The ice house (HS-5), the Bielenberg barn (HS-11), and a beef hoist (HS-40) were erected during the year. It is also during this period that Kohrs and Bielenberg began damming up Johnson Creek to form an ice pond during the winter. Once frozen, the ice would be cut and stored in the ice house for the coming year. It is not known where the ice pond was located, whether it was excavated, or if Kohrs and Bielenberg just used the surrounding shallow topography to retain the water.[76]

The severe winter of 1880-1881 hit regional cattle ranchers hard. The Kohrs and Bielenberg herds lost approximately 15% of their stock. In addition, many of the cottonwood trees planted in the front or east lawn of the ranch house (HS-1) were killed off. This may have been a direct result of their recent planting and the lack of a mature root system.[77]

Throughout the late 1870s and early 1880s, the regional railroads continued to press both east and westward eventually passing through the eastern Plateau region of southwest Montana. In 1883, the Utah Northern and the Northern Pacific Railroads joined at Garrison Junction, just north of Deer Lodge. Upon his return to Deer Lodge in 1882, Kohrs found that the Utah Northern railroad had proposed to run a branch line, the Montana Union from Butte to Garrison, through the Kohrs-Bielenberg Ranch directly in front of his ranch house and south towards the town of Deer Lodge. The right-of-way through his property was appraised at $5.00 per acre. “I would not accept the terms and brought suit and collected $1,500 from the railroad company.” Kohrs only granted them an easement but did not sell the land.[78]

Despite his anger with the railroad’s decision to run the line right in front of his house, Kohrs clearly took advantage of the business opportunity that the proximity of the line presented. In 1883, he supervised the first shipment of 1,100 head of cattle to Chicago via the Northern Pacific line.

Possibly as a response to the railroad and its disrupting effects on his home ranch complex, Kohrs continued to build new stock related structures. In 1883, the *New Northwest* reported that “Kohrs and Bielenberg are building two large stock barns and stables.” It is likely that one of these two structures was the thoroughbred barn (HS-15). The second may have been one of three non-extant structures, C, D or E. In addition, the buggy shed (HS-17) was erected on the eastern end of bunkhouse row (HS-2) sometime prior to this date.[79]

Shortly after the railroad initiated service to Deer Lodge, J. J. Stoner drew a “1883 Bird’s-Eye View of Deer Lodge City, County Seat of Deer Lodge Co., Montana” (See Figure 2-6). The image shows the newly constructed line with a train passing south through Deer Lodge City. Most of the landscape surrounding the dispersed town appears to be open with the exception of

[75] Rosenberg, “Hard Winter Endurance,” 37-39; Albright, *Historic Resource Study*, 44, 55.
[76] National Park Service, Historic Structure Survey Forms, Grant-Kohrs Ranch National Historic Site. Note: The frame lean-to adjacent to the ice house (HS-5) was added ca. 1912; National Park Service, “National Register of Historic Places Registration Form: Grant-Kohrs Ranch, National Historic Site,” 7-24.
[77] Albright, *Historic Resource Study*, 47; National Park Service, “CLI for Ranch House (HS-1) [2002 DRAFT],” 5.
[78] Albright, *Historic Resource Study*, 48; National Park Service, “Grant-Kohrs Ranch / Warren Ranch,” National Register of Historic Places Registration Form, (Listed 2003), 7-6; Kohrs, *Autobiography*, 74; Rex Myers Interview with Con Warren 1980, Tape 13, Side B.
[79] Albright, *Historic Resource Study*, 53; National Park Service, Historic Structure Survey Forms, Grant-Kohrs Ranch National Historic Site. Note: This structure (HS-17) was moved in 1907-1908, from the east end of Bunkhouse Row (HS-2) where it formed the eastern 2/3rds of the buggy shed, to present location to make way for the Milwaukee Railroad.

linear banks of trees lining the Deer Lodge River and its numerous drainages. The image also has an inset drawing of the Kohrs-Bielenberg Ranch. While not in great detail, the inset shows the home ranch from the southeast and shows the ranch house (HS-1), bunk house (HS-2), and the buggy shed (HS-17) and two substantial barn-like structures to the north. The east or front yard of the ranch house is planted in trees as well as what appears to be the eastern side of the ranching complex between the barn-like structures and the lines of the Utah and Northern railroad.[80]

Records suggest that during the early 1880s, Kohrs continued to expand the type of purebred livestock he kept at the home ranch in a continuing effort to improve his own stock. By 1884, Kohrs and Bielenberg had entered an Angus bull and an Ayrshire cow at the Territorial fair. The polled Angus breed was valued as a premier beef stock. The Ayrshire breed was a commercial dairy cow known for its efficient milk production and its ability to graze in pasture conditions. Also in the same year, Kohrs sold a registered Hereford bull to a local rancher. This suggests that registered Hereford bulls may have been present at the home ranch a few years earlier. Kohrs entered a number of Hereford heifers, cows, calves, yearlings, bulls in the 1885 Helena fair. Presumably after testing the Angus and Hereford purebreds for several years, by the late 1880s Kohrs and Bielenberg decided that the stock that came from Hereford bull and commercial cow cross was best suited to Montana's open range and enabled him to produce a fast growing healthy animal that would sell well in the Chicago market. Ultimately, the Angus breed may have met an unusual end in the Kohrs-Bielenberg ranching business. Con Warren related a story where Kohrs and Bielenberg brought in the first herd of Angus into the Gold Greek range lands. "When they went to round them up, they couldn't so they finally shot, butchered, and took them out that way. This was due primarily to the nature of Angus which are not as gentle as Herefords."[81]

In 1883, Kohrs and Bielenberg became one of the largest ranchers in Montana with the purchase of a 2/3 share of the DHS Ranch and 12,000 cattle with Granville Stuart. While the purchase did not have a direct impact on the project area under study, it may have had an indirect impact on the scale of operations at the home ranch. A direct result of Kohrs expanding ranching business was his participation in a number of regional stock organizations and his entry into Territorial politics. In 1884, Kohrs was named as the Deer Lodge and Meagher County representative to the Montana Stock Growers Association. That fall he was elected as a representative to the Territorial Legislature in Helena becoming a member of the 'Cowboy Legislature' [82]

Under Kohrs and Bielenberg's care, during the mid-1880s the home ranch continued to gradually expand in acreage. In 1884, they purchased the Tom Stuart place to the east of the Deer Lodge River between Deer Lodge City and the Home Ranch. Shortly after its acquisition, Kohrs and Bielenberg initiated water rights to Johnson Creek and most likely began irrigating the Stuart field. In addition to valuable crop lands and access to Johnson Creek, the Stuart complex also possessed several structures including a domestic residence, well, and agricultural outbuildings. By 1885 Kohrs and Bielenberg had also purchased a quarter of a quarter section (160 acres) from Charles Bielenberg, adjacent to the home ranch.[83]

By 1884, the Kohrs-Bielenberg home ranch was again pictured in an illustration by M. A. Leeson and published in the *History of Montana* (1885) (See Figure 2-7). The illustration shows the ranch house (HS-1), bunk house (HS-2), and buggy shed (HS-17) from the east and is titled "Residence

[80] J. J. Stoner, "1883 Bird's Eye View of Deer Lodge City, County Seat of Deer Lodge Co., Montana" (Milwaukee: J. J. Stoner, 1883).
[81] Albright, *Historic Resource Study*, 56, 58; Holm/Haviland Interview with Con Warren, December 1, 1976.
[82] Albright, *Historic Resource Study*, 52-53, 58, 61.
[83] Albright, *Historic Resource Study*, 57, 61; Winifred Brown, "Trip to Grant-Kohrs Ranch National Historic Site," 1-2. Memorandum to Wilfred D. Logan, April 25, 1975.

of Conrad Kohrs, Deer Lodge, Mont. Kohrs & Bielenberg, Breeders of Short-Horn & Hereford Cattle, Thoroughbred, Clydesdale, Percheron-Norman, and Coach Horses." The image shows a partially obscured ranch house with formal entryway that is dominated by a formal grid-arranged planting of cottonwood trees. The ranch house is encircled on its east and north sides by a white picket fence. A path leads from the front door of the ranch house down a short tree-lined alley to a formal gate in the fence line. Just outside the fence line is a frame mounting or carriage block and two hitching posts. A secondary path leads from the front door of the ranch house around to the north or work side of the structure and through a second gate. The trees in the front yard appear to be of varying size, the tallest of which line the front path. Many of them appear to be relatively immature suggesting that they had been in the ground only a few years. Immediately to the north of the ranch house is the bunkhouse complex. The ranch house and bunk house and buggy shed complex are separated by a wagon road or farm lane that is gated, presumably to control circulation. Behind and to the north of the bunk house complex is a series of barns / sheds / pens and jack-legged fenced corrals. East of the domestic compound and in the foreground of the image are what appear to be several thoroughbred horses, some with riders, and a few Short Horn or Hereford cattle. At least one of the horses is a Clydesdale. West and north of the ranch house, yet east of the Clark Fork River is a fenced field with a few cattle grazing near what appears to be a fenced hay pile. The Clark Fork River appears as a tree lined slip in the background. To the west of the Clark Fork River and in the foothills and butte slopes are numerous cattle grazing on a fenced range.[84]

Between 1868 and the mid-1880s, the Ranch House (HS-1) and its surrounding domestic landscape underwent a dramatic transformation from a relatively rustic abode to a more civilized residence reflecting domestic refinement. Augusta Kohrs clearly had a prominent role in its overall development and was likely directly responsible for layout, design and seasonal maintenance of the vernacular south (ca. 1880) and lower flower (ca. 1890) gardens. It is also likely that both Con and Augusta contributed to the design and construction of the more formal front or eastern yard, including the planting of cottonwood trees and lawn and construction of a white picket fence. Records indicate that Kohrs himself supervised the re-planting of a majority of cottonwood trees in 1881 while Augusta and children were out of the country, but that the white picket fence may not have been built until 1883-1884, after Augusta returned. Augusta continued to maintain both gardens and the front lawn and trees well into the second quarter of the twentieth century. By the end of the nineteenth century, historic photographs also document that the lower ranch yard immediately adjacent to and west of the ranch house (HS-1) was congested with agricultural and ranching outbuildings and a complex of fences and roads (See Figures 2-9 through 2-17).[85]

As Walter has documented, the 'hard winter' of 1886-1887 may not have been the most severe in terms of low temperatures and snowfall amounts and cannot be seen as an isolated event. Rather it is directly linked to events that preceded it, most particularly the overgrazing of the open ranges since the early 1880s. The winter did, however, have a dramatic impact on the Montana cattle industry and the future direction that ranching would take in the coming decades. The winter of 1886-1887 had followed a prolonged spring and summer drought that impacted the quality and quantity of winter feed harvested from fields, and also the quantity and quality of grass on the open range. Early spring counts documented that open range cattle died by the tens of thousands on the Plateau valleys and northern plains. As a result of the substantial losses, many

[84] M. A. Leeson, *History of Montana*, (M. A. Leeson, 1985).
[85] Shapins Associates, "Grant-Kohrs Ranch National Historic Site, Historic Structure No. 1 (HS-1), Cultural Landscape Inventory," 70% Draft, 2003, 11-12.

bankruptcies occurred. Losses to the recently acquired DHS herd were near 66%. The home ranch and its smaller registered herds however survived the winter well enough.[86]

Landscape Characteristic by Chronological Period

Natural Systems and Features

Trees	To escape the intensive summer heat in a nearly treeless landscape, Conrad and Augusta plant many trees on the front or east side of the ranch house.
Water resources	Water sources were important to early European settlers and frequently dictated where permanent settlement would occur. Like Grant before him, Kohrs utilized the existing permanent and seasonal drainages by digging irrigation ditches draining off of them for agricultural purposes, and to provide his animals with a potable drinking supply.
Timber resources	Prior to the arrival of the train, Conrad Kohrs continued to use the regionally abundant timber resources, such as cottonwood and willow trees located along area drainages, and other non-deciduous species located on mountain sides surrounding the Deer Lodge Valley in developing his ranch.

Spatial Organization

Formal domestic space	After their marriage, and sometime between 1868 and 1881, Conrad and Augusta Kohrs defined a formal domestic space surrounding their ranch house by constructing a picket fence and planting trees, grass and a garden. This space was differentiated from the larger working ranch.
Fields	Fields under cultivation were adjacent to or nearby local drainages due to the richer bottomland soils, and the ability to irrigate crops. Dryland farming was not a viable option in western Montana.

[86] Albright, *Historic Resource Study*, 65-75; Dave Walter, "The Hard Winter of 1886-1887: Was that Winter a Century ago really Montana's 'big one' of all time?," *Montana Magazine* (January-February 1987), 61-68.

Garden	Sometime between 1868 and 1881, Conrad and Augusta Kohrs planted a flower garden just south of and adjacent to their residence.

Land Use

Grazing	Kohrs and Bielenberg used portions of the home ranch as an open range upon which to graze their growing cattle herds.
Agriculture	Kohrs and Bielenberg practiced a limited agriculture in irrigated fields. Wheat, oats and hay were farmed on a small scale and used as livestock feed to supplement open range grazing.
Settlement	The Kohrs-Bielenberg Ranch was one of many ranch / residential properties spread throughout the larger Deer Lodge valley.

Cultural Traditions

Irrigation Ditches	Between 1866 and 1887, Kohrs and Bielenberg expanded upon and improved the existing irrigation ditch system initiated by Johnny Grant.
Jack-leg fencing	An 1884 sketch of the residence of Conrad Kohrs by M. A. Leeson documents that jack-leg fences continued to be used at the ranch.

Cluster Arrangements

North ranch cluster	Over the period of two decades, Kohrs and Bielenberg constructed a large cluster of stock barns, sheds, corrals and pens just north of bunkhouse row (HS-2). This appears to be the earliest cluster of working ranch facilities within the project area.
Bielenberg cluster	A second cluster of ranch buildings was constructed southwest of the ranch house (HS-1) from the mid-1870s onward and consisted primarily of horse related facilities including the Bielenberg barn (HS-11) and four surrounding stallion barns (HS-14, HS-16, HS-19 and HS-30).

Circulation

Mullan Road	An 1868 GLO survey and plat of T8N R9W shows the location of the Mullan Road, north of the small town of Deer Lodge.
Valley Road Network	An 1868 GLO survey and plat of T8N R9W shows the location of two county roads leading north from Deer Lodge City to their intersection with the Mullan Road, one west of and adjacent to the Deer Lodge River and one east of the Kohrs residence, passing directly through the project area.
Ranch entrance road	Nineteenth century images of the Kohrs residence document a short entrance road that lead from the county road west towards the east side of the ranch. The road passed between the ranch house (HS-1) and the bunkhouse (HS-2).
Ranch house walks	Sometime between 1868 and 1881, Conrad and Augusta Kohrs constructed plank and later brick paths leading from the front door of the ranch house to the eastern gate in the picket fence, and around the north side of the house.
Utah Northern railroad	In 1883, the Utah Northern railroad laid its tracks through the Kohrs-Bielenberg Ranch just east the ranch house.

Vegetation

Cottonwood trees	Sometime between 1868 and 1881 a formal grid-like pattern of cottonwood trees was planted on the east or front side of the ranch house. In 1881, those trees that did not survive the winter were replaced.
Grass	Sometime between 1868 and 1881 grass was planted beneath the cottonwood trees on the east or front side of the ranch house.
Crops	Conrad Kohrs cultivated oats, hay and other important grains most likely in fields located in the rich bottom lands adjacent to the Deer Lodge River.
Flowers	The small garden south of and adjacent to the ranch house produced flowers for the Kohrs family.

Buildings and Structures

Draft horse barn (HS-7) built	Kohrs and Bielenberg construct the draft horse barn (HS-7) ca. 1875.
Oxen barn (HS-10) built	Kohrs and Bielenberg construct the oxen barn (HS-10) ca. 1875.
Leeds-Lyon stallion barn (HS-16) built	Kohrs and Bielenberg construct the Leeds-Lyon stallion barn (HS-16) ca. 1870s.
Stallion barn (HS-14) built	Kohrs and Bielenberg construct the stallion barn (HS-14) ca. 1870s.
Stallion barn (HS-19) built	Kohrs and Bielenberg construct the stallion barn (HS-19) ca. 1870s.
Stallion barn (HS-30) built	Kohrs and Bielenberg construct the stallion barn (HS-30) ca. 1870s.
Ice house (HS-5) built	Kohrs and Bielenberg construct the ice house (HS-5) ca. 1880.
Bielenberg barn (HS-11) built	Kohrs and Bielenberg construct the Bielenberg barn (HS-11) ca. 1880.
Beef hoist (HS-40) built	Kohrs and Bielenberg construct the beef hoist (HS-40) ca. 1880.
Thoroughbred barn (HS-15) built	Kohrs and Bielenberg construct the thoroughbred barn (HS-15) ca. 1883.
Buggy shed (HS-17) built	Kohrs and Bielenberg construct the buggy shed (HS-17) ca. 1883 or earlier. HS-17 was originally part of HS-2.
Cow stable (Non-extant structure D) built	Kohrs and Bielenberg construct the cow stable (non-extant structure D) sometime prior to 1883.
Front porch addition (HS-1)	Conrad Kohrs constructs a formal front porch to the eastern side of the ranch house (HS-1) sometime between 1866 and 1883. The new porch encompasses the front door and each window on either side.

Constructed Water Features

Kohrs-Manning Ditch	Conrad Kohrs and Judge Manning of Deer Lodge began to improve and extend a ditch system within and beyond the Kohrs-Bielenberg that was initiated by Johnny Grant in the early

	1860s. The new ditch system became known as the Kohrs-Manning Ditch. It drained the Deer Lodge River and adjacent minor drainages.
Front lawn irrigation system	Sometime between 1868 and 1881 an irrigation system was constructed on the eastern or front lawn of the ranch house. Water for the system was obtained from a ditch that drained Johnson Creek. The water was distributed to the front lawn by a wooden flume that drained into a half-barrel set into the ground. The irrigation system watered the front lawn and cottonwood trees.
Small-Scale Features	
Mounting block placed	An 1884 sketch of the residence of Conrad Kohrs by M. A. Leeson documents that a mounting block was placed in front of the eastern gate in the picket fence in front of the ranch house.
Horse ties placed	An 1884 sketch of the residence of Conrad Kohrs by M. A. Leeson documents that two horse ties were placed on either side of the eastern gate in the picket fence in front of the ranch house.
Picket fence erected	An 1884 sketch of the residence of Conrad Kohrs by M. A. Leeson documents that a picket fence surrounded the ranch house on its northern, eastern and southern sides.
Picket fence erected	An 1884 sketch of the residence of Conrad Kohrs by M. A. Leeson documents that a short picket fence controlled entrance and egress along the ranch entrance road that ran between the ranch house (HS-1) and the bunkhouse (HS-2).
Jack-leg fence erected	An 1884 sketch of the residence of Conrad Kohrs by M. A. Leeson documents that jack-leg fencing demarcated corrals adjacent to livestock structures and fenced larger pasture lands.
Post and rail fence erected	An anonymous 1866 sketch of Conrad Kohrs residence documents a post and rail fence to the north and east of the ranch house. Cattle appear both in front and behind the fence and its purpose is not known.

Archeological Sites[87]

Dump site (24PW651)	A dump site located near the Museum Storage building may be associated with the historic Tom Stuart property and could date to the last quarter of the nineteenth century, or later.

[87] More updated information on archeological resources is available in the new DRAFT Archeological Survey for Grant-Kohrs NHS.

The Decline of the Open Range and Dissolution of the Kohrs-Bielenberg Ranch, 1887-1922

"The Cattle Industry, as it existed a quarter of a century ago, is no longer possible."
(Conrad Kohrs, "A Veteran's Experience," 1401)

Introduction

Conrad Kohrs and John Bielenberg spent the next decade recovering from the winter of 1886-1887. While open range operations continued after 1887, like many other regional ranchers, Kohrs and Bielenberg began to plant and harvest more hay, and purchase additional winter feed to supplement what the open range could still provide. In addition, they also began to purchase substantial additional lands, adding to the home ranch and acquiring other Montana and northwest plains properties eventually accumulating over 25,000 acres. Due to the expansion of homesteading on the open range and the age of both Kohrs and Bielenberg, by the second decade of the twentieth century the ranch had begun to gradually liquidate its holdings.

Historical Context

Kohrs and Bielenberg's recovery from the previous winter's losses was relatively swift. Rebuilding his several herds took a number of years and was aided in part by a substantial loan and the kindness of creditors. However just as importantly, Kohrs' determination, hard work and astute cattle purchases made the recovery possible. Between 1888 and 1889, Kohrs made numerous trips to Washington, Oregon and Idaho to replenish his stock. [88]

In addition to replenishing his range stock, Kohrs began monitoring more closely the purebred cattle at the home ranch at the same time increasing the hay he purchased and the winter feed he could raise there. He also began the slow process of acquiring more grazing land adjacent to the home range. An advertisement in the *New Northwest* in May of 1887 announced that Kohrs and Bielenberg had cross-bred polled Angus, Short Horn Heifers, cross-bred Hereford and Short Horn Heifers for sale or lease "owing to being overstocked and our limited home range. …It being a condition of such lease that the leasee shall have good range, sufficient hay and facilities to keep the breeds distinct [sic]." By 1890, Kohrs and Bielenberg had added approximately 7,705 additional acres to the home range. 5,630 acres were purchased from the Northern Pacific railroad, and 1,435 were appropriated under the Desert Lands Act of 1877. This act allocated up to 640 acres per individual with the requirement that the land would be irrigated within three years after purchase. The remaining 640 acres were acquired from half-brother Charles Bielenberg.[89]

Adjacent to the Deer Lodge home ranch and on its southwest side was the Kading property. In November of 1887, the West Deer Lodge Water Company was incorporated. C. J. Kading and six other individuals began the excavation of what would become known as the West Side Ditch. The ditch drew water from the Clark Fork River just south of the project area. Only two years later, the West Deer Lodge Ditch Company had built a ditch, dam, and flumes and claimed the water rights from it. The West Side Ditch Company was created in 1891 to provide water for agricultural, domestic and mining purposes. It acquired all the rights of the former West Deer Lodge Ditch Company.[90]

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[88] Albright, *Historic Resource Study*, 77-80; Kohrs, *Autobiography*, 86-88; Kohrs, "A Veteran's Experience," 1329.
[89] Albright, *Historic Resource Study*, 77; Rosenberg, "Hard Winter Endurance," 47.
[90] State Engineer's Office, *Water Resources Survey, Powell County, Montana. Part 1: History of Land and Water Use on Irrigated Areas*, 38 (Helena: State Engineer's Office, 1959); Scott Jackson to Douglas McChristian, February 27, 1997,

In 1888, the Northern Pacific Railroad acquired the Utah Northern railroad. A year later, Montana was admitted to the Union and became the 41st state. Joseph K. Toole was elected the first governor of the new state.[91]

In 1890, Kohrs constructed a major brick addition to the west side of the ranch house (HS-1) (See Figure 2-18). The addition included an east-west oriented two-story structure with full basement, living and dining rooms, kitchen, pantry and bedrooms. A furnace provided heat, a hydraulic ram brought in running water, and a carbide gas generator allowed gaslights to displace kerosene lamps in the home. Two years later, the entire ranch house was electrified. Three (brick?) cisterns, presumably dating to this period, are known to be buried adjacent to the ranch house (HS-1) and the garage / blacksmith shop (HS-3), although their exact date of construction is unknown. One is located just south of HS-1, a second adjacent to and south of the HS-1 porch, and a third just east of HS-3. During the same year the machine shed (HS-12) and granary (HS-18) were also erected. The granary was constructed on skids and designed to be moveable.[92]

It is likely that the lower yard area, including the lower garden, was also developed during the early 1890s after the construction of the rear brick addition. Augusta's lower garden reflected popular Victorian horticultural influences, including symmetrical plantings, geometric bed designs, and brightly colored annuals (See Figure 2-18).[93]

The winter of 1892-1893 was another hard one. Many local ranchers lost cattle while over wintering on the open range. Perhaps in response to the need for a greater stock of winter feed, John Bielenberg ordered 1,000 lbs. of Timothy seed and 10,000 lbs. of bran and shorts, presumably for use in the fields of the home ranch. The following year in 1894, Kohrs ordered 500 lbs. of red clover seed. However the decision to acquire new fields and place them under cultivation meant that these fields also had to be fenced. In 1893, Kohrs ordered 25,000 feet of barbed wire to fence his fields and pastures.[94]

Deer Lodge City formally shortened its name to Deer Lodge in 1894. During the same year, the first smelter at the Anaconda mine was built upriver from Deer Lodge and the Kohrs-Bielenberg Ranch.[95]

Between 1895–1900, Kohrs and Bielenberg continued to acquire substantial acreage surrounding the home ranch. Acreage was acquired for two primary purposes, to increase range land but also to acquire access to water sources and water rights for irrigation purposes. During this period, they acquired 11,311 acres of land adjacent to the home range. In addition, in 1899 they also purchased 14,000 acres of 'scrip' from homesteaders and redeemed them with Forest Service for thousands of acres of grazing land in the public domain. Grazing on government owned land was to become more important to ranchers particularly during the early twentieth century as it allowed them to substantially expand the carrying capacity of their ranches.[96]

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electronic mail communication; Cultural Landscape Inventory, "List of Landscape Features by Date and Era," (1997), np; McChristian, *Ranchers to Rangers*, np.

[91] National Park Service, "Grant-Kohrs Ranch / Warren Ranch," National Register of Historic Places Registration Form, 7-9.

[92] Albright, *Historic Resource Study*, 81; Jim Taylor Interview with Con Warren, November 3, 1982; National Park Service, Historic Structure Survey Forms, Grant-Kohrs Ranch National Historic Site. Note: The machine shed (HS-12) was moved in 1907 out of the right-of-way of the Milwaukee Railroad.

[93] Shapins Associates, "HS-1 Cultural Landscape Inventory," 12.

[94] Rosenberg, "Hard Winter Endurance," 54-55, 59-60, 60 notes.

[95] Kohrs, *Autobiography*, 96.

[96] Rosenberg, "Hard Winter Endurance," 59-61. Scrip was a document or receipt that verified the holder was entitled to receive an allotment of land. Its sale transferred that right to the purchaser.

Kohrs-Bielenberg records during this period document that the ranch began to sell more purebred Hereford calves. Rosenberg has noted that this represents the gradual transition from a steer or breeding bull operation to a cow and calf operation and an astute expansion of business.[97]

In 1899, Con and Augusta moved from Deer Lodge to Helena renting a townhouse there. John Bielenberg remained at the home ranch and continued to run the operations there. A year later, Kohrs purchased the same house. Con and Augusta continued to return to Deer Lodge for summers. Circa 1905, the wooden boardwalk paths surrounding the Ranch House (HS-1) were likely replaced with brick pavers.[98]

Sometime between 1890 and 1900, the conservatory addition to the south side of the ranch house (HS-1) was built. While it is likely that the conservatory addition was built before Conrad and Augusta Kohrs moved to Helena, the earliest documentary evidence, a dated historic photo, places the construction ca. 1900 or earlier.[99]

In 1900, a feed rack (HS-42) and a privy (HS-20) were erected. The privy was originally located at the west end of the ranch house (HS-1) but was moved to its present location in the early twentieth century.[100]

In 1901, Con and Augusta's daughter Katherine married Dr. Otey Y. Warren. Six years later, Conrad Kohrs Warren was born to Katherine and Otey. In October of the same year, Dr. Otey Warren died.[101]

Kohrs and Bielenberg continued to acquire land adjacent to the home ranch into the early twentieth century. Between 1900-1903, they acquired several hundred acres. By 1908, the total acreage surrounding the home ranch was approximately 22,307.[102]

While beavers had been largely extirpated from the Deer Lodge Valley for nearly a century, the few beavers that survived were noted to create problems with the extensive irrigation system and lowland fields and pasture on the Kohrs-Bielenberg ranch. Former employees recalled that in the first few decades of the twentieth century breaking up beaver dams was a periodic practice for ranch hands "otherwise, it would flood these fields."[103]

The general roundup of 1904 was the last large pooled effort on extensive open range lands by regional ranchers. After this date, only limited open range was used by ranchers. Perhaps in response to the decline of the open range, Kohrs and Bielenberg fenced approximately 30,000 acres of ranch land at the home ranch. "They had a little steam pile driver out there driving posts in and putting barbed wire. They had miles and miles of barbed wire around." Every subsequent fall "they made a ton of hay for every cow or beef animal they had on the place, which meant 30,000 tons of hay" (See Figure 2-19).[104]

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[97] Rosenberg, "Hard Winter Endurance," 58.
[98] Kohrs, *Autobiography*, 98; Albright, *Historic Resource Study*, 88; Shapins Associates, "Grant-Kohrs Ranch National Historic Site, Historic Structure No. 1 (HS-1) Cultural Landscape," 70% Draft, 15.
[99] Shapins Associates, "HS-1 Cultural Landscape Inventory," 41; Lyndel Meikle, email communication, August 29, 2003.
[100] National Park Service, Historic Structure Survey Forms, Grant-Kohrs Ranch National Historic Site.
[101] William Wallace Warren, "An American Family Called Warren" (Ms. on file at the Grant-Kohrs Ranch National Historic Site Library, Deer Lodge, Montana), 103.
[102] Albright, *Historic Resource Study*, 92, 96, 99.
[103] Rex Myers Interview with J. H. 'Harry' Gehrmann, January 4, 1982.
[104] Albright, *Historic Resource Study*, 96-98; Meikle, "GRKO: Ranching; Kohrs: 1887-1922," Subject – 1904 Roundup; Rex Myers Interview with J. H. Gehrmann, January 4, 1982. The 30,000 tons of hay was a cumulative total that was produced on all Kohrs and Bielenberg lands. A portion of this hay was brought to the home ranch to supplement the operations.

In advance of a proposed expansion line to the Anaconda Mine, the Northern Pacific Railroad drew a map of the proposed right of way through the Kohrs-Bielenberg Ranch, one that paralleled their pre-existing line (See Figure 2-20). Although it only shows structures that immediately surrounded the ranch house (HS-1), the 1907 map is the first detailed plan of the home ranch. The plan shows the existing Northern Pacific line and the location of the proposed Milwaukee Railroad extension. Also shown is the ranch house (HS-1) with its western and smaller northern and southern additions. Immediately adjacent to and north of the ranch house is bunkhouse row (HS-2) that appears as a single joined structure with the buggy house (HS-17) on its eastern end, and a chicken house (non-extant structure G) to the rear of its western end. Between the ranch house and bunkhouse row is an ice house (HS-5). To the rear and north side of bunkhouse row are roughly square fenced pens or lots. To the southwest of the ranch house is what is labeled a cow barn (HS-15). To the north of the bunk house row are two additional complexes. The first is composed of a cow barn (non-extant structure E), a horse stable (HS-7) with lean-to cow stable addition, and a separate free-standing cow stable (HS-10). To the rear and north of these stables is a relatively small fenced area. To the east of this is a larger fenced complex of which a horse stable [barn] (HS-11), open cow shed (non-extant structure C), and cow stable [barn] (non-extant structure D) form its western, northern, and eastern perimeters respectively. Abutting the north side of the open cow shed is another structure, the machine shed (non-extant structure B). Further north of these structures and in the direct right-of-way of the proposed new line is pictured another machine shed (HS-12). While fencing types are not labeled, most of the fencing surrounding the livestock structures may be jack-leg if only due to their presence near the domestic complex. A second fence type, presumably a picket fence, encloses the ranch house and garden on its northern, eastern and southern sides. Additional fenced fields and pastures are shown south of the ranch house domestic complex.[105]

Between 1907 and 1909, several new structures and additions were added to the home ranch. In 1907 two feed racks (HS-37 and HS-38) were erected. Circa 1908-1909, the cow shed (HS-13) was also erected.[106]

In the spring of 1908, a torrential rainfall caused substantial flooding of nearly every drainage in the Deer Lodge Valley. Perhaps as a future omen, the *Silver State* reported that "thousands of acres of meadow lands adjacent to the Deer Lodge [Clark Fork River] in this valley have been inundated by the present high water. The tailings form the Anaconda smelters will no doubt be spread over and settled on them, thus at least this year's hay and grain crop will be practically valueless. The high land farmer is certainly in it this year." [107]

By 1909, the Pacific Coast expansion line of the Milwaukee Railroad had extended its lines (HS-56) through the Kohrs-Bielenberg Ranch and Deer Lodge to the Anaconda Mine. As a result of its construction, three structures were removed altogether and two others were relocated. Half of the buggy shed (HS-17) was moved from its original location on the east end of bunkhouse row to the ranch house yard behind the present coal shed (HS-4), leaving the other half, the upper buggy shed (HS-2) in its original location. The machine shed (HS-12) was also moved westward out of the right of way of the railroad line. A machine shed (non-extant structure B), open cow shed (non-extant structure C), and cow stable (non-extant structure D) were taken down. The

[105] Chicago, Milwaukee, and St. Paul Railway of Montana, "A Partial Map of Deer Lodge Townsite and N.P.RY. Station Grounds, Powell County," Prepared by the Office of the Division Engineer, Northern Pacific Railroad, February 25, 1907 (Ms. on file at the Grant-Kohrs Ranch National Historic Site Library and Archives, Deer Lodge, Montana); Albright, *Historic Resource Study*, 99-100, 185-188.
[106] National Park Service, "Grant-Kohrs Ranch / Warren Ranch," National Register of Historic Places Registration Form, 7-18; National Park Service, Historic Structure Survey Forms, Grant-Kohrs Ranch National Historic Site.
[107] *Silver State* (Deer Lodge, Montana, June 10, 1908), Vol. 19, No. 5.

Milwaukee Railroad also built a siphon (HS-57) that ran east west beneath their tracks and a siding for the Kohrs-Bielenberg Ranch just north of where the pump house (HS-86) is located. The Milwaukee Railroad excavated and loaded gravel there for use in the construction of its road bed. After the gravel pit was abandoned, the Milwaukee Railroad piled old railroad cars into the pit after stripping them of their running gear. The cars were then burned leaving scrap metal and other debris. The railroad eventually cleaned up the area.[108]

In 1974, J. H. Gehrmann drew a plan of the Kohrs-Bielenberg Ranch from memory of what the central domestic and ranching complex looked like in 1904. The map appears to be accurate in terms of the general location of buildings and features, but may also incorporate information from the post-1909 period, after the Milwaukee Railroads line came through the project area. The map he drew noted that the northern portion of the ice house (HS-5) was used as a slaughterhouse. It is not clear whether this was a separate structure that abutted the ice house, or an addition built onto its northern end (See Figure 2-21). [109]

In 1909, Congress authorized the Enlarged Homestead Act. This act enabled potential settlers to settle up to 320 acres of land if they cultivated at least 1/8 of it in agricultural crops other than native hay. Three years later in 1912, the period for proving a homestead was reduced from five to three years. A direct result was that between 1909 – 1920s a substantial number of "nesters" or "dry farmers" emigrated to the northern plains of Montana. Many of them eventually settled on the open ranges formerly used by cattle ranchers. By the mid-19-teens, the open range had become "pretty well fenced." Looking back on this period of open range decline, Conrad Kohrs did not seem particularly bitter but had a rather fateful perspective.[110]

> The decline of the range cattle industry in the Northwest dates from the inception of the dry-farming era several years ago. Settlers have swarmed over the range, forcing a majority of those who were previously engaged in the cattle business to [illegible] because of inadequate pastures. During the last four years, owing to an unusual rainfall nearly all over the area dry farmers have met with marked success. …As a general thing crops have been bountiful but my long experience in the [illegible] warrants the prediction that unless the climate has permanently changed much disappointment is ahead for the dry farmers.[111]

The turn to raising increasingly more winter feed crops from the last decade of the nineteenth century into the early twentieth century and the stimulation that World War I gave to wheat prices necessitated a need for regional grain processing equipment. Circa the 19-teens Ben Goldie, a local farmer in Deer Lodge Valley, purchased a 32-inch separator and steam engine. His mechanized thresher served the needs of the entire valley." There wasn't a whole lot of grain raised in this valley, but there was enough so that he used to get his outfit together. And he'd start out about the middle of August, and he'd go clear up to Anaconda, and then he'd thrash everybody all the way back down to Deer Lodge. …He thrashed the whole valley for, gee, I don't know, 35 or 40 years" (See Figures 2-22 through 2-26).[112]

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[108] *Cottonwood Chronicle* (Deer Lodge, Montana, June 10, 1908), Vol. 2, No. 1, 1, 8; National Park Service, "CLI," Revised Draft, 8;Bill Stalker Interview with Con Warren, 12/1989.
[109] J. H. Gehrmann, "Kohrs Ranch 1904. Drawn from Memory in 1974" (1974). GRKO 15999 Series 1, Tape 7, Harry Gehrmann with Rex Meyers, January 4, 1982; Map dates 1974 (Ms. on file at the Grant-Kohrs Ranch National Historic Site Library, Deer Lodge, Montana)
[110] Rosenberg, "Hard Winter Endurance," 61; Marie MacDonald, *After Barbed Wire: A Pictorial History of the Homestead Rush into the Northern Great Plains, 1900-1919* (Glendive, Montana: The Frontier Gateway Museum, 1983), 5; Warren, "American Family," 12.
[111] Kohrs, "A Veteran's Experience," 1399.
[112] Rex Myers Interview with Con Warren, 1980, Tape 5, Side B.

Between 1910 and 1915, several new structures were erected at the home ranch. In 1910 the metal granary (HS-23) was erected. The structure was moved to its current location ca. 1935. Two years later a frame lean-to addition to the ice house (HS-5) was constructed. Lastly in 1915, the coal shed (HS-4) was erected.[113]

Sometime during the 19-teens, the Kohrs-Bielenberg Ranch maintained chickens and a flock of turkeys. Helen L. Jorgenson, a housekeeper for Augusta Kohrs, was allowed to have a flock of turkeys at the home ranch while she worked there. A turkey house was constructed sometime during this period and was located near the chicken house (non-extant structure G) and the granary (HS-6).[114]

By 1916, the line of the Milwaukee Railroad that ran through the Kohrs-Bielenberg Ranch was electrified with a 3,000 volt DC system.[115]

In 1919, a severe drought hit the Deer Lodge Valley. The drought virtually ceased the homestead rush for land in Montana's northern plains however it also directly impacted operations at the home ranch. When the spring supplying water to the ranch house via a hydraulic ram went dry, Kohrs was forced to dig a well in the basement of the Ranch House. Because of the dry springs and the constant use of the hydraulic ram, Con Warren later remembered that the entire area north and west of the ranch house (HS-1) was "dry" when he was growing up.[116]

After the death of Con and Augusta's only son in 1901, the Kohrs and John Bielenberg slowly began to prepare for the eventual closing of ranching operations. In 1908, Con, Augusta and John formed a corporation called the Kohrs and Bielenberg Land and Livestock Company that owned the Kohrs-Bielenberg Ranch. Dissolution of the substantial land holdings of the Kohrs-Bielenberg Ranch proceeded informally and swiftly in the 19-teens, prompting Conrad Kohrs to note that "by 1915 we had all sold except remnants." With the exception of approximately 1,000 acres surrounding the home ranch and stock from the Helena Hereford herd, by 1924 the Grant-Kohrs Ranch had been nearly entirely dispersed. The Kohrs and Bielenberg Land and Livestock Company was fortunate to sell off a majority of their lands prior to the onset of the depression effected prices.[117]

Sometime prior to 1920, a smoke house was constructed in the approximate location of the extant coal shed (HS-4). Con Warren remembered being told about the smokehouse. "They had a smokehouse right where the coalhouse is in back of the house there. They had a smokehouse there, but it burned down. …Johnnie described it to me as a big tall building. Not too big, probably ten feet square, at the bottom, and then it ran up two stories, I guess, and they had a ladder in there. …Then they used that smokehouse to smoke the hams and bacons in."[118]

Conrad Kohrs died in 1920 at the age of 85. Shortly thereafter, in 1922 both John Bielenberg and John Boardman died. The Conrad Kohrs Trust Company, with Augusta Kohrs as president, took over active management of the ranch.[119]

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[113] National Park Service, Historic Structure Survey Forms, Grant-Kohrs Ranch National Historic Site.
[114] Chris Ford Interview with Jean Dell and Gladys Sheriff, August 31, 1998; Albright, *Historic Resource Study*, 210.
[115] *Cottonwood Chronicle* (Deer Lodge, Montana, June 2002), Vol. 1, No. 2, 8.
[116] Conrad Kohrs to John Bielenberg, June 16, 1917; MacDonald, *After Barbed Wire*, 5; Rex Myers Interview with Con Warren, 1980, Tape 11, Side B; Jim Taylor Interview with Con Warren, November 3, 1982.
[117] Albright, *Historic Resource Study*, 98-99, 101-104; Kohrs, *Autobiography*, 99.
[118] Rex Myers Interview with Con Warren, 1980, Tape 11, Side B.
[119] Albright, *Historic Resource Study*, 103; Rex Myers Interview with Con Warren, 1980, Tape 6, Side B.

Circa 1915-1922, the furnace in the ranch house was converted from wood to coal.[120]

A gravel / sand pit located north of and adjacent to the Deer Lodge cemetery may have been initiated ca. 1921. Ole Berg, an employee who worked for Con Warren, remembered that sand was removed from the pit.[121]

Landscape Characteristics by Chronological Period

Natural Systems and Features

Water resources	Kohrs and Bielenberg continued to utilize the existing permanent and seasonal drainages by constructing new, and cleaning and maintaining old irrigation ditches.
Cisterns dug	In response to the arid environment of western Montana, Kohrs and Bielenberg constructed underground cisterns, ca. 1890, surrounding the ranch-house in an effort to conserve valuable water.
Well dug	In response to a prolonged drought ca. 1919, Kohrs and Bielenberg dug a well in the basement of the ranch house (HS-1).

Spatial Organization

Formal domestic space	The formal domestic space surrounding the ranch house and defined by a picket fence and trees, grass and garden continued to differentiate the private / family sphere from the larger working ranch.
Agriculture	Fields under cultivation were placed adjacent to or nearby local drainages due to the richer bottomland soils, and the ability to irrigate crops. Dryland farming was not a viable option in western Montana.
Garden	Augusta Kohrs continued to maintain the flower garden just south of and adjacent to the ranch house (HS-1).

Land Use

Mining	A gravel / sand pit north of and adjacent to the Deer Lodge cemetery was likely initiated ca. 1921.

[120] Micki Farmer Interview with Con Warren, May 5, 1978.
[121] Cheryl Clemmensen to Jack Yates, Abandoned Mine Specialist, February 23, 1993.

Grazing	Kohrs and Bielenberg use parts of the home ranch as an open range upon which to graze their growing cattle herds.
Agriculture	Kohrs and Bielenberg expanded their agricultural production at the home ranch. Wheat, oats and hay was farmed and was used as livestock feed to supplement open range grazing. Timothy and clover was also cultivated.
Settlement	The Kohrs and Bielenberg Ranch was one of numerous settlements spread throughout the larger Deer Lodge valley.

Cultural Traditions

Irrigation Ditches	Between 1887 and 1922, Kohrs and Bielenberg continued to maintain, use and expand their extensive irrigation ditch system.
Jack-leg fencing	Between 1887 and 1922, Kohrs and Bielenberg continued to use and maintain traditional jack-leg fencing throughout their ranch.

Circulation

Milwaukee Railroad line	The Milwaukee Railroad constructs a line through the Kohrs-Bielenberg Ranch west of and adjacent to the existing Northern Pacific Railroad line ca. 1908-1909.

Vegetation

Crops	Kohrs and Bielenberg continued to cultivate oats, hay and other important grains including red clover. The cultivated fields were most likely located in the rich bottom lands adjacent to the Deer Lodge River.
Flowers	August Kohrs planted and tended a new garden west of and adjacent to the ranch house (HS-1) in the lower yard area ca. 1890. This garden produced flowers for the Kohrs family.

Buildings and Structures

Ranch house (HS-1) western addition	Kohrs constructs a major two-story with basement brick addition to the western side of the ranch house (HS-1) in 1890.

Machine shed (HS-12) built	Kohrs and Bielenberg construct a machine shed (HS-12) in 1890.
Granary (HS-18) built	Kohrs and Bielenberg construct a movable granary on skids (HS-18) in 1890.
Feed rack (HS-42) built	Kohrs and Bielenberg construct a feed rack (HS-42) in 1900.
Privy (HS-20) built	Kohrs and Bielenberg construct a privy (HS-20) in 1900.
Ranch house (HS-1) conservatory addition	Kohrs constructs the conservatory addition to the southwest corner of the original ranch house (HS-1) sometime between 1890 - 1900.
Machine shed (non-extant structure B) built	Kohrs and Bielenberg construct a machine shed (non-extant structure B) sometime prior to 1907.
Open cow shed (non-extant structure C) built	Kohrs and Bielenberg construct a open cow shed (non-extant structure C) sometime prior to 1907.
Cow stable (non-extant structure D) built	Kohrs and Bielenberg construct a cow stable (non-extant structure D) sometime prior to 1907.
Cow barn (non-extant structure E) built	Kohrs and Bielenberg construct a cow barn (non-extant structure E) sometime prior to 1907.
Chicken house (non-extant structure G) built	Kohrs and Bielenberg construct a chicken house (non-extant structure G) sometime prior to 1907.
Feed rack (HS-37) built	Kohrs and Bielenberg construct a feed rack (HS-37) sometime between 1907-1909.
Feed rack (HS-38) built	Kohrs and Bielenberg construct a feed rack (HS-38) sometime between 1907-1909.
Cow shed (HS-13) built	Kohrs and Bielenberg construct a large ‘L’-shaped cow shed (HS-13) sometime between 1908-1909. This was presumably built to replace the stock barn lost to the construction of the Milwaukee Railroad.
Buggy shed (HS-17) moved	As a result of the construction of the Milwaukee Railroad line through the Kohrs-Bielenberg Ranch in 1908-1909, half of the buggy shed (HS-17) was relocated from its original location on the eastern end of bunkhouse row to the ranch house lower yard behind the coal shed (HS-4).

Machine shed (HS-12) moved	As a result of the construction of the Milwaukee Railroad line through the Kohrs-Bielenberg Ranch in 1908-1909, the machine shed (HS-12) is moved westward out of the right of way.
Machine shed (Non-extant structure B) removed	As a result of the construction of the Milwaukee Railroad line through the Kohrs-Bielenberg Ranch in 1908-1909, the machine shed (non-extant structure B) is removed.
Open cow shed (Non-extant structure C) removed	As a result of the construction of the Milwaukee Railroad line through the Kohrs-Bielenberg Ranch in 1908-1909, the open cow shed (non-extant structure C) is removed.
Cow stable (Non-extant structure D) removed	As a result of the construction of the Milwaukee Railroad line through the Kohrs-Bielenberg Ranch in 1908-1909, the 193 x 20 foot cow stable (non-extant structure D) is removed.
Granary (HS-23) built	Kohrs and Bielenberg construct a round metal granary (HS-23) in 1910. This structure was moved to its current location ca. 1935.
Ice house (HS-5) addition	Kohrs and Bielenberg construct a frame lean-to addition to the ice-house (HS-5) in 1912.
Smokehouse built	Kohrs and Bielenberg construct a smoke house in the location of the coal shed (HS-4) sometime prior to 1915.
Smokehouse burned	The smokehouse that formerly stood in the location of the coal shed (HS-4) is destroyed by fire sometime prior to 1915.
Coal shed (HS-4) built	Kohrs and Bielenberg construct a coal shed (HS-4) in 1915.
Constructed Water Features	
West side ditch excavated	Ca. 1887-1889, C. J. Kading and six other individuals begin to excavate a series of irrigation ditches that would become known as the West Deer Lodge Ditch. The ditch drew water from the Clark Fork River and a smaller drainage named Lost Creek. The West Side Ditch Company, as it would become known, was formally incorporated in 1917.

Brick (?) cisterns built	Three brick cisterns are known to be buried adjacent to the ranch house (HS-1). Although their exact date of construction is not known, one or more likely date to the construction of the 1890 brick wing addition to the ranch house (HS-1).
Beaver dams removed	Ca. 1904, Kohrs-Bielenberg had beaver dams removed from drainages and irrigation ditches.
Siphon (HS-57) built	The Milwaukee Railroad constructs a siphon (HS-57) that ran in an east-west direction beneath their line in 1908-1909. The siphon was located just east of the ranch house (HS-1).
Well dug	Kohrs and Bielenberg dig a well in the basement of the ranch house (HS-1) ca. 1919-1920 after a prolonged drought.
Small Scale Features	
Barbed wire fencing	Conrad Kohrs purchases 25,000 feet of barbed wire in 1893, presumably for fencing his fields and pastures on the home ranch. By 1904, the entire Kohrs – Bielenberg home ranch was fenced in barbed wire. The barbed wire was likely used to keep his own cattle within (and other cattle out of) a reduced home range, and also to keep livestock out of fields under cultivation.
Borrow pits excavated	The Milwaukee Railroad excavates several borrow pits adjacent to their line ca. 1908-1909 to obtain gravel for use in the construction of their road bed. The borrow pits are subsequently used as a dumping ground for railroad debris.
Gravel / sand pit excavated	Ca. 1921, a gravel / sand pit is initiated north of and adjacent to the Deer Lodge cemetery.
Archeological Sites[122]	
Dump site (24PW657)	A dump site located near the River Bridge may be associated with the Kohrs-Bielenberg or Warren eras and could date from the last quarter of the nineteenth century to the first half of the twentieth century.

[122] More updated information on archeological resources is available in the new DRAFT Archeological Survey for Grant-Kohrs NHS.

Dump site (24PW693)	A dump site located near the HS-88 Pump may be associated with the Kohrs-Bielenberg or Warren eras and could date from the last quarter of the nineteenth century to the first half of the twentieth century.

The Conrad K. Warren Era: Rebuilding the Ranch and the application of scientific advances in veterinary medicine, breeding, feed, crops and mechanical systems, 1922-1940

Introduction

Conrad Warren began to be employed on the Kohrs ranch during the mid-1920s and by 1932 was in charge of its daily operations. Under Warren's tenure, the Kohrs ranch expanded from a dwindling herd of commercial Hereford cattle, to a respectable sized herd of purebred registered Hereford and a growing herd of purebred registered Belgian draft horses. In order to accommodate his growing interests, Warren also actively purchased land adjacent to the home ranch and rehabilitated and expanded the existing irrigation system, turning once barren and underproductive fields into well-watered hay and grain fields.

Historical Context

Between 1924 and 1931, the Conrad Kohrs Ranch was managed by the Union Bank and Trust, with Augusta as president, and was effectively in a caretaker status with operations neither expanding or shrinking. From 1926 to 1928, Con Warren began spending summer's working as a ranch hand and living in the ranch house. Shortly after Con's arrival at the ranch, ca. 1928-1930 he helped to build the gravel road that ran westward on the north edge of the Stuart field and paralleling the feed bunks (HS-45 and HS-46). The road crossed the Kohrs-Manning Ditch and the Clark Fork River and led to the west side. Subsequent to the construction of the road ca. 1930, two bridges were constructed; the Slough Bridge (HS-90) with wood abutments that spans the Kohrs-Manning Ditch on the western edge of the south pasture; and the Clark Fork Bridge (HS-89), a pony truss bridge with 10 timber poles and concrete retaining walls over the Clark Fork River. Another bridge (HS-55) was likely built in association with this road where it crossed the Kohrs-Manning Ditch. Two other structures were built in 1930. The storage shed (HS-34) was designed to be a portable sheep wagon and tack room, and was most likely moved to its current location when the west feed lots were constructed. In addition, a feed rack (HS-36) was also erected. The structure was moved to its current location at an unknown date.[123]

By the early twentieth century, the Clark Fork River had begun to show the effects of copper mining upstream. When Con came to the ranch in the 1930s, "the river [Clark Fork] was coffee colored and three times as thick with no fish. There was yellow slime down in the willows. If a cow died down there its bones turned green from copper sulfate." Particular areas of the Clark Fork River floodplain also showed the effects of contamination. The land by slough bridge (HS-90) was "kind of a yellowish colored dirt with essentially nothing growing on it and 'lots' of animal carcasses lying around. [The] bones were all bluish-green." A visitor to the ranch in 1937 commented that "water is plentiful in the near-by Deer Lodge River. But this, like many other Western rivers, is contaminated by discharges from nearby mines which poison the soil and kill growing crops."[124]

Conrad Warren assumed the control and management of his grandfather's ranch in late 1932. He immediately began to make his own impact on the operation focusing on acquiring more land to

[123] Albright, *Historic Resource Study*, 107; John Albright Interview with Con Warren 1975; Micki Farmer Interview with Con Warren, January 1978; National Park Service, "Grant-Kohrs Ranch / Warren Ranch." National Register of Historic Places Registration Form, 7-11; National Park Service, Historic Structure Survey Forms, Grant-Kohrs Ranch National Historic Site.

[124] Interview with Con Warren, May 9, 1985; Jim Taylor Interview with Con Warren, May 20, 1988; Charles Morrow Wilson, "6,000 Acres and a Microscope," *Scribner's Magazine*, Vol. 102, No. 3 (September 1937), 45.

support a growing herd, rebuilding the Hereford livestock herds, and investing in new ranch facilities. Throughout the early 1930s, Warren began to buy up land adjacent to the home ranch including the Larabie Pasture (near the Fairgrounds), 1,100 acres from Ben Helby, additional lands from Charlie Jensen, and subsequently the Evans place.[125]

Prior to 1932 (and likely dating to the last quarter of the nineteenth century), all of the log and board and batten buildings on the Kohrs-Bielenberg Ranch were whitewashed every year. "Religiously. It was kind of a sanitary thing. Helped rid us of lice and all, they thought. Of course, I never did it after I worked that ranch. They had a special mix too. Johnny [Bielenberg] threw in glue to make the stuff stick. Of course you've seen how thick it built up." The buildings were sprayed with whitewash with a portable cart that contained a barrel pump. Many of the white buildings had gray or red trim paint. In addition, many gates were also painted red. "I never [whitewashed the buildings] when I ran the ranch. Sort a let things go or painted them." Instead, Warren painted the ranch buildings red. "I used green paint only once. It faded and had lead in it so I switched everything over to red mineral paint." [126]

During the early 1930s, many of the old Kohrs – Bielenberg era buildings were torn down or renovated to meet the changing function of the ranch. Substantial improvements were made to the bunkhouse including new flooring and chicken wire lath and stucco plaster. Old buildings and fences were torn down including a 16 x 50 foot shed with thatched roof, four small feed bunks, and other log structures. The horse barn (HS-11) north of bunkhouse row received new siding. Sometime in the mid-1930s, Warren accomplished substantial renovations to the Ranch House (HS-1) landscape. Ca. 1934 he replaced the deteriorating picket fence surrounding the Ranch House (HS-1). The new fence enclosed a larger area, including the service and laundry areas north of and adjacent to the residence. Fill was subsequently added to this service area to create a lawn adjacent to the north side of the house. During the same year he also constructed stone retaining walls along the western side of the house, both north and south of the rear 1890 brick addition. In addition, the stone steps and an associated wooden handrail were installed in the south retaining wall of the flower garden by Con Warren (See Figure 2-30). Prior to that time, the garden was entered from the eastern end. The old four stall dairy attached to the old Draft Horse barn "blew over in 1931 or 32." Between 1932-1934, several new structures were built. Much of the new construction during this period reflected an expansion of the Kohrs-Bielenberg ranching complex westward towards the slough bridge (HS-90). As a result two new ranching clusters were constructed, the west corral yard, and the west feedlot. In 1932, a new dairy (HS-9), feed storage house (HS-31), manure pit (HS-39), and three feed bunks (HS-45, HS-46 and HS-52) were erected (See Figures 2-31 and 2-32). The following year, three stock shelters (HS-24, HS-27 and HS-29), a hay feeder (HS-26), a feed storage house (HS-28), a squeeze chute (HS-47), and two feed bunks (HS-48, HS-49) were erected. In 1934, a privy (HS-8), three stock shelters (HS-25, HS-32 and HS-33), and a squeeze chute (HS-53) were erected.[127]

Warren took control of the home ranch in the middle of a severe region-wide drought. The drought effectively hindered many of his plans for the expansion of cultivation during the first half of the 1930s. "We had grasshoppers, too. I had forgotten what year it was '31 or '32. The grasshoppers moved in and they cleaned the valley. There was no hay, no grass, no leaves on the

[125] Douglas C. McChristian, *Ranchers to Rangers: An Administrative History of Grant-Kohrs Ranch National Historic Site* (National Park Service, Rocky Mountain Cluster, 1977), 4; John Albright Interview with Con Warren, 1975; Albright, *Historic Resource Study*, 109.
[126] Charles Snell Interview with Con Warren, June 9, 1975; Nick Scrattish Interview with Con Warren, June 19, 1979.
[127] National Park Service, Historic Structure Survey Forms, Grant-Kohrs Ranch National Historic Site; Lyndel Meikle Interview with Con Warren, May 7, 1984; Peter Snell Interview with Con Warren, September 11, 1975; Albright, *Historic Resource Study*, 110-111; Shapins Associates, "HS-1 Cultural Landscape," 70% Draft, 15; National Park Service, "National Register of Historic Places Registration Form, Grant-Kohrs Ranch, National Historic Site," 7-34.

trees, no anything. …The market was terribly depressed about the time." "Back in the big drought years, the Depression, fan weed was a problem. …Weeds take over in droughts." Early in Warren's tenure, haying was done with a derrick and hayboat and required a crew of 25-30 men, including mowers, rakers, stackers, pitchers to accomplish. The first year of haying (ca. 1932) Warren "had a hard time putting up 100 tons." Between 1931 and 1936, cultivating any amount of winter feed was difficult at best (See Figures 2-33 and 2-34). "In 1936 it was impossible to grow enough hay on the place [home ranch] to feed the livestock, limited as it was." During the extended drought, Warren was forced to drive his cattle to Helmville for grazing grounds. In addition to grain crops, Warren also grew his own potatoes, frequently selling any surplus. The potatoes were grown on the West Side and "up at the north end, on land he sold to Olson's."[128]

In terms of livestock, Warren intended to makeover the contingent of old work horses. A number of Clydes and Shires were at the Kohrs-Bielenberg Ranch when Con arrived in the late 1920s. For whatever reason, Warren never liked the Clydes or Shires. To remedy the situation, Warren began to build up a new draft horse herd making his first purchases of Belgian stallions from Earle Brown in 1932. However, complications entered the breeding process. "That's why I got the Belgians. …I went over to A. B. Cook's at Townsend and bought a stallion. A Belgian stallion, and we bred these mares [20 work horses already at ranch] but none of them settled so we had the vet come 'open them up.' I couldn't get any of the mares settled so I began buying young Belgian mares and I thought if, we were going to have mares they might as well be purebred and have registered colts." Warren began to practice artificial insemination of Belgian mares in the early to mid-1930s, making the ranch probably one of the first in the country to use such methods. "I had the largest herd of imported Belgian mares in America by 1936. …I was pretty well in the Belgian business up until after World War II." By the late 1930s, the Warren ranch and Con Warren in particular was recognized in Montana and the larger West for his efforts in introducing the Belgian breed. "He has become a significant pioneer in introducing a utility breed of thoroughbred horses (Belgians) in the West. He has, through extensive sale of these Belgians, supplied Montana with a creditable foundation of good horseflesh. …Last year [1936] Con built up his basic herd to about fifty brood mares, three stallions, and four draft teams, all registered Belgians." As Warren recalled much later, "the horse business kind of saved us during the depression" when prices for beef cattle were quite low (See Figure 2-35, 2-36 and 2-37).[129]

With his promotion to ranch manager in late 1931, Warren had inherited a largely mixed herd of commercial Hereford and Durham (Shorthorn) cattle. The products produced by the dairy cows were sold to the Deer Lodge Creamery throughout the decade. However in 1935, Warren established the foundation for his own breeding herd of purebred registered Herefords making his first purchase of a bull and ten heifers. This was followed by additional purchases of bulls and heifers the following year. As his registered herd slowly grew, Warren began to supply local and regional ranchers with bulls and heifers. As one visitor to the ranch in 1937 noted, "he has made extensive sale of purebred beef-strain bulls and heifers to ranches throughout Montana and other Western states. …Con Warren has reliable grass and enough land under irrigation to carry about a hundred head of horses, about five hundred cattle." As the Hereford population grew, Warren separated his cattle into two distinct herds, a breeding herd composed of a few bulls and several hundred heifers that was kept separate from other cattle, grazed upon fenced pastures at the home

[128] John Albright Interview with Con Warren, 1975; Interview with Con Warren, April 13, 1989; Interview with Con Warren, May 9, 1985; James O'Barr Interview with Con Warren, April 5, 1985; Gordon Interview with Con Warren, July 29, 1976; Randi Bry Interview with Con Warren, January 26, 1989.

[129] Interview with Con Warren, May 9, 1985; Holm/Haviland Interview with Con Warren, December 1, 1976; Rex Myers Interview with Con Warren, 1980, Tape 5, Side A; Lennie Jarrett Interview with Con Warren, March 4, 1983; Wilson, "6,000 Acres," 44-45; Albright, *Historic Resource Study*, 115.

ranch and fed during the winter, and a market herd composed of young cattle and steers that was allowed to graze upon leased or common range.[130]

In order to maintain the quality of his stock, both of his purebred registered Belgian and Hereford herds required extensive management (See Figures 2-38 through 2-41). For Warren this meant maintaining detailed administrative records of siring and birth, and also the seasonal chores of artificial impregnation, foaling and calving, nursing care, meeting the variable feeding requirements for each type of animal by breed and age, and monitoring the general care and health of all animals. Warren was one of the first ranchers in Montana to practice artificial insemination. While he preferred to let his Hereford cattle breed on their own, the sire value of his Belgian mares meant that Warren often supplemented the natural process. "Con Warren keeps a microscope in his shed room instrument cabinet, [and] shoots slides as the work progresses." Warren also regularly inoculated and tested his livestock against the major health risks of the period including Black Leg and Bang's disease (brucellosis), particularly during the regional epidemic ca. 1931-1936.[131]

Warren also began to raise hogs in the 1930s. He built a hog house and hog run (yard) "all west of the Thoroughbred barn." To serve the hog complex, sometime in the 1930s Con moved the metal granary (HS-23) to its present position.[132]

In 1934, Con and his wife Nell received 71/100 of an acre and a new house (HS-58) and garage (HS-61) given to them by Warren's grandmother, Augusta Kohrs (See Figure 2-42 through 2-46). The design, a colonial cottage style promoted as a "country home for apartment living," came from New York architect Lewis Welsh and was previewed in the June 1933 issue of *Women's Home Companion*. The magazine strongly supported the Domestic Economy movement of the first quarter of the twentieth century and the house design reflected a push for reforms in health, cleanliness, and comfort in the home. Before the house was built, Con dug a well "right in the corner there, and we were going to have the well inside the basement. And then one morning in 1934, why, the well was dry." The well (beneath HS-88) was subsequently dug "outside the picket fence out there." Warren excavated the basement for the house with a horse team and scraper and dug the rest by hand. A local contractor, Ben Goldie, poured the concrete foundations for the house and garage and erected the structures. When completed, the house was a 1 ½ story frame and stucco structure with a screened in porch on the east side and a breezeway connecting the garage and house. The *Silver State Post* recorded the construction in the spring of 1934.[133]

> NEW RESIDENCE GOING UP ON KOHRS RANCH. Conrad Warren is … erecting a new four-room house, 31 x 55 feet, which will contain all modern improvements… Contractor Ben Goldie is constructing the building … and E. P. Koontz putting in the plumbing.[134]

The Warren residence compound was enclosed by a white picket fence on its northern and western sides. Con and Nellie Warren both landscaped the immediate area surrounding their new

[130] National Park Service, "National Register of Historic Places Registration Form: Grant-Kohrs Ranch / Warren Ranch," 7-31; Albright, *Historic Resource Study*, 109; Wilson, "6,000 Acres," 44, 47-48.
[131] Wilson, "6,000 Acres," 45-46; Con Warren, "Results of testing for contagious abortions (Bang's) of Con's Hereford, Durham and Dairy herds," 1931-1936. Personal Papers, Con Warren, Series 2, Subseries G. (Ms. at the Grant-Kohrs Ranch National Historic Site, Deer Lodge, Montana).
[132] Peter Snell Interview with Con Warren, September 11, 1975.
[133] Cultural Resources & National Register Program Services, "Conrad and Nellie Warren Residence, Historic Structure Report, Grant-Kohrs Ranch, National Historic Site, Montana [Draft 1]," 2, (Santa Fe: Intermountain Support Office, 2001); Albright, *Historic Resource Study*, 115; Rex Myers Interview with Con Warren, 1980, Tape 11, Side B.
[134] *Silver State Post* (Deer Lodge, Montana, April 12, 1934).

residence. Grass and a variety of trees were planted within the picket fence. Warren attempted to cultivate native plantings around his house. He planted a mountain ash, black birch and native spruce. "The two Colorado spruce were wedding presents, so I had to plant them." Nellie Warren also had a small flower and vegetable garden somewhere west of the residence. As Patricia Warren recalled, "Because of the well, we could create a green oasis around the house – rustling cottonwoods and silver poplars that threw cooling shade on the roof and the green lawn. My mother could tend a beautiful flower garden where the hollyhocks and delphiniums were taller than she. The sprinkler made little rainbows in the sunshine as it watered a big vegetable garden; I was sent there every day to pull fat carrots or pick ears of corn." The garden contained a sweet pea trellis. By the late 1930s, additional small scale features present within the Warren residence compound included a swing set adjacent to and on the southeast corner of the house, a doghouse, a clothesline, and a flagstone path and small bridge that crossed the north fork of Johnson Creek (See Figures 2-47 through 2-53). [135]

Once his new house was built, Con and Nell purchased two refrigerators, one for his house and one for the cook house. Soon afterwards, Warren quit "putting up ice" in the ice-house (HS-5). The old ice pond was "down below there right along Johnson Creek so we could turn Johnson Creek into it." Warren remodeled the old ice house to make it into a "harness room." Two windows were added one on either side of the front door and steps.[136]

At the ranch house (HS-1), the picket fence surrounding it was replaced by Warren in 1934 with pine fence. In addition, in 1934 the trough irrigation system that watered the front or east lawn of the ranch house and south flower garden ceased to be used. Several historic photographs of the immediate vicinity of the ranch house (HS-1) and lower yard during this period document Warren's effort to clean up and repair his grandparents former residence (See Figure 2-54 through 2-60).[137]

The construction of new structures to accommodate the changing needs of the ranch continued into the mid-1930s. In 1935 the blacksmith shop / garage (HS-3), granary / roller mill (HS-6), brooder house (HS-21), chicken house (HS-22), cattle scale (HS-35), and squeeze chute (HS-41) were erected. The old granary ceased to be used because it leaked grain. Warren subsequently moved the chicken yard in order to build the new granary and roller mill (HS-6). The new granary could hold up to 4,000 bushels of wheat and had an elevator mechanism that came from an old threshing machine. The large number of cattle sheds, feed racks and barns at the home ranch were necessitated by the numerous small breeding herds that were maintained. "Con would have 5 or 6 breeding herds, with 45 or 50 cows per head. In this way he was able to keep track of breeding." By 1937 at the latest, Warren had also built an as yet unidentified structure due west of and adjacent to the Home Ranch. Historic photographs (See Figures 2-35 and 2-57) document that this single story frame structure had two windows on its south side and may have been approximately 10 x 15 feet in dimension. The structure is painted white, appears to be relatively new and rests on a concrete foundation.[138]

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[135] James O'Barr Interview with Con Warren, April 5, 1985; John Albright Interview with Con Warren, 1975; Stalker/Bry Interview with Con Warren, August 1988; Cultural Resources & National Register Program Services, "Conrad and Nellie Warren Residence," 38.

[136] Rex Myers Interview with Con Warren, 1980, Tape 11, Side A; Micki Farmer Interview with Con Warren, May 5, 1978.

[137] Randi Bry Interview with Con Warren, November 15, 1983; Interview with Con Warren, May 3, 1975.

[138] Bill Stalker Interview with Con Warren, August 24, 1989; Albright, *Historic Resource Study*, 111; Neysa Dickey Interview with Con Warren, February 13, 1991. While this quote suggests that the ratio of bulls to cows was up to 1/50, a 1/25 ration was more customary, especially with registered cows.

In 1935, the Department of the Interior instituted the Historic Sites Act. This act allowed the National Park Service to identify and evaluate properties having national significance. However much of the work initiated in the late 1930s was interrupted by World War II.[139]

Charles Morrow Wilson visited the Warren Ranch in 1937 and wrote an article that appeared in *Scribner's Magazine* describing the modern ranching adhered to by Con Warren. The ranch was described as a:

> multitude of spick and span corrals down to the horsesheds. …The old ranch, once a vast area of wild grass, is now dotted with fattening pens, haystacks, sheds, granaries, and small barns. It means that a shiny, new three-ton truck and a fleet of horse-drawn hay wagons rumble over the landscape, hauling hay and grain to feeding pens adjacent to cultivated fields, carrying feed and supplies to farther winter ranges. It means a shedful of the latest styles in farm machinery, numerous gasoline and electric motors, a crew of cowboys who have learned to double as farm hands, veterinarians, milk-maids, and nursemaid to mothering cows. …Except for the cottage, the ranch is broadly typical of the cattle country West. Here are 6,200 acres of which 500 are put to crops. Thus about 90 per cent of the entire ranch is range, and at least half of this is valid range in normal seasons. The buildings, fields, and fenced pasture occupy a level mesa about two miles square. Beyond the mesa are rough hillocks of open range, brown much of the year, green only in springtime or immediately after summer rains. …Con Warren's ranch now has its own irrigation system, watering five hundred acres, fed by two mountain creeks from snow water.[140]

Circa 1937-1938, the Deer Lodge area began to recover from the prolonged drought of 1930s. Looking back on the period, Con Warren remembered that "the first promising native grass …[to be seen] in six or seven years" was in 1938 (See Figures 2-61, 2-62, 2-63 and 2-64). The plight of ranchers during the second quarter of the twentieth century was summarized by Wilson. "It is no longer advisable to plow land not eligible for reliable irrigation. Plowing dry land merely gives the master-thief wind the chance to lift away the soil and to make still more vexatious the prevailing plague of dust storms. …Warren must supplement range with reservoirs of feeds grown and harvested from fields or with watered pasture." [141]

About the time that western Montana began to recover from the drought, Con Warren acquired the 160-acre Dalton property (20 of which were irrigated), and the Kohrs Company acquired the Kading place, both southwest of the ranch house on the west side of the Clark Fork River. The Dalton and Kading properties were acquired for depression era prices after banks had foreclosed on them. Warren acquired this property in an effort to increase fields and pasturage, but most importantly to gain access to the valuable West Side ditch. According to Warren, one of the major problems with this property was that it was bisected by an 80-foot wide county road that ran through its middle in a north-south direction. To solve this problem, Con tore fences down and illegally moved the road to its present location above or west of the main ditch supplying water to the area. In addition he built new culverts for the drainages that passed beneath the new road. Kading and previous owners had dug irrigation ditches of their own prior to its acquisition by Warren. However Warren was not satisfied with the existing ditches. The irrigation ditches on the west side were not well-planned, but "just went wherever water would run." As a result, only

[139] McChristian, *Ranchers to Rangers*, 5.
[140] Wilson, "6,000 Acres," 44-46.
[141] Wilson, "6,000 Acres," 44.

marginal irrigation could be achieved. To compound the physical problems, "the ditch on the upper end where it came out of the river ran through a morass of swamps." Con made the decision to totally re-engineer the ditches. He began the long-term process of leveling and contouring the land, "filling in the low places and shaving the humps off." One important aspect of re-engineering the West Side fields was the implementation of lateral or contour ditches, ditches that ran with the contours of the land using gravity to more effectively distribute water to targeted fields. Con used a grader or land planer to excavate new and renovate old ditches. "We used it [grader] to make ditches with, you know, tip that blade up and make a pretty good ditch with it" "Then when I finally – I redid that whole west side and the Kading place. I plowed it all up and – not all in one year, but over a period of 20 years, I revamped the whole thing and filled all the old ditches and leveled and finally got it all into contour ditches and seeded down." Land contouring was followed by plowing, a process that evenly distributed soils in the West Side fields.[142]

Irrigation ditches, particularly those that relied on intermittent drainages, also required regular maintenance to clean them of weeds and undergrowth. Warren carried out general maintenance of his larger ditches by burning them. He installed a tank of gas and pump on a wagon. As the wagon was drawn along the ditch, an igniter burned the gas that was pumped out. "For a while they just let the fire go where it wanted to, but once or twice they ended up having to fight a pretty good fire in the fields. That's why they started taking along the water wagon to spray any place where the fire looked like it might get out of control."[143]

In the process of leveling the Kading and Dalton properties, two historic properties were impacted. On the Kading property, Warren tore down an old brick kiln site and partially filled a former clay quarry. In addition during WWII, Con razed and plowed the former homestead of a German butcher and a concrete tank that was used for scalding hogs on the Dalton property.[144]

In 1937, Warren acquired his first tractor, an F-20 Farmall that came with an attachment plow, and an 18-inch single bottom 2-way plow. However the acquisition of a tractor did not mean the abandonment of his Belgian horse teams. "…It wasn't important to mechanize quickly. There wasn't anything wrong with horse farming. Part of the problem with continuing with horses was the lack of teamsters. The old ones were dying off and youngsters didn't want to learn." Warren also had a 'four horse Kentucky Drill that could plant peas, beans, wheat, barley and other fine grass seeds.[145]

Warren planted his new West Side fields in grain and the results of his extensive efforts to increase his cultivated land were immediately apparent in 1937. "Warren plants about two hundred acres of the irrigated land in feed grains – barley, oats, and wheat. He puts about twenty acres in mangels or mangel-wurzel, a root crop similar to sugar beets which makes an excellent sweet feed for cattle. The rest of the irrigated acreage is given over to timothy, clover and native hay for feeding horses, steers, and bulls; and alfalfa for feeding cows and calves." The Dalton property was put into intermediate wheat grass, a crop that did better than most in dry land conditions. "You'd get 90 bushels of oats. Oats was always a good yielding crop. And I always fed oats to my calves and stuff, you know. …We raised most of [the grain we used] for a long

[142] Paul Gordon Interview with Con Warren, July 29, 1976; Rex Myers Interview with Con Warren, August 1980.
[143] Interview with Con Warren, ca. 1988; Bill Stalker Interview with Con Warren, February 17, 1993.
[144] Interview with Con Warren, March 19, 1985; Paul Gordon Interview with Con Warren, July 29, 1976; Lyndel Meikle Interview with Con Warren, September 2, 1990; Interview with Con Warren, May 9, 1985; Wilson, "6,000 Acres," 45; Rex Myers Interview with Con Warren, 1980, Tape 5, Side B.
[145] Clemmensen / Bry Interview with Con Warren, November 17, 1981.

time." When Con Warren inherited the Stuart property, he never plowed it. Warren noted that 1909 was the last year that it regularly yielded "100 bushels per acre in one crop."[146]

Warren harvested his grain crops with the assistance of Ben Goldie and his steam threshing machine. Harvest time on the Warren Hereford Ranch incorporated both manual and mechanical labor. "And so in the fall when the grain was ready to cut, why, we'd cut it with the binder and we'd shock it up, and then we'd get out there with three or four wagons, and we'd haul the grain in and stack it in those little round stacks, you know? …Really all we had to do during thrashing was to have a couple of wagons there to haul the grain home. And we never had any good grain boxes or anything, so we used to dump the grain in burlap bags, you know. …And then they'd haul it in and throw it by hand into the granary. That was hard work. So he came and thrashed our grain right up until, I guess 1947 was the last year he came." As in other western and mid-western states, the annual grain harvest was a period of intensive labor but it was also a festive time associated with local celebrations.[147]

Aside from chickens, a few dairy cattle and his herd of Hereford and Belgians, Warren did not have a diverse livestock population during the 1930s. In addition to his regular stock, Warren had a single mule on the ranch. The mule was used predominantly as a pack animal usually led by a horse. Many of Warren's prized Belgian horses and Hereford bulls were buried on his ranch, mostly "in the lots by the small barns" next to his house. The animals known to be buried on the property include Monty, U.S. Tom, T.T. Triumphant, Domino the 20th, and Prince Blanchard the 5th.[148]

Like many other regional ranchers, Warren continued to supplement the lands he owned with lands leased from state and federal government. In 1939, Warren applied for a lease from the Montana Department of State Lands for a section of land east of the Upper Ranch. A year later, he applied for a 9,000 acre grazing lease in the Deer Lodge National Forest (later called Anderson Creek Allotment) to graze cattle between June and September. Details on his application stated that he had 900 acres under cultivation at his home ranch with a total of 800 cattle and 20 horses.[149]

Landscape Characteristics by Chronological Period

Spatial Organization

Warren domestic core	By 1934, a new domestic core had been created around Con and Nell's new residence (HS-58) and garage (HS-61). A picket fence, garden and select plantings separated the domestic / private sphere from the surrounding working ranch.
Agriculture	Fields under cultivation were placed adjacent to or nearby local drainages due to the richer bottomland soils, and the ability to irrigate

[146] Wilson, "6,000 Acres," 45-46; Lyndel Meikle Interview with Con Warren, October 1994; Rex Myers Interview with Con Warren, 1980, Tape 5, Side B; Jim Taylor Interview with Con Warren, May 20, 1988; Micki Farmer Interview with Con Warren, January 1978.
[147] Rex Myers Interview with Con Warren, 1980, Tape 5, Side B.
[148] Clemmensen / Bry Interview with Con Warren, November 17, 1981. U.S. Tom, a government mule from Yellowstone National Park, came to Deer Lodge to die sometime during the second quarter of the twentieth century.
[149] National Park Service, "CLI," Revised Draft, 8.

	crops. Dryland farming was not a viable option in western Montana.
Land Use	
Settlement	The Warren Ranch was one of numerous settlements spread throughout the larger Deer Lodge valley.
Ranching	Con Warren continued to use the home ranch for general ranching activities that supported care and maintenance of his stock.
Grazing	Con Warren continued to use portions of the home ranch as open range for his stock.
Agriculture	Con Warren expanded the existing acreage of irrigated land and acquired new irrigated lands adjacent to the home ranch to increase the total acreage under cultivation. By 1937 Warren had a total of 500 acres under irrigated cultivation. Two years later he had a total of 900 acres under cultivation.
Grading / Contouring	Upon his acquisition of the Kading and Dalton properties in the late 1930s, Con Warren proceeded to grade the West Side fields, filling in some ditches and excavating others.
Ditch burning	Warren burned the major irrigation ditches on his property for weed control and general maintenance from the 1930s through the 1950s.
Burying ground	Many of Warren's prized Belgian horses and Hereford bulls were buried on his ranch, mostly "in the lots by the small barns" during the second quarter of the twentieth century.
Cultural Traditions	
Irrigation Ditches	Con Warren continued to maintain and improve upon the old irrigation ditch system as he sought to improve the production of fields in the bottomlands and foothills on the west side.
Jack-leg fencing	Con Warren continued to use and maintain traditional jack-leg fencing on his ranch.

Cluster Arrangements

West corral and feed lot cluster	Throughout the mid-1930s, Con Warren developed a large area in the lower yard south and west of the ranch house (HS-1) but east of the Kohrs-Manning Ditch as a stock shelter / corral and feeding area. This area was characterized by long feed bunkers, smaller shelters and feed storage houses, squeeze chutes and fenced pens and lots.

Circulation

Gravel road built	The road running westward on the north edge of the Stuart field and paralleling the feed bunkers (HS-45 and HS-46) is constructed with the assistance of Con Warren ca. 1928-1930. This road served to open up the western end of the lower yard to facilities development.
County road constructed	As part of his realignment of the newly acquired West Side fields ca. 1938-1939, Con Warren constructed a new county road west of the Kohrs Ditch and upslope from the old county road. Culverts for the new county road were also constructed.
County road removed	As part of his realignment of the newly acquired West Side fields ca. 1938-1939, Con Warren removed the old 80-foot wide county road that divided his West Side fields, grading it into a cultivated field.
Warren residence pedestrian path	A path from the gate in the north side of the Warren residence (HS-58) was constructed to the front door of the house.
Warren garage driveway	A short driveway from the historic entrance to the Kohrs-Bielenberg Ranch south to the Warren garage (HS-61) is constructed by Warren in 1934.

Vegetation

Warren residence garden	Shortly after the construction of their new residence (HS-58) in 1934, Nellie Warren planted a small flower and vegetable garden somewhere west of the house.
Warren residence plantings	After the construction of their new residence in 1934, Con and Nell Warren planted several tree

	species including “a mountain ash, black birch and native spruce” and cottonwoods and poplars around their house. Two Colorado spruce were also planted.
Ranch House (HS-1) lawn started	Ca. 1934, fill was brought in on the new enclosed area north of and adjacent to the Ranch House (HS-1) to create a grass lawn.
Warren residence drive plantings	Historic photographs document that by the mid-twentieth century at the latest, the historic access road that led westward from the state highway towards the Warren residence (HS-58) was lined with an unidentified tree creating a formal alee.
Crops	Warren cultivated a diverse array of crops including wheat, barley, oats, timothy, clover, native hay, intermediate wheat grass, alfalfa, mangels, and mangel-wurzel, all of which were used in the care and feeding of his stock.
Vegetables	Warren cultivated several acres of potatoes on the home ranch. Excess potatoes were stored in a cold cellar or sold locally.
Buildings and Structures	
Storage shed (HS-34) built	A storage shed (HS-34) is constructed ca. 1930. The storage shed was designed to be a portable sheep wagon and tack room that was loaded on the back of a flat bed truck.
Feed rack (HS-36) built	A feed rack (HS-36) is constructed ca. 1930.
Cow barn (non-extant structure E) destroyed	The cow barn (non-extant structure E) is blown down in a storm in 1931.
Dairy blown down	Ca. 1931, the old dairy that was attached to the Draft Horse barn “blew over.”
Dairy (HS-9) built	Con Warren constructs the dairy (HS-9) in the location of the former cow barn (non-extant structure E) in 1932.
Feed storage (HS-31) built	Con Warren constructs the feed storage (HS-31) in 1932.
Manure pit (HS-39) built	Con Warren constructs the manure pit (HS-39) in 1932.

Feed bunk (HS-45) built	Con Warren constructs the feed bunk (HS-45) in 1932.
Feed bunk (HS-46) built	Con Warren constructs the feed bunk (HS-46) in 1932.
Feed bunk (HS-52) built	Con Warren constructs the feed bunk (HS-52) in 1932.
Hog house built	Ca. 1933, Con Warren constructed a hog house "west of the Thoroughbred Barn."
Stock shelter (HS-24) built	Con Warren constructs the stock shelter (HS-24) in 1933.
Stock shelter (HS-27) built	Con Warren constructs the stock shelter (HS-27) in 1933.
Stock shelter (HS-29) built	Con Warren constructs the stock shelter (HS-29) in 1933.
Hay feeder (HS-26) built	Con Warren constructs the hay feeder structure (HS-26) in 1933.
Feed storage house (HS-28) built	Con Warren constructs the feed storage house (HS-28) in 1933.
Squeeze chute (HS-47) built	Con Warren constructs the squeeze chute (HS-47) in 1933.
Feed bunk (HS-48) built	Con Warren constructs the feed bunk (HS-48) in 1933.
Feed bunk (HS-49) built	Con Warren constructs the feed bunk (HS-49) in 1933.
Privy (HS-8) built	Con Warren constructs the privy (HS-8) in 1934.
Stock shelter (HS-25) built	Con Warren constructs the stock shelter (HS-25) in 1934.
Stock shelter (HS-32) built	Con Warren constructs the stock shelter (HS-32) in 1934.
Stock shelter (HS-33) built	Con Warren constructs the stock shelter (HS-33) in 1934.
Squeeze chute (HS-53) built	Con Warren constructs the squeeze chute (HS-53) in 1934.

Warren residence (HS-58) built	Augusta Kohrs finances the construction of a new residence (HS-58) for Con and Nell Warren on a small parcel just east of the ranch house (HS-1) on the east side of the railroad lines in 1934.
Warren garage (HS-61) built	Augusta Kohrs finances the construction of a new single car garage (HS-61) east of and adjacent to the Warren residence for Con and Nell Warren in 1934.
Warren breezeway built	A breezeway connecting the Warren residence (HS-58) to the garage (HS-61) is constructed shortly after the completion of both structures, ca. 1934.
Blacksmith shop / garage (HS-3) built	Con Warren constructs a blacksmith shop / garage (HS-3) in 1935.
Chicken house (non-extant structure G)	Con Warren tears down the old chicken removed house (non-extant structure G) sometime prior to 1935.
Granary / Roller mill (HS-6) built	Con Warren constructs a frame granary / roller mill (HS-6) on the location of the old chicken house (non-extant structure G) in 1935.
Brooder house (HS-21) built	Con Warren constructs a brooder house (HS-21) in 1935.
Chicken house (HS-22) built	Con Warren constructs a chicken house (HS-22) in 1935.
Cattle scale (HS-35) built	Con Warren constructs a cattle scale (HS-35) in 1935.
Squeeze chute (HS-41) built	Con Warren constructs a squeeze chute (HS-41) in 1935.
Unidentified structure built	By 1937 at the latest, Con Warren had constructed an as yet unidentified structure due west of and adjacent to HS-1.
Old brick kiln razed	In the process of grading and contouring the West Side fields and irrigation ditches ca. 1938-1939, Con Warren razed the site of an old brick kiln on the former Kading property.
Clay quarry filled	In the process of grading and contouring the West Side fields and irrigation ditches ca. 1938-

	1939, Con Warren leveled and filled in an old clay quarry on the former Kading property.
Concrete tank razed	In the process of grading and contouring the West Side fields and irrigation ditches ca. 1938-1939, Con Warren razed the remains of a concrete tank that was used for scalding hogs on the former Dalton property.
Constructed Water Features	
Warren residence well dug	During the construction of his residence in 1934, Warren dug a new well to supply his new home. A partially submerged pump house (HS-88) was later added to the well in 1952.
Small-Scale Features	
Slough bridge (HS-90) built	Con Warren assists in the construction of the slough bridge (HS-90) ca. late 1920s.
Clark Fork Bridge (HS-89) built	Con Warren assists in the construction of the Clark Fork River bridge (HS-89) ca. late 1920s.
Kohrs-Manning Ditch bridge (HS-55) built	Con Warren assists in the construction of the bridge over the Kohrs-Manning Ditch (HS-55) ca. late 1920s.
Jensen hay stacker acquired	Con Warren acquired a Jensen hay stacker soon after assuming control of the ranch in the early 1930s.
Stone steps and handrail to garden built	Con Warren constructs northern entrance to the flower and vegetable garden including stone stairs and a wooden handrail for Augusta Kohrs sometime in the 1930s.
Retaining walls built	Ca. 1934, Con Warren constructs two short stone retaining walls west of and adjacent to the Ranch House (HS-1). The walls were located on both the north and south sides of the 1890 rear brick addition.
Warren residence picket fence	During the construction of their new residence in 1934, Con and Nell Warren constructed a white picket fence on the northern and western sides their house (HS-58) and garage (HS-61). Two pedestrian gates, one on the north side and one on the west side, allowed entrance and egress. A larger gap on the northern side of the fence allowed automobile access to the garage.

Ranch House (HS-1) fence rebuilt and realigned	Ca. 1934, Con Warren rebuilt the deteriorating white picket fence surrounding the Ranch House (HS-1). The new fence encompassed a larger area, enclosing the former buggy turnaround on the north side of the residence.
Swing set erected	By the late 1930s, the Warrens had erected a children's swing set adjacent to the southeast corner of their house.
Doghouse built	By the late 1930s, the Warrens had built a small dog house at an unknown location within their domestic compound.
Clothesline erected	By the late 1930s, the Warrens had erected a clothesline with two poles at an unknown location within their domestic compound.
Sweet pea trellis erected	By the late 1930s, Nell Warren had erected a frame sweet pea trellis in her flower and vegetable garden. The trellis was painted white.

Archeological Sites[150]

Dump site (24PW657)	This dump site may be associated with the Kohrs-Bielenberg or Warren eras and could date from the last quarter of the nineteenth century to the first half of the twentieth century.
Dump site (24PW693)	This dump site may be associated with the Kohrs-Bielenberg or Warren eras and could date from the last quarter of the nineteenth century to the first half of the twentieth century.

[150] More updated information on archeological resources is available in the new DRAFT Archeological Survey for Grant-Kohrs NHS.

The Warren Hereford Ranch, 1940-1958

Introduction

After his purchase of the home ranch in 1940, Warren expanded the role of agriculture using a variety of conservation programs to improve pastures and reclaim abandoned or damaged fields. Warren appears to have been unusually adaptive during this period, adopting scientific strategies in the fields of soil improvement and both crop and herd management that were new or rarely practiced within the larger region. The physical facilities at the home ranch were also expanded during this period. Warren' relentless pursuit of increased productivity paid dividends as his purebred registered Hereford herd experienced substantial growth until its dispersal in 1958.

Historical Context

Perhaps buoyed by the increased carrying capacity of the Kohrs-Bielenberg Ranch and the fact that he had created a profitable purebred breeding operation, in 1940 Con Warren bought the home ranch including all of its lands and livestock from the Kohrs Company. He immediately christened it the Warren Hereford ranch. During the same year, Warren also acquired the old Kohrs-Bielenberg 'Upper Ranch.'[151]

Shortly after his acquisition, Warren instituted dramatic changes that were to impact the course of his operations into the next two decades. In anticipation of post-Depression small farmers' desire and ability to buy mechanized farming equipment, Warren sold his entire herd of Belgian horses to the Holbert Horse Implement Co. in Iowa. The horses were subsequently sold to the Rockefeller estate. "Everybody switched to tractors and I couldn't sell them [Belgian draft horses]. Then it got to be hard to get teamsters to drive them, you know. …Tom Holbert worked up a sale, and pretty near all of my mares went to the Rockefeller estate at Tarrytown, New York." Although Warren sold most of his mares, he did keep a few work teams (See Figures 2-65 and 2-66). "We had a tractor mower that we used to mow the hay with, but the rest of it we raked up and stacked it with horses clear up to the end of the war."[152]

Ca. 1940-1941, Warren installed a new water pump on a Deer Lodge city lot south of Milwaukee Avenue. The pump station on Mitchell Street allowed him to irrigate his West Side pastures making them more productive. The turbine pump drew water from the Clark Fork River "thereby making it possible to lift an additional 500 miner-inches from the river to a reconditioned ditch at a high enough elevation to serve all the hay land he would need." The "water is spread over the fields by a network of contour ditches that both retard and direct the flow. Introduced at the highest arable point on the steepest slopes, the water is held and reused many times before flowing back into the Clark Fork." Ultimately the dependability of the water enabled him to "put another 500 acres of reclaimed land into hay cultivation, and clipped his [annual] ditch and water cost in half." As Warren recalled, "that was the first irrigation pump in the valley." A short road leading north from Milwaukee Avenue, and likely built in association with the facility, provided access to the pump house.[153]

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[151] McChristian, *Ranchers to Rangers*, 4; Albright, *Historic Resource Study*, 114-115.
[152] John Albright Interview with Con Warren, 1975; Albright*, Historic Resource Study*, 115; Rex Myers Interview with Con Warren, 1980, Tape 5, Side A.
[153] Albright, Historic Resource Study, 115; Rex Myers Interview with Con Warren, 1980, Tape 5, Side A; National Park Service, "Grant-Kohrs Ranch / Warren Ranch," National Register of Historic Places Registration Form, 7-12; Jillson, "Cottonwood Creek," 8.

Beginning in 1940 and continuing through to 1958, Con Warren became active in range and pasture improvements supported by the federal Agricultural Conservation Program (See Figures 2-67, 2-68 and 2-69). The Agricultural Conservation Program was designed "to assist farmers to maintain and improve the nation's soil and water resources" by "sharing the costs of conservation practices that prevent soil destruction and restore fertility to depleted soil." By 1940 he had begun to implement soil conservation and reclamation practices in an effort to reclaim the formerly rich bottomland meadows adjacent to the Clark Fork River that had been poisoned from the Anaconda mine.[154]

> Where we used the [Clark Fork] river water, why, there was nothing [in terms of crop productivity] to holler about. …I plowed up all that land, and then I got a big plow, it was an 1811 plow. And I plowed a lot of that land 12" and 14" deep. Took a ripper and went through it first, and then plowed it and turned that surface down. …Our soil here is only about 8", you know, topsoil, and then you get into this kind of yellow clay-like stuff underneath. And I plowed a lot of that out on top. And then we started a big program. Everything that we could find around here that was loose in the way of hay bottoms and strawpile bottoms and manure piles, we'd haul out on those fields, just everything that we could find in the way of humus, you know. And we brought them [bottom lands] back. They came back good. After about 10 years, why, I was finally, you know, getting crops that were equal to or better than a lot of the others around, you know, 80, 90 bushels of barley and 100 bushels of oats and stuff like that. But it took a lot of doing, I'll tell you, to reclaim that land.[155]

His reclamation efforts were summarized in 1948.

> His system was to annually plow an 80-acre tract and leave it in summer fallow. In the fall this acreage was fertilized with all the available manure, with 15 pounds of phosphate added to every load spread, which was turned under. That spring the 80 acres was sown in wheat and oats for steer feed. The wheat yield from such treated land ran 60 to 77 bushels per acre. The following year the land would be sown to alfalfa and timothy with a large percentage of oats added as a nurse crop, and for harvest. The oat yield ran 6 to 100 bushels per acre. For the next four years the meadows produced hay and then the rotation is repeated.[156]

Warren's scientific application of farming was also adopted in his herd management. Between the early 1940s and the 1960s, Warren conducted several feeding experiments with his cattle. A 1943-1944 experiment documented the impact of supplying grain feed to steers and calves and compared their weight gain versus the cost of feed and herd management. A similar experiment carried out in 1960 monitored the cost and efficiency of allowing his cattle to self-feed.[157]

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[154] Agricultural Conservation Program, *Montana Handbook, 1950*. Personal Papers, Conrad Warren. Series #2, Daily Ranching Activities, Subseries B (Ms. at the Grant-Kohrs Ranch National Historic Site, Deer Lodge, Montana).
[155] National Park Service, "Grant-Kohrs Ranch / Warren Ranch," National Register of Historic Places Registration Form, 7-7; Rex Myers Interview with Con Warren, 1980, Tape 7, Side B.
[156] Herb Jillson, "My Ranch situated on Cottonwood Creek," *Western Livestock Reporter*, No. 7 (October 6, 1948), 8. A nurse crop was a crop that grew quickly to provide shade and retain moisture for alfalfa.
[157] Con Warren, "Results of Feeding Experiment at CK Cattle Ranch from Nov. 1, 1943 to Aug. 1, 1944," Personal Papers, Conrad Warren, Series 2, Subseries E: Feeding Experiment (Ms. at the Grant-Kohrs Ranch National Historic Site, Deer Lodge, Montana); Con Warren, "Feeding trial 1960 – Warren Ranch – Self Feeder, 20 head of calves mixed," Personal Papers, Conrad Warren, Series 2, Subseries E: Feeding Experiment (Ms. at the Grant-Kohrs Ranch National Historic Site, Deer Lodge, Montana).

As bulk grain slowly became less expensive after World War II and as its cost effectiveness in fattening cattle became apparent, Warren made the gradual transition from farming that predominantly featured grain, to one of nearly exclusively hay. While the cultivation of grains was never totally abandoned until the late 1950s, hay was grown on an increasingly greater scale. "We never did much [grain] farming [on the west side] after that [ca. 1957-1958]. …Because it always seemed like the hay was more important than the grain. You could always buy grain and, of course, grain was pretty easy to handle. Whereas hay, if you're short on hay, you'd either have to move the cattle to the hay or you'd have to move the hay to the cattle, hay being bulky. And of course, most of the hay in those days was loose hay. You couldn't transport it, you know. You pretty near had to move the cattle to the hay." Warren's biggest haying crop on the west side was approximately 1,380 tons, accomplished with only three men and a dog. By 1948, the importance and scale of Warren's hay cultivation had become apparent. "The ranch also has 100 acres of hay stand on the east side of the river, but it is the west side meadows that Warren counts on, and which make ideal fall and winter pasture for the cow herd. Annually there is produced 800 tons of hay, all of which will be stacked with the beaverslide popularized in the Big Hole country."[158]

Only minimal new construction occurred at the home ranch in the years immediately preceding and during the war. After the birth of their second child, the Warrens decided to add to their residence. In 1941, the screen porch on the east side of the Warren residence (HS-58) was subsequently enclosed creating another room, an office and a smoking room were created, and the roof was raised four feet to add a second story. In the process of raising the roof, two new dormers were added one on both the east and west sides. The renovations to the structure were done by local contractor Ben Goldie. In 1940, a chicken coop (HS-59) was also erected for Nellie Warren just west of but adjacent to the Warren residence compound. Within the larger ranch, two feed racks (HS-43 and HS-44) were erected 1942 (See Figures 2-70, 2-71, 2-72 and 2-73).[159]

During the war, profits from the ranching operation remained steady but static due largely to the U. S. Government's move to freeze market prices of beef. The price of cattle was set at $17.50 per hundred weight. As a result of static beef prices during the war, Warren could not pay off more than the interest on his bank debts. In response, in 1945 he sold the historic Kohrs-Bielenberg 'Upper Ranch.' During the same year, in anticipation of a drop in cattle prices, he sold the last of his 'commercial' Hereford herd composed predominantly of steers, and focused instead on the production of registered purebred Hereford bulls.[160]

The year 1945 also witnessed the end of the pioneer generation of Montana cattle ranchers. In that year, Augusta Kohrs died at the age of 96.[161]

Shortly after the war, Warren and a partner purchased Ben Goldie's steam threshing machine. Although grain did not constitute a substantial amount of the yearly crops at the Warren Hereford Ranch, Con and his partner continued to thresh grain on their properties with the Goldie threshing machine up until the early 1950s when he purchased a used International Harvester steam grain thresher.[162]

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[158] Rex Myers Interview with Con Warren 1980, Tape 5, Side B; Jillson, "Cottonwood Creek," 8.
[159] Cultural Resources & National Register Program Services, "Conrad and Nellie Warren Residence," 4-5; National Park Service, Historic Structure Survey Forms; John Albright Interview with Con Warren, 1975; Jimmy D. Taylor Interview with Con Warren, November 3, 1982.
[160] John Albright Interview with Con Warren, 1975; Albright, *Historic Resource Study*, 115-116; National Park Service, "Grant-Kohrs Ranch / Warren Ranch," National Register of Historic Places Registration Form, (Listed 2003), 8-60; Jillson, "Cottonwood Creek, 17.
[161] Albright, *Historic Resource Study*, 233.
[162] Rex Myers Interview with Con Warren, 1980, Tape 5, Side B; Micki Farmer Interview with Con Warren, January 1978.

During the late 1940s, minimal new construction and general maintenance continued at the Warren Hereford Ranch. In 1946, Con Warren "fixed up" and remodeled the thoroughbred barn (HS-15) to house cattle. He jacked up the superstructure, poured a new concrete floor, added new flooring with scale, and subsequently built a cupola on top for a granary. In 1947, the Kohrs-Manning Ditch Company constructed a frame flume (HS-51) that carried their water over Johnson Creek.[163]

With the Warren Hereford Ranch's post-war emphasis on the production of a purebred registered herd, Warren began to actively sell his bulls at regional consignment sales. Warren also began to advertise stock for sale at his own ranch. About 1946, in preparation for a stock sale and the erection of a sales tent in the lower yard, Warren had gravel trucked in, spread around and compacted. Simultaneously he began to acquire new genetic stock. "The Warren Ranch itself became the center of numerous sales as hundreds of buyers and spectators gathered in the tent erected on the south edge of the thoroughbred barn to watch." In 1947, Con acquired the purebred Hereford bull, TT Triumphant. Shortly thereafter he also acquired the bull Proud Star. By the early-1950s the two new bulls had introduced genetic dwarfism (achondroplsi) into his herd through selective breeding. Warren was forced to admit much later, "[they] had that dwarf gene."[164]

New construction throughout the early 1950s reflected the emphasis on the production and sale of purebred registered Hereford bulls. More importantly however construction of new Warren Hereford Ranch facilities instituted a shift of operations from the west side of the railroad lines to high ground on the east. "We'd kind of abandoned the old place. The mud was so deep over there in the spring that you would have to take some buyer out to show him the bulls and would have to give him a pair of hip boots to wade out in the mud." Between 1952 and 1954, two new bull barns (HS-62 and HS-63) (See Figure 2-74), a scale house (HS-66), a feed rack (HS-68), a loading chute (HS-69), eight cow sheds (HS-70 through HS-77), seven feed houses (HS-78 through HS-84), and a residence pump house (HS-88) were erected. In addition, a state of the art cattle barn (HS-64) and associated feedlots, gates, and alleys were also constructed (See Figure 2-75). Over 2,300 feet of water line were laid in association with the new feedlots. Most of the cow sheds and feedlots were also built incrementally over a two to three year period. In 1954, Con Warren constructed a large metal sales barn (HS-65) on high ground just east of the railroad tracks to replace a tent and barn on the west side of the tracks that had formerly served as a sales ring. Phil Berg built both HS-64 and HS-65. Connecting his new feed lot and bull barns were two access roads, one extending southward toward his residence, and a second extending westward pass the north side of his bull barns to the bunkhouse complex. During the early 1950s, Warren continued to improve his residential compound. In 1950, he constructed a "boat house" (HS-60) southwest of and adjacent to his residence (HS-58) that allowed him to build a sailboat. By 1952 he had a pump house (HS-88) built over his well immediately west of his residence (HS-58). The pump house was of concrete and frame construction with only the roof visible above ground. In 1952, a small barbecue pit or structure was built in the Warren residential landscape. Also during this period, he erected a white picket fence just north of and adjacent to a small drainage south of his residence (See Figures 2-76 and 2-77). In addition, ca. 1955 he added an enclosed front porch entry on the north side of his residence.[165]

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[163] John Albright Interview with Con Warren, 1975; Charles Snell Interview with Con Warren, June 9, 1975. As Warren noted, Horses needed dirt floors because they sleep in hay and their hooves are hurt by wood.
[164] Interview with Con Warren, July 17, 1985; Albright, *Historic Resource Study*, 116; Interview with Con Warren, April 13, 1989.
[165] Albright, *Historic Resource Survey*, 116; National Park Service, Historic Structure Survey Forms; John Albright Interview with Con Warren, 1975; National Park Service, "Grant-Kohrs Ranch / Warren Ranch," National Register of Historic Places Registration Form, 8-61; Cultural Resources and National Register Program Services, "Conrad and Nellie Warren Residence, Historic Structure Report, Grant-Kohrs Ranch NHS," 5.

In an effort to combat encroaching cheat grass surrounding the Ranch House (HS-1), in 1950 Warren placed approximately six inches of earth fill on the front or eastern lawn of the residence seeding it to turf grass. The addition of the fill covered the late nineteenth century wooden irrigation system for the lawn and trees. The Warrens attempted to control other pests including gophers, skunks, porcupines, rabbits, magpies, pigeons and stray cats and dogs that periodically plagued the Home Ranch. Warren tried poisoning gophers for a period but it was determined to be largely unsuccessful because other animals would also become poisoned. During the 1950s, Warren purchased a .22 rifle for his son who was given the responsibility of maintaining a low predator population.[166]

Throughout the 1950s, Warren continued to graze his Hereford herd on the West Side fields. This meant that his cattle moved from their sheds on the east side of the tracks to the west side for pasture. During the summer, Warren also grazed his cattle on what he called his summer range, land he owned on the east side (See Figure 2-68), and land he also leased from the U. S. Forest Service. “Summer range started at 4,600 feet and ended at 6,400 feet. They [cattle] would start low in the spring and keep moving up. It would be time to come home when they got to the top.” The east side lands and Forest Service leases allowed Warren to increase the carrying capacity of his ranch. By the mid-1950s, Warren also began to improve the irrigation of his land east of the railroad tracks. By 1954, Warren had constructed an irrigation system that diverted water from the Kohrs-Manning Ditch under the railroad and through an underground pipe to a pump house (HS-86), and from there to a mainline, standpipe risers and lateral hand lines with sprinkler attachments. The result was an efficient system that provided convenient pasturage, produced good crops, and ultimately substantially benefited Warren’s Hereford management system.[167]

The Future Farmers of America (FFA) sprayed the Warren ranch for weeds in July of 1955. It is not known if this service was required as part of a County wide ordinance, or if it was a service provided by the FFA.[168]

Warren’s ranch was described in a 1956 appraisal of his property prior to selling a portion of his property to the City of Deer Lodge. The appraisal noted that the Warren Ranch had “extensive investment in improvements for purebred livestock corrals, feedlots, each with its own heated water supply, all located on alleyway.” The comments reflected the quality of the new east feedlot area, noting that it was “perhaps the best fenced property that your appraiser has inspected in many years” containing five-wired cedar post fencing. Due to an increasing bank debt, Warren made the decision to disperse his registered Hereford herd at auction in 1958. After the dispersal auction, Warren subsequently entered the business of feeding and selling (finishing via feedlot) commercial Herefords (feeder cattle) to stockyards, ultimately managing a herd of about 350 Herefords. During the same year, the Conrad Kohrs Trust Company dissolved and the benefits went directly to numerous heirs. After Anna and Katherine died in 1958, the trust dissolved and the Warren and Bache Agency was formed to handle the assets.[169]

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[166] Shapins Associates, “HS-1 Cultural Landscape,” 70% Draft, 15-16; Chris Ford Interview with Con Warren II, February 5, 2004.
[167] Chris Ford Interview with George Wadsworth and Earl Martin, June 27, 1995; Meikle / Bry Interview with Con Warren, July 20, 1987. Warren’s ‘summer range’ was on the east side of Deer Lodge.
[168] Peggy Gow, “Notes on C. K. Warren Papers,” n.d.
[169] John Albright Interview with Con Warren, 1975; Albright, *Historic Resource Study*, 117; Rex Myers Interview with Con Warren, 1980, Tape 6, Side B; Henry T. Murray, “Appraisal of Grant-Kohrs Ranch / Warren Ranch, C. K. Warren owner,” 1956. Personal papers, Conrad Warren (Ms. at the Grant-Kohrs Ranch National Historic Site, Deer Lodge, Montana).

Landscape Characteristic by Chronological Period

Natural Systems and Features

Shift of ranching operations	Because of the constant flooding and muddy nature of the lower yard in the Kohrs / Warren ranching complex, Warren constructed a new ranching complex east of the railroad lines and north of his residence on drier ground in the early 1950s (HS-58).

Spatial Organization

Agriculture	Fields under cultivation were placed adjacent to or nearby local drainages due to the richer bottomland soils, and the ability to irrigate crops. Dryland farming was not a viable option in western Montana.

Land Use

Settlement	The Warren Ranch was one of numerous settlements spread throughout the larger Deer Lodge valley.
Ranching	Con Warren continued to use the home ranch for general ranching activities that supported care and maintenance of his stock.
Grazing	Con Warren continued to use portions of the home ranch as open range for his stock.
Agriculture	Con Warren continued to increase the total acreage under cultivation. By 1948 Warren produced 800 tons of hay.
Land reclamation	During the 1940s, Warren participated in the government's Agricultural Conservation Program. Throughout the 1940s he initiated the reclamation of the bottomland meadows adjacent to the Clark Fork River. Reclamation practices included plowing, fertilization, and crop rotation.
Ditch burning	Warren burned the major irrigation ditches on his property for weed control and general maintenance from the 1930s through the 1950s.

Cultural Traditions

Irrigation Ditches	Con Warren continued to maintain and improve upon the old irrigation ditch system as he sought to improve the production of fields in the bottomlands and foothills on the west side.
Jack-leg fencing	Con Warren continued to use and maintain traditional jack-leg fencing on his ranch.

Cluster Arrangements

East ranching cluster	In the early 1950s, Warren constructed a new portion of the ranching complex east of the railroad lines and north of his residence (HS-58). This shift of operations meant a near abandonment of many of the facilities in the west ranching cluster, or lower yard of the home ranch.

Circulation

Pump house (HS-87) access road	A short road built in association with a new pump house just off Milwaukee Avenue in Deer Lodge City provided access to the facility ca. 1940-1941.
Gravel sales yard	In preparation of the erection of a sales tent in the lower yard in 1946, Warren had gravel trucked in and compacted to improve pedestrian and vehicular circulation of the area.
Feed lot road	By the mid-1950s, a short road was created from the Warren residence north toward the new feed lot area with a westward extension passing the north side of the bull barns crossing the railroad tracks and intersecting with the north side of the bunkhouse.
Pedestrian and bovine corridors	With the construction of the new east feed lot in the early to mid-1950s, narrow pedestrian and bovine alleys and corridors were created between and adjacent to the fenced lots.

Vegetation

Lawn reseeded	Ca. 1950, in an effort to combat cheat grass, Con Warren placed approximately six inches of fill on the eastern lawn surrounding the Ranch House (HS-1). The fill was graded and re-seeded in turf grass.

Crops	Warren continued to expand cultivation of crops through to the late 1950s. In addition to native hay, Warren grew wheat, oats, timothy and alfalfa.
Vegetables	Warren cultivated several acres of potatoes on the home ranch. Excess potatoes were stored in a cold cellar or sold locally.
Warren Ranch sprayed	In 1955, the Warren Ranch is sprayed for noxious weeds by the Future Farmers of America.
Buildings and Structures	
Chicken coop (HS-59) built	Con Warren constructed a chicken coop (HS-59) west of his residence (HS-58) for Nellie in 1940.
Warren residence (HS-58) addition	Con Warren encloses the screen porch on the east side of his residence (HS-58) and raises the roof of his house four feet to create a second story in 1941.
Feed rack (HS-43) built	Warren constructs a feed rack (HS-43) in 1942.
Feed rack (HS-44) built	Warren constructs a feed rack (HS-43) in 1942.
Thoroughbred barn (HS-15) renovated	Warren completely renovates the thoroughbred barn (HS-15) including pouring a new concrete floor, adding new frame flooring and building a cupola in 1946. The renovations were done to transform the structure into a cattle barn and to support the feed lot area he built to the southwest.
Boat house (HS-60) built	Warren constructed the boat house (HS-60) southwest of and adjacent to his residence (HS-58), ca. 1950.
Bull barn (HS-62) built	Warren constructed a bull barn (HS-62) in 1952.
Bull barn (HS-63) built	Warren constructed a bull barn (HS-63) in 1952.
Scale house (HS-66) built	Warren constructed a scale house (HS-66) in 1952.
Feed rack (HS-68) built	Warren constructed a feed rack (HS-68) in 1952.
Loading chute (HS-69) built	Warren constructed a loading chute (HS-69) in 1952.

Cattle barn (HS-64) built	Warren constructed a large cattle barn (HS-64) in 1952.
Warren residence pump house (HS-88) built	Warren constructed a concrete and frame pump house (HS-88) west of and adjacent to his residence (HS-58) in 1952.
Cow shed (HS-70) built	Warren constructed a cow shed (HS-70) ca. early 1950s.
Cow shed (HS-71) built	Warren constructed a cow shed (HS-71) ca. early 1950s.
Cow shed (HS-72) built	Warren constructed a cow shed (HS-72) ca. early 1950s.
Cow shed (HS-73) built	Warren constructed a cow shed (HS-73) ca. early 1950s.
Cow shed (HS-74) built	Warren constructed a cow shed (HS-74) ca. early 1950s.
Cow shed (HS-75) built	Warren constructed a cow shed (HS-75) ca. early 1950s.
Cow shed (HS-76) built	Warren constructed a cow shed (HS-76) ca. early 1950s.
Cow shed (HS-77) built	Warren constructed a cow shed (HS-77) ca. early 1950s.
Feed house (HS-78) built	Warren constructed a feed house (HS-78) ca. early 1950s.
Feed house (HS-79) built	Warren constructed a feed house (HS-79) ca. early 1950s.
Feed house (HS-80) built	Warren constructed a feed house (HS-80) ca. early 1950s.
Feed house (HS-81) built	Warren constructed a feed house (HS-81) ca. early 1950s.
Feed house (HS-82) built	Warren constructed a feed house (HS-82) ca. early 1950s.
Feed house (HS-83) built	Warren constructed a feed house (HS-83) ca. early 1950s.

Feed house (HS-84) built	Warren constructed a feed house (HS-84) ca. early 1950s.
Warren residence entranceway enclosed	Warren encloses the front or eastern entrance to his residence (HS-58) sometime between 1952-1956.
Sales barn (HS-65) built	Warren constructed a metal sales barn (HS-65) in 1954.
Constructed Water Features	
Flume (HS-51) built	The Kohrs-Manning Ditch Company constructed a frame flume to carry their water over Johnson Creek in 1947.
Water line laid	Over 2,300 feet of water line were laid in the early 1950s in association with the construction of the east ranching cluster.
Handline irrigation system installed	Buried pipe, standpipe risers, and handline sprinklers were installed by 1954 in association with the irrigation of fields east of the railroad.
Small Scale Features	
East feed lot fencing	Adjacent to each cow shed and feed house, Warren fenced in a square feed lot to insure that his cattle would not cross breed.
Barbeque pit constructed	In 1952, a barbecue pit or structure was built within the Warren residence yard, adjacent to the eastern side of the picket fence.
Archeological Sites[170]	
Dump site (24PW657)	A dump site may be associated with the Kohrs-Bielenberg or Warren eras and could date from the last quarter of the nineteenth century to the first half of the twentieth century.
Dump site (24PW693)	A dump site may be associated with the Kohrs-Bielenberg or Warren eras and could date from the last quarter of the nineteenth century to the first half of the twentieth century.

[170] More updated information on archeological resources is available in the new DRAFT Archeological Survey for Grant-Kohrs NHS.

Post-dispersal and efforts to establish a National Park, 1958-1972

Introduction

During the second half of the twentieth century as large corporate feed lots began to dominate the cattle business, Con Warren continued to adapt moving from a commercial feeder business, to raising yearling steers, to raising cows and calves. After an initial inquiry, Warren and the National Park Foundation eventually came to an agreement to purchase the older part of the Grant-Kohrs Ranch in 1970.

Historical Context

In 1957, the Department of the Interior reactivated its 1930s program intended to identify and evaluate nationally significant properties for National Historic Landmark designation. Two years later, an Utley, Everhart and Mattison report generated by a survey of Historic Sites and Buildings identified a total of 27 sites across the United States that were identified as significant to the growth and development of the cattle industry (See Figure 2-79). Only five were recommended as having exceptional significance based on the criteria for the survey. The Warren Hereford / Grant-Kohrs Ranch was one of these five sites recommended largely based on the importance of Conrad Kohrs and the overall integrity of the site. In 1960, the Warren Hereford / Grant-Kohrs Ranch, along with J. A. Ranch in Texas, the town of Lincoln, New Mexico, and the Tom Sun Ranch in Wyoming, were recommended for designation as National Historic Landmarks. The Warren Hereford / Grant-Kohrs Ranch was subsequently designated a National Historic Landmark in 1970. The increased recognition of the site and its historical context was to drive future preservation efforts.[171]

As needs of the town of Deer Lodge grew, municipal development and construction were implemented. Circa 1958-1960, the town constructed a sewage treatment pond and short access road from the state highway in the northeast corner of the Warren Hereford Ranch. The pond was subsequently rebuilt into four separate holding pools. In addition, they operated a gravel quarry in the southwestern corner of the Warren Hereford Ranch [former Kading property], and they widened Main Street (Montana State Highway 10) through town.[172]

Within the Warren Ranch itself, two pump houses (HS-86 and HS-87) were erected in the early 1960s. The concrete pump house (HS-87) adjacent to the southwest corner of the Stuart field was installed to lift water from the Clark Fork River over two hundred feet westward to the Kohrs Ditch (Kohrs-Batterson Ditch or the 'Big Ditch'). Subsequent to its construction, the pump station in the town of Deer Lodge was abandoned. The north pump house (HS-86) was placed on the north edge of the north field adjacent to the Kohrs-Manning Ditch.[173]

In 1963, Warren sold his small herd of commercial feeder cattle and entered the yearling steer business. He continued raising yearling steers until 1966 when he shifted to raising cows and calves. This was due in part to the dominance of corporate owned large-scale feed yards and the fact that small ranching operations like the Warren Hereford Ranch could not meet their

[171] McChristian, *Ranchers to Rangers*, 1,6. Note: An additional four sites were identified as having exceptional significance to the growth and development in the cattle industry in a subsequent survey conducted in the American Southwest.
[172] National Park Service, "Grant-Kohrs Ranch / Warren Ranch," National Register of Historic Places Registration Form, (Listed 2003), 7-6.
[173] National Park Service, "Grant-Kohrs Ranch / Warren Ranch," National Register of Historic Places Registration Form, (Listed 2003), 7-12, 8-64; National Park Service, Historic Structure Survey Forms.

economies of scale. "I'd buy calves and winter and summer them. I'd get 450 pound calves and in 180 days feed them to approximately 780-800 lbs – just on hay and grass."[174]

By the mid-1960s Con and Nell Warren had asked Department of the Interior officials if they would be interested in adding the Grant-Kohrs Ranch to their national park system. In response, Department of the Interior officials visited the National Landmark ranch on several occasions to study the potential for its inclusion in the National Park Service. In 1966, historian Aubrey C. Haines visited the Warren Hereford / Grant-Kohrs Ranch and drafted a feasibility report positively recommending that the National Historic Landmark site be included in the National Park Service. The following year, historians Merrill J. Mattes and John Calef inspected the Warren Hereford / Grant-Kohrs Ranch. In his 1968 report, Mattes recommended acquiring more than the historic architectural core and expanding the potential boundaries of the park to include the active ranch. Perhaps most importantly, he recognized that the acquisition of an active ranch would obligate the National Park Service to continue to operate a working ranch.[175]

While the National Park Service was interested in purchasing the historic portions of the Grant-Kohrs Ranch they did not have the funds necessary to carry out their intentions. In 1970, Con Warren and the National Park Service signed an agreement for the purchase of the older portion of the Grant-Kohrs Ranch "to be managed as a living ranch" (See Figures 2-80, 2-81 and 2-82). One hundred and thirty acres of the active Warren Hereford Ranch was purchased in fee simple, and an additional 1,180 acres of easement was eventually purchased by the National Park Foundation, a privately funded organization established by Congress specifically for purchasing properties that the National Park Service identified as critical but did not have the funds to buy themselves, with the long-term intent of establishing the Grant-Kohrs Ranch National Historic Site. The National Park Service, acting on behalf of the National Park Foundation, assumed immediate administrative responsibility over the property.[176]

Shortly after the National Park Foundation's acquisition, in December of 1970, a 40-foot trailer was installed between the garage (HS-3) and the lower yard garden for use of the National Park Foundation site caretaker. A water line from the ranch house (HS-1), a sewerage line to the adjacent city line, and telephone lines were subsequently hooked up to the trailer. During the same year, the Anaconda Company mines and smelter closed ending nearly a century of operation.[177]

In 1971, the first Master Plan for the National Park Foundation site was developed. The formal boundary of the site was set and issues of entrance and egress were discussed. During the same year, the first stabilization and rehabilitation work was begun at the ranch. Tom Pettet, the first National Park Foundation caretaker, began rehabilitation work on the ranch house (HS-1). Work included repairing and replacing shutters. Pettet was eventually replaced by Ed and Jean Griggs in September of 1971. A second, smaller trailer was acquired and located adjacent to the first trailer to be used as the caretaker office. An extension from the residential to the office trailer was subsequently built. During the same year, a Special Use Permit was issued to the Montana Power

[174] John Albright, Interview with Con Warren, 1975; Albright, *Historic Resource Study*, 117; [174] National Park Service, "Grant-Kohrs Ranch / Warren Ranch," National Register of Historic Places Registration Form, 8-63; Interview with Con Warren, July 17, 1985.
[175] McChristian*, Ranchers to Rangers*, np.
[176] McChristian, *Ranchers to Rangers*, np; National Park Service, "Grant-Kohrs Ranch / Warren Ranch," National Register of Historic Places Registration Form, 8-6.
[177] McChristian, *Ranchers to Rangers*, np; *Cottonwood Chronicle* (Deer Lodge, Montana, June 2002), Vol. 2, No. 1.

Company to erect a single pole 100 KV power line crossing Grant-Kohrs Ranch, National Historic Site.[178]

In 1972, Warren remodeled the south side of his cattle barn (HS-64) for use as a wood and maintenance shop. New red metal siding and three overhead doors were installed. Sometime after 1972, the metal sales barn (HS-65) was also renovated as a maintenance shop.[179]

Landscape Characteristic by Chronological Period

Spatial Organization

Agriculture	Fields under cultivation were placed adjacent to or nearby local drainages due to the richer bottomland soils, and the ability to irrigate crops. Dryland farming was not a viable option in western Montana.

Land Use

Residential	The Warren Hereford Ranch was one of numerous residences spread throughout the larger Deer Lodge valley.
Ranching	Con Warren continued to use the home ranch for general ranching activities that supported care and maintenance of his stock.
Grazing	Con Warren continued to use portions of the home ranch as open range for his stock.
Agriculture	Con Warren continued to farm the land he owned throughout the last half of the twentieth century.

Cultural Traditions

Irrigation ditches	Con Warren continued to clean and maintain irrigation ditches annually as he sought to improve the production of fields in the bottomlands and foothills on the west side.
Jack-leg fencing	Warren continued to use traditional jack-leg fencing on his ranch.

[178] McChristian, *Ranchers to Rangers*, np; Jack K. Anderson, Superintendent, Yellowstone National Park to J. H. Briney, Montana Power Company, July 28, 1971.
[179] Chris Ford Interview with Phil Berg, September 29, 1997.

Circulation

Sewage treatment pond access road	The town of Deer Lodge constructed a short access road from the state highway that allowed them to operate and monitor the new sewage treatment facility, ca. 1958-1960. From the state highway, the road ran due south and then westward towards the ponds.

Vegetation

Crops	By the late 1950s, Warren had largely abandoned grain cultivation and farmed a majority of his land in native hay.

Buildings and Structures

Pump house (HS-86) built	Warren constructed the north pump house (HS-86) just north of the north field and adjacent to the Kohrs-Manning Ditch, ca. 1960.
Pump house (HS-87) built	Warren constructed the pump house (HS-87) north of Deer Lodge ca. 1960 to lift water from the Clark Fork River to the Kohrs Ditch.
Trailer placed	A 40 foot long trailer was placed between the garage (HS-3) and the garden at the southwest corner of the yard for use of the NPS caretaker in 1970.
Trailer placed	A second smaller trailer was placed adjacent to the first one for use as the NPS caretaker's office in 1971.
Cattle barn (HS-64) remodeled	In 1972, Warren remodeled the south side of his cattle barn (HS-64) for use as a wood and maintenance shop. New red metal siding and three overhead doors were installed.

Constructed Water Features

Sewage treatment pond built	The town of Deer Lodge constructed a sewage treatment pond adjacent to the Milwaukee Railroad's borrow pits and east of the Clark Fork River ca. 1958-1960. The pond was subsequently divided into four separate holding pools in the late 1970s to early 1980s.

Small-Scale Features

Gravel quarry excavated	The town of Deer Lodge operated a gravel quarry in the southwest corner of the Warren Hereford Ranch in the late 1950s.
Power line erected	The Montana Power Company erected a single pole 100 KV power line through Grant-Kohrs Ranch in 1971.

The National Park Service and early conservation efforts, 1972-1988

Introduction

After its acquisition of the Grant-Kohrs Ranch National Historic Site in 1972, the National Park Service focused its first decade and a half on establishing a working ranch and stabilizing and restoring, as much as possible, the materials and fabric of the historic facilities. By the mid-1970s, the first cattle and horses were acquired and stabilization work on important interpretive structures and features had begun. By the early 1980s, portions of the existing irrigation ditch system were renovated and haying on a share basis was initiated to meet livestock and park interpretive needs.

Historical Context

In August of 1972, Congress authorized the establishment of Grant-Kohrs Ranch National Historic Site "to provide an understanding of the frontier cattle era of the Nation's history, to preserve the Grant-Kohrs Ranch, and to interpret the nationally significant values thereof for the benefit and inspiration of future generations." On August 25th, President Richard Nixon officially signed the bill into law. By the end of 1972, the National Park Foundation had conveyed the property it owned at the Grant-Kohrs Ranch to the National Park Service. As a new property, Grant-Kohrs Ranch was to be administered under the jurisdiction of Yellowstone National Park. During the same year, the Grant-Kohrs Ranch National Historic Site was administratively listed on the National Register of Historic Places and included 34 contributing buildings and 20 contributing structures.[180]

Warren eventually sold several additional tracts of land and easements to the National Park Service during the early 1970s. They included a narrow corridor lining the Clark Fork River and protecting the river bottom area in February of 1973, an easement to a long narrow strip containing approximately 37 acres north of his residence and west of the state highway in December of 1973, and another tract near his residence on the eastern border of the property in July of 1975. By the end of 1975, the total acreage held by the National Historic Site in fee simple had increased to 216.79 acres.[181]

Initial rehabilitation of the buildings composing the National Historic Site continued under the tenure of the National Park Service. Throughout the mid-to-late 1970s and into the early 1980s, much of this work focused on the stabilization and preliminary rehabilitation of the physical facilities. In 1973, emergency stabilization and preservation work was accomplished on the ranch house (HS-1). The old leaky metal roof was replaced with a non-historic wood shingled roof. In addition, the first archeological survey on the Grant-Kohrs Ranch was performed by Floyd Sharrock. A total of four prehistoric sites potentially dating from the Middle Plains Archaic to the Late Prehistoric periods were identified.[182]

In 1974, the Grant-Kohrs Ranch National Historic Site became an independently operating unit of the National Park Service. Numerous HABS aerial and land based photographs document the new site's condition and physical layout during this year (See Figures 2-83 through 2-96). The first superintendent, Richard Peterson, and the first historian, Paul R. Gordon arrived at the site. A

[180] Albright, *Historic Resource Study*, 117; National Park Service, "Superintendent Annual Report (SAR), 1975," np.
[181] McChristian, *Ranchers to Rangers*, np.
[182] McChristian, *Ranchers to Rangers*, np; Floyd W. Sharrock, "An Archaeological Survey of the Grant-Kohrs Ranch National Historic Site" (Missoula: University of Montana Statewide Archaeological Survey, 1973), 6-9.

third trailer was brought to the National Historic Site to provide housing for the historian between 1974 and 1976. This trailer was located in front of the buggy shed (HS-17) until 1976 when it was relocated next to the thoroughbred barn (HS-15). Administrative offices for the National Historic Site were subsequently leased at 314 Main Street in the town of Deer Lodge in 1975. Circa 1974-1975, a maintenance shop was set up in the dairy barn (HS-9). Rodd L. Wheaton, the regional historic architect for the Rocky Mountain Region, arranged to have the Historic American Buildings Survey (HABS) photographically and architecturally record the most significant buildings at the Grant-Kohrs Ranch National Historic Site.[183]

The Kohrs-Manning Ditch Company, responsible for the maintenance and operation of the irrigation ditch replaced an ineffective flume at the junction of the Kohrs-Manning Ditch and Johnson Creek in 1974. The new flume (HS-50), a rectangular frame apparatus, carried the ditch water over Johnson Creek and replaced an earlier frame flume (HS-51). Outside of the formal boundaries of the National Historic Site, the Milwaukee Railroad "de-energized" its electric lines across Montana, including that part that ran through the Warren Hereford Ranch.[184]

Sometime in the mid-1970s, Con Warren donated an easement to the National Park Service for a new road that was to be established just north of his house and pass in front of the big red barn (HS-64). The desire of National Historic Site officials was to allow Warren to access his active fields and pastures without passing through the historic core and to create an alternate employee access road there. The historic access road to the Warren Hereford and Grant-Kohrs Ranch had passed just north of and adjacent to Con Warren's residence. It led due west and ran between the ranch house (HS-1) and bunkhouse (HS-2). The Warren's requested that the new access road be limited to a service entrance for National Historic Site staff only.[185]

By 1975, the budget for the National Historic Site was expanded to support substantial preservation efforts. During this year, the exterior to the ranch house (HS-1) was repainted, the gutters and downspouts were replaced, and all sashes were reconditioned. Likewise, the brick entry path and the north-south walk in front of the residence were replaced with a wooden boardwalk meeting accessibility standards and similar to the original one. Four other buildings including the ice house (HS-5), cow shed, wooden granary, and the east stallion barn also received new roofs. The thoroughbred barn (HS-15) was also re-roofed and eventually housed a display of horse drawn vehicles. Masonry repairs to foundations, and grading surrounding ten additional buildings for improving drainage were made. In addition, old ranch roads throughout the landscape but particularly in the low bottom land areas, were graded and filled where necessary to raise their grade in relation to surrounding fields.[186]

Initial visitor service area development was also begun during 1975. Two "old structures," including a "studs out" granary and a small floorless log cabin formerly used as a pig shelter, were purchased from the former Conrad Kohrs old Upper Ranch and brought into Grant-Kohrs National Historic Site for use as a temporary Visitor Contact Station and a public rest room. They were placed at the southeast corner of the National Historic Site near the state highway. A 30-car visitor parking lot, and a 1,100-foot trail from either side of the railroad right-of-way to the ranch house (HS-1) and parking area, and approximately 1.5 miles of new jack-leg fence surrounding the visitor contact area were also constructed at this time. In addition, new utility lines were put in

[183] McChristian, *Ranchers to Rangers*, np.
[184] *Cottonwood Chronicle* (Deer Lodge, Montana, June 2002), Vol. 2, No. 1; John Albright Interview with Con Warren, 1975; National Park Service, Historic Structure Survey Forms.
[185] McChristian, *Ranchers to Rangers*, np.
[186] McChristian, *Ranchers to Rangers*, np; National Park Service, "SAR 1975," np; Shapins Associates, "HS-1 Cultural Landscape," 70% Draft, 16; National Park Service, "National Register of Historic Places Registration Form: Grant-Kohrs Ranch / Warren Ranch," 7-10.

around the National Historic Site including an underground power line to the visitor service area buildings, and a new drainage system for the lower yard in the rear of the ranch house. The drainage system consisted of a new system of drain tiles designed to alleviate the historic flooding associated with the bottom lands adjacent to the Clark Fork River. Guided tours of the property were conducted by appointment only.[187]

Prior to the construction of the parking area and interpretive trail, archeological investigations were conducted by Winifred M. Brown during the summer of 1975. The investigations focused on testing the National Register significance of 24PW1078, the Tom Stuart cabin site formerly located by Sharrock, and to determine the course of the historic waterway system in the area of the ranch house (HS-1). Brown's investigations discovered the former house site and the remains of an adjacent barn.[188]

Other significant events at the National Historic Site included the arrival of four draft horses and four Short Horn cattle acquired from the LBJ Ranch in Texas in 1975. In addition, the National Park Service carried out a survey of existing conditions at the site. The maps of the property were subsequently incorporated in John Albright's *Historic Resource Study* (1979).[189]

During 1976, the foundations of the bunkhouse (HS-2) and draft horse barn (HS-7) were stabilized. This work was archeologically monitored by Carol Legard from the Denver Service Center. The thoroughbred barn (HS-15), the 1935 granary (HS-23), and the chicken house (HS-22) were also re-roofed. Repainting of many historic structures contributed to stabilization efforts. During the same year, the bunkhouse (HS-2), ice house (HS-5), granary (HS-18), and the Bielenberg barn were repainted and the stallion barn (HS-14), thoroughbred barn (HS-15) and Leeds-Lyon barn (HS-16), and the buggy shed (HS-17) were whitewashed. In addition, three quarters of a mile of new jack-leg fence was constructed on the National Historic Site's northern boundary. The area surrounding the Visitor Contact Station was graded in an effort to control thistles. The ranch house (HS-1) was fitted with an alarm system, and National Historic Site caretakers moved into it. The former caretaker housing trailer was returned to Yellowstone National Park in 1976. Surrounding the ranch house, the stone and brick foundation was re-painted, the brick pavers composing the front walk were removed and a new board sidewalk was reconstructed on the front or eastern yard leading from the front door to the eastern picket fence gate. The "lower yard" was leveled and the little hay meadow was reseeded. The following year the blacksmith shop / garage (HS-3), granary (HS-6), dairy barn (HS-9), brooding house (HS-21), and chicken house (HS-22) were re-roofed. In addition, a galvanized iron sheeting was put on the roof of the buggy shed (HS-17). The ice house (HS-5) and two feed storage houses were repainted.[190]

On July 16, 1977, Grant-Kohrs Ranch National Historic Site was formally dedicated. Prior to the dedication, the entire length of the interpretive trail was surfaced and three waysides were installed. The waysides interpreted the importance of grass and the impact of the winter of 1886-1887. In addition, during the year one mile of road was graded, 1.5 miles of jack-leg fencing was built, ten new gates were built and installed, and 130 feet of French drain was installed at the draft horse barn (HS-7). Livestock on the ranch was also increased to include Short Horn and Hereford cattle, Belgian draft horses and saddle stock, and chickens and cats. Enough cattle had been

[187] McChristian, *Ranchers to Rangers*, np; National Park Service, "SAR 1975," np.
[188] National Park Service, "SAR 1975," np; W. E. Sudderth, "Grant-Kohrs Ranch: An Archeological Glimpse of the Golden Years" (Lincoln: Midwest Archeological Center, 1985), 4.
[189] National Park Service, "SAR 1975," np; McChristian, *Ranchers to Rangers*, np.
[190] National Park Service, "SAR 1976," np; McChristian, *Ranchers to Rangers*, np; Sudderth, "Golden Years," 4.

obtained by this time to begin a small breeding program. The herd size was maintained at a "few dozen" with a number of cows and calves being sold in the fall at auction.[191]

During the late 1970s, National Historic Site employees began to notice and monitor erosion of the banks of the Clark Fork River as it ran through the site. Site repair and improvement continued and included the construction of approximately 900 feet of new jack-leg fence in National Historic Site administrative zone in 1978. In addition, a dirt ramp at the west end of the draft horse barn (HS-7) was also rebuilt and a new foundation for the stallion barn (HS-19) was completed. A year later a weather station was purchased and installed adjacent to the visitor center. W. E. Sudderth carried out archeological mitigation in advance of the construction of a water main line between the bunkhouse (HS-2) and ranch house (HS-1).[192]

From the mid-1970s onward, the National Park Service had been trying to negotiate an easement with the Burlington Northern railroad that would allow the construction of a pedestrian underpass bridge facilitating safe passage of visitors to the western side of the National Historic Site. In 1978, an agreement was finally reached with Burlington Northern and the pedestrian underpass bridge was constructed at a cost of over $31,000.

In 1978, the Powell County weed board sprayed the Warren Ranch for weeds. The following year, they surveyed the Grant-Kohrs Ranch site and estimated that it would cost just over $200 to spray problem weed areas with herbicide. The site was subsequently sprayed. During the same year, a program was developed by staff to "periodically clean up the ditches, streams, and Clark Fork River within the park boundaries." [193]

In 1979 Nell Warren died. In anticipation of the National Park Service purchasing the remainder of his lands, Warren sold a substantial portion of his Hereford herd. Warren also had the breezeway between his residence (HS-58) and garage (HS-59) enclosed in 1980.[194]

With the condemnation of the existing well and ditch system water source to meet the park requirements for health and fire safety in 1979, the National Historic Site initiated an effort to connect up to a City of Deer Lodge main located just south of their property on Milwaukee Avenue. In 1980, construction was begun on a trench that would hold a water and natural gas lines. The trench ran through one of Warren's leased hayfields to a point south of the stallion barn (HS-14).[195]

In 1980, Mount St. Helen's erupted in May and left a substantial layer of ash over the entire National Historic Site. Cleanup of the site took several weeks to carry out. By the end of the year, flooding at the foot of the pedestrian trail under the railroad tracks had been identified as a problem. Several drainage options were studied. A total of five small vegetative test plots were established in areas of "former pollution" to test the regrowth and fertilization of grasses in these areas. In addition, the ice house (HS-5), the garage / blacksmith shop (HS-3), the privy (HS-8), the brooding house (HS-21) and chicken house (HS-22) were stabilized. The stallion barn (HS-16), and two feed storage houses (HS-28 and HS-31) were re-roofed with cedar shingles and a

[191] National Park Service, "SAR 1977," 2-3; McChristian, *Ranchers to Rangers*, np.
[192] McChristian, *Ranchers to Rangers*, np; National Park Service, "SAR 1978," 5-6; National Park Service, "SAR 1979," np; Sudderth, "Golden Years," 4.
[193] Peggy Gow, "Notes on C. K. Warren Papers," np; Ralph Beck to Paul Kirkland, June 4, 1979; A 6419, Organization, Goals and Objectives, 1979-1993.
[194] McChristian, *Ranchers to Rangers*, np; National Park Service, "Historic Structure Survey Forms."
[195] McChristian, *Ranchers to Rangers*, np.

public restroom was installed in a part of the garage / blacksmith shop (HS-3). During the same year, a trench for an underground telephone cable was excavated through park lands.[196]

In addition to the 150 head of cattle that Con Warren grazed on land leased from the Park Service, the park also grazed their own small herd of 19 cattle and 10 horses. In 1981, Grant-Kohrs Ranch agreed to stable horses from the U.S.F.S.'s Deer Lodge National Forest. [197]

In 1981, Cottonwood Creek flooded above the predicted 100-year flood level. As a result, visitor access to the pedestrian trail was restricted at the railroad trestle. A contractor subsequently repaved approximately 300 feet of the washed out pedestrian trail from ranch house (HS-1) to the visitor center. The machine shed (HS-12) and the cow shed (HS-13) were stabilized and re-roofed, and the chicken house (HS-22) yard fence was rebuilt. During the same year, the oxen barn (HS-10) was completely dismantled, the ground around it regraded and a new foundation was laid, prior to its reassembling. Prior to the restoration of the oxen barn, Cheryl Clemmenson performed archeological mitigation. Three quarters of a mile of new jack-leg fence were constructed along the National Historic Site's northern boundary. A mangel patch was planted south of the chicken coop and the garden south of the ranch house (HS-1) was cultivated in flowers.[198]

In an effort to more accurately approach the feel of a working ranch, by the late 1970s the National Historic Site had decided to contract out the operation and maintenance of its crop fields, e.g. cutting, bailing and stacking of hay, on a share basis. A haying contract was subsequently awarded to Dick Walker in 1982. A total of 76 tons of hay was cut from 50 acres of meadow during the first year of the agreement. Four tons were sold by the National Historic Site at $45 per ton. Between 1984 and 1986, hay was grown and harvested from the Stuart field, the lower meadow, and several other smaller fields. The following year, all of the irrigation ditches were cleaned and headgates replaced so that the Stuart field meadows were well irrigated for the first time in years. The result was a significant increase in grass / hay production. Ironically, the same year that the National Park Service attempted to booster the appearance of a working ranch, Con Warren sold his remaining stock and ranching equipment. Warren ceased active ranching during this year. In 1981, Warren also sold much of the immediate ranch not now owned by the Park Service to a local rancher but got it back about 1984. Presumably there was little change made to the physical landscape, structures, or other cultural features. Shortly after his retirement in 1982, Warren began leasing some of his easement lands on the West Side to local ranchers.[199]

In 1982, the Clark Fork (HS-89) and Slough (HS-90) bridges and the Kohrs-Manning Ditch were all rehabilitated. The bridges received new decking and approach grading. The bunkhouse (HS-2) roof was replaced and the Leed's Lyon Barn (HS-16) was restored. By 1982, the entire park boundary had been completely fenced. Underground electrical lines were installed from the coal shed (HS-4) to the brooding and chicken coops (HS-21 and HS-22). The coal shed (HS-4) was stabilized with steel rods. New information and locational and direction signs and a flag pole were installed within the administrative area. Youth Conservation Corps members cleaned trash from the Johnson Creek bed and the Kohrs-Manning Ditch. A year later, the Draft Horse Barn

[196] National Park Service, "SAR 1980," 3-4, 7-8; McChristian, *Ranchers to Rangers*, np; National Park Service, "Grant-Kohrs Ranch / Warren Ranch," National Register of Historic Places Registration Form, (Listed 2003), 7-5, 8-64; Grant-Kohrs Ranch, National Historic Site, Special Use Permit 1586-80-0001.
[197] Summary of Grazing and Pack and Saddle Stock Grazing for Calendar Years, Grant-Kohrs Ranch, National Historic Site, 1981, 1982; Memorandum of Agreement, July 9, 1981.
[198] National Park Service, "SAR 1981," np; McChristian, *Ranchers to Rangers*, np.
[199] National Park Service, "SAR 1982," 14-15; "SAR 1983," 9, 16-18; McChristian, *Ranchers to Rangers*, np; "Haying Notes" (1984-1986), L3105. Warren's retirement from active ranching in 1982 served was a major factor in determining the end date for the GRKO Ranch National Historic Site period of significance.

(HS-7) foundation was substantially repaired including the replacement of the sill logs, rehabilitation of the roof support system, and the installation of new flooring and joints in the northern portion of the structure. The Ranch House (HS-1) porch was also restored. Five feed racks (HS-36-38, 43-44) were rehabilitated. The Bielenberg barn board and batten roof was also replaced. Three stock shelters were also rehabilitated. The visitor center parking lot and pedestrian trail was slurry sealed.[200]

After the Milwaukee Railroad declared bankruptcy in 1982, a railroad salvage crew began the removal of all rails and ties from its line beginning at the south boundary of the ranch and extending south to the City of Deer Lodge. The National Park Service attempted to negotiate the purchase of the Milwaukee Railroad's right-of-way and borrow pit area within park boundaries. In 1983, the National Historic Site acquired the 21.69 acre Milwaukee Railroad right-of-way and an additional 27.67 acres that was formerly used as a borrow pit. Several years later the park acquired two railroad cars that are now kept on the property. In 1985, a 1929 Standard Steel Cattle Car was acquired from the White Sulphur Springs and Yellowstone Railroad. The following year, a 1923 Cattle Car was acquired from the Northern Pacific Railroad Company. Both cars are currently used for interpretive purposes.[201]

In 1980, five small test plots were established by the National Historic Site on the west bank of Clark Fork River in an attempt to monitor vegetation growth in "slicken" soils. The soils were found to be dead and non-productive. Three years later, formal scientific research conducted by the University of Montana confirmed that high concentrations of copper, arsenic and cadmium were found to be present in the soils and vegetation of portions of the Grant-Kohrs Ranch, particularly in the lands immediately adjacent to the Clark Fork River. The contamination was found to be due to over 100 years of mining and smelting in the Butte and Anaconda areas and the fact that the Clark Fork River and its tributaries had carried heavy metals waste from tailings piles downriver. The following year, a comprehensive survey of the flora and fauna within the National Historic Site was accomplished by the University of Montana. By 1984, the Silver Bow Creek and Anaconda smelter were designated as superfund sites. Grant-Kohrs Ranch National Historic Site lay within the designated boundary of the Silver Bow Creek superfund site. In 1985, the National Historic Site fenced off the Clark Fork River to prohibit livestock from drinking its waters or coming near the contaminated soils and vegetation.[202]

In 1982, preliminary information began to be gathered on the park's natural resources. Spot counts of Columbian Ground Squirrel population density and dispersion were initiated. Likewise similar information was gathered on noxious weeds. By the early 1980s, the impact of beavers had become a problem to the free flow of park drainages and irrigation trenches. In 1985, the park authorized the Kohrs-Manning Ditch Company to trap and remove problem beavers from activity areas within the Ditch Company's right-of-way. In 1983, University of Montana researchers conducted a formal baseline survey of threatened or endangered flora and fauna survey within the park. Based on this survey, in 1985 the National Historic Site began to address the problem of noxious knapweed and leafy spurge, invasive weeds found within park lands that could potentially be detrimental to the health of native fields and pasture. Two main areas were identified as containing substantial weeds, along the riverine floodplain where seeds were brought in by flood waters, and along the railroad rights of way to the north park boundary. Study plots were laid out to monitor the effect of active biological pathogens on the invasive weeds. The Gall

[200] National Park Service, "SAR 1982," 14-15; "SAR 1983," 9, 16-18; McChristian, *Ranchers to Rangers*, np; Grant-Kohrs Ranch Completion Reports (1975-1983); "Redeck Three Bridges" (1982).
[201] National Park Service, "SAR 1982," 14-15; "SAR 1983," 9, 16-18; ; National Park Service, "Grant-Kohrs Ranch / Warren Ranch," National Register of Historic Places Registration Form, 7-11.
[202] National Park Service, "SAR 1984," np; "SAR 1985," 10, 13-14; McChristian, *Ranchers to Rangers*, np.

fly and a fungus were introduced to the weedy areas. The invasive weeds were also controlled through manual removal. After several years of monitoring the biological agents, natural methods were not found to be as effective as wished and soon thereafter, the National Historic Site introduced limited spraying of the impacted areas with 2-4D. Also during 1985, Powell County began the implementation of a Weed Management Program that sought to identify and control problem areas before they were able to spread. The Act required all federal, state or municipal governments to enter a written agreement for noxious weed control and provide a written plan for restoring vegetation to the weed board prior to disturbing any land. [203]

In an effort to prevent continued erosion of the Clark Fork River banks through the National Historic Site, in 1985 the National Park Service cut willow shoots growing in the riparian areas and began to root and plant additional willow trees along the Stuart Field hay meadow to stabilize the river banks there and prevent springtime erosion.[204]

In 1983 the ranch house (HS-1) underwent a substantial restoration. All of the furniture and other items were removed from the house in the fall of the year. A new electrical and fire and security system was installed along with a new gas furnace to replace the original coal heating system. During the same year, the park's southern boundary fence was replaced, and a subterranean gas line was excavated through park lands from Deer Lodge to the Ranch House (HS-1).[205]

In 1984, the granary (HS-18) was stabilized. The process included the installation of a gravel drainage area around the structure. A year later, four headgate boxes in the Kohrs-Manning Ditch were re-constructed. Sometime during the early 1980s, a squeeze chute (HS-67) was rehabilitated by the National Historic Site to replace a dilapidated one constructed by Warren. Sometime during the mid-1980s four feed racks were repaired, the board and batten roof on the Bielenberg barn (HS-11) was replaced, and three stock shelters were rehabilitated. By 1987, the south garden stone walls and steps and handrail were repaired and a new park entrance and visitor information sign was installed in the visitor center area.[206]

Beginning in the early 1980s, the park initiated a Land Protection Plan study. In 1985, the Draft Plan recommended the acquisition of four separate tracts from Con Warren totaling 840 acres. Warren was currently leasing these lands to an independent rancher, Harry Trowbridge, and had given him the option to buy them. As part of that lease, a trailer house was moved onto one parcel, tract 01-115, during this period just northeast of the Ranch House (HS-1). [207]

In 1987, the National Historic Site received title to a 6-plus acre site on its south border. The small tract was originally contained within the National Historic Site boundaries but its title was disputed with the City of Deer Lodge.[208]

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[203] "SAR 1982" ; McChristian, *Ranchers to Rangers*, np; Jimmy Taylor to Mill Mosier, November 18, 1985; David J. Streufert, Montana State University, County Agent, Powell County, Montana, November 28, 1985.
[204] National Park Service, "SAR 1985," 10, 13-14, 20.
[205] McChristian, *Ranchers to Rangers*, np.
[206] National Park Service, "SAR 1984," np; "SAR 1985," 10, 13-14, 20; "SAR 1987," 1, 10, 12; McChristian, *Ranchers to Rangers*, np.
[207] Superintendent, GRKO to Regional Director, RMR, June 21, 1985.
[208] McChristian, *Ranchers to Rangers*, np.

Landscape Characteristic by Chronological Period

Natural Systems and Features	
Drainage system built	In an effort to drain the lower yard area in the rear of the ranch house (HS-1), a new system of drainage tiles is constructed throughout the area in the mid-1970s.
Spatial Organization	
Pedestrian trail	The construction of the pedestrian trail in 1975 and the subsequent orientation of the visitor to the National Historic Site, changes the spatial organization of and visitor experience within the property.
Land Use	
Residential	Con and Nell Warren continued to live adjacent to the National Historic Site.
Ranching	Con Warren and the NPS continue to use portions of the home ranch for general ranching activities that supported the care and maintenance of their stock.
Grazing	Con Warren and the NPS continue to use portions of the home ranch as open range for their stock.
Agriculture	Con Warren and the NPS continue to farm and lease portions of the land they own for agricultural purposes throughout the last half of the twentieth century.
Education and Interpretation	Since its establishment, the Grant-Kohrs Ranch National Historic Site has interpreted the history of ranching in Montana to the public.
Archeological investigations	Section 106 of the National Historic Preservation Act of 1966 required the National Historic Site to conduct archeological investigations on the federally held property. The first survey of park lands in 1973 identified four archeological sites (24PW1076, 24PW1077, 24PW1078, and 24PW1079). In 1975, the Tom Stuart cabin site (24PW1078) and an adjacent barn is formally located by NPS archeologist, Winifred M. Brown. Additional archeological investigations were carried out on

	National Historic Site property throughout the last quarter of the twentieth century.
Cultural Traditions	
Irrigation Ditches	The NPS began to rehabilitate and repair old irrigation ditch systems in an effort to restore the historic fertility of the range and field system and for the purposes of interpreting an active working ranch.
Jack-leg fencing	The NPS revives the use traditional jack-leg fencing at the National Historic Site constructing numerous miles of new fence over the course of the next two decades.
Cluster Arrangements	
Visitor contact area	A new visitor contact area is designed and constructed by the NPS in 1975-1976. This area is the primary route of ingress and egress to the National Historic Site and is also where the visitor is oriented and obtains information about the site.
Circulation	
Visitor parking area built	A 30-car visitor parking area was graded and paved in the Visitor Service area in 1975.
Pedestrian trail built	A 1,100 foot long pedestrian trail leading from the visitor parking lot to the ranch house (HS-1) was constructed in order to facilitate access to and circulation within the National Historic Site in 1975.
Park access road	The NPS constructs a new employee access road from the state highway into the park just north of the Warren residence (HS-58). The new access road enabled park employees to enter the National Historic Site but also allowed Warren access to his ranch lands and facilities without driving through the historic core.
Brick pavers removed	The brick pavers that composed the front walk of the ranch house (HS-1) were removed in 1975.
Board sidewalks built	Board sidewalks meeting accessibility requirements were constructed in 1975 on the front or eastern yard of the ranch house (HS-1)

	leading from the front door to the gate in the eastern side of the picket fence.
Pedestrian trail surfaced	Prior to the formal dedication and opening of the park in 1977, the pedestrian trail from the visitor parking area to the ranch house (HS-1) was surfaced.
Pedestrian underpass built	A pedestrian underpass is constructed underneath the active lines of the Milwaukee Railroad and Burlington Northern Railroads in 1978.
Stone walkway replaced	The stone walkway between the ranch house (HS-1) and the bunkhouse (HS-2) was removed during the construction of a water line and then replaced in 1981.
Pedestrian trail repaved	Due to damage from flooding, approximately 300 feet of the pedestrian trail is repaved in 1981.
Vegetation	
Willow plantings	In an effort to prevent continued bank erosion along the Clark Fork River, the NPS planted willow trees for stabilization in 1985.
South garden re-established	The garden south of and adjacent to the ranch house is re-established and planted in flowers and vegetables in the mid-1980s.
Vegetation controlled	Problem weed areas, along the riparian floodplain and railroad rights of way, identified in the early 1980s are controlled from 1985 onwards with the aid of integrated pest management (IPM) including both biological agents and manual removal.
Buildings and Structures	
Trailer placed	A trailer was placed in front of the buggy shed (HS-17) in 1974 to serve as housing for the NPS historian. The trailer was moved in 1976.
Log cabin structure (001) placed	A log cabin formerly used as a pig pen and obtained from the old Kohrs “Upper Ranch” site was placed in the Visitor Service area and refitted as a temporary public restroom in 1975.

Granary structure (002) placed	A former granary obtained from the old Kohrs "Upper Ranch" site was placed in the Visitor Service area and refitted as a temporary Visitor Contact Station in 1975.
Trailer moved	The NPS historian's trailer was relocated next to the thoroughbred barn (HS-15) in 1976.
Trailers removed	The former NPS caretaker's residential and office trailers were removed from the National Historic Site in 1976.
Warren residence breezeway enclosed	Warren has the breezeway between his residence (HS-58) and garage (HS-59) enclosed.
Squeeze chute (HS-67) rehabilitated	Sometime during the early 1980s, the NPS rehabilitated a squeeze chute on the location of a former dilapidated squeeze chute west of the red barn (HS-64).
Trailer placed	Ca. 1985, a trailer is moved onto a Con Warren owned parcel, tract 01-115, for use of a rancher leasing the land.
Cattle car placed	A 1929 Standard Steel cattle car is acquired from the White Sulphur Springs and Yellowstone Railroad in 1985. The car is placed on the inactive Milwaukee Railroad line for interpretive purposes.
Cattle car placed	A 1923 cattle car is acquired from the Northern Pacific Railroad Company in 1986. The car is placed on the inactive Milwaukee Railroad line for interpretive purposes.

Constructed Water Features

Drainage system built	A new system of drainage tiles was constructed in the lower yard area in the rear of the ranch house (HS-1) to facilitate drainage in the mid-1970s.
Frame flume (HS-50) built	The Kohrs-Manning Ditch Company constructed a new flume (HS-50) to replace an ineffective one at the junction of the Kohrs-Manning Ditch and Johnson Creek.
Frame flume (HS-51) removed	The NPS removed the remains of an ineffective flume (HS-51) at the junction of the Kohrs-Manning Ditch and Johnson Creek.

Water main and utility line installed	Construction was initiated in 1980 on a new water main and utility line trench from the National Historic Site's southern border through the Stuart field to a point south of the stallion barn (HS-14).
Small-Scale Features	
Jack-Leg fence erected	Three quarters of a mile of new jack-leg is constructed by the NPS on its northern boundary in 1976.
Interpretive waysides built	Prior to the formal dedication of the park in 1977, three interpretive waysides were erected along the pedestrian trail. The waysides related the importance of grass and the impact of the winter of 1886-1887.
Jack-Leg fence erected	Approximately 900 feet of new jack-leg fencing is erected in the administrative area in 1978.
Weather station installed	A weather station is purchased and installed adjacent to the visitor center at the National Historic Site in 1979.
Overshot stacker acquired	The park acquired an overshot stacker in 1983 to interpret early hay stacking methods.
Sweet pea trellis built	A new sweet pea trellis is built in the garden south of and adjacent to the ranch house (HS-1) in 1984.
Clark Fork River fenced	A jack-leg fence is erected to prevent livestock from approaching the Clark Fork River or its adjacent vegetation in 1985.
Garden wall, steps and rail rebuilt	The stone retaining wall, stone steps and historic handrail in the garden south of and adjacent to the ranch house (HS-1) were rebuilt by the NPS in 1987.
Entrance sign erected	A new park entrance sign is erected adjacent to the state highway just east of the visitor service area in 1987.

Acquisition of the Con Warren Ranch, 1988-2002

Introduction

With the acquisition of the remaining portion of the Warren Ranch in 1988, the Grant-Kohrs Ranch National Historic Site continued to implement stabilization and restoration on the newly acquired facilities. In addition, with the acquisition of water rights associated with the West Side fields, enabled the park to initiate an agricultural / grazing lease in 1989. During this period, baseline flora and fauna studies were initiated with the goal of better managing the park resources. Most recently, new curatorial / museum facilities were constructed and the restoration of the cultural landscape surrounding the Ranch House (HS-1) was begun.

Historical Context

In 1988, the National Park Service consummated the deal that they had been negotiating with Con Warren. In June of that year, the National Historic Site purchased an additional four tracts of land including 1,059.85 acres and 34 historic structures, the remainder of the Warren Hereford Ranch property. Warren was given a life estate to his residence and associated buildings located on a single acre.[209]

Acquisition of the remainder of the Warren lands allowed the National Historic Site to acquire valuable water rights associated with the West Side and Kohrs-Manning ditches obtained from the Clark Fork River, Modesty Creek, Peterson Creek and Reece Anderson Creek. Access to this water allowed the National Historic Site to increase their irrigated lands and raise the productivity of adjacent fields and pasture.[210]

Throughout the late 1980s, rehabilitation of National Historic Site structures and features continued. In 1988, the thoroughbred barn (HS-15) and coal shed (HS-4) were given new foundations. A year later, the ranch house's (HS-1) east and southwest porches were repaired.[211]

In early 1989, the park had the newly acquired lands assessed. Approximately 762 acres were designated appropriate for agricultural or livestock production. During the same year, the park initiated an Agricultural Use lease program. From this year on, approximately 746 acres were leased to a local rancher for both hay production and cattle grazing. The lease stipulated the number of animal units that could be grazed on the property and the length of the grazing period. During the first year, Dave Johnson grazed 411 cattle on the newly acquired park lands. The substantial annual payment for the lease remained in the park and allowed staff to administer it and maintain the irrigation system.[212]

The park's efforts at pest management continued. In 1989, the park initiated a five-year agreement with the Department of Agriculture in Bozeman, Montana to be a bio-control test site under the Animal and Plant Health Inspection Service (APHIS). In 1991, adult seed head weevils and moths were released in targeted weed areas and monitored for control. In 1990, a Natural

[209] National Park Service, "SAR 1988," np; Summary of Grazing and Pack and Saddle stock grazing for Calendar Year 1989, Grant-Kohrs Ranch, National Historic Site.
[210] McChristian, *Ranchers to Rangers*, np. Acquisition of these lands also prevented their potential future development allowing for the preservation of the western viewshed.
[211] National Park Service, "SAR 1988," np; "SAR 1989," 1-2.
[212] National Park Service, "SAR 1989," 1-2.

Resources division was created at Grant-Kohrs Ranch, National Historic Site and over $7,000 was spent on spraying noxious weeds. The following year, this total reached $12,000.[213]

In 1991, Grant-Kohrs Ranch agreed to provide winter pasture for 53 head of horses / mules from Glacier National Park. This agreement was extended through the winter of 1996 but was discontinued due to the need to lease the required land to cattle ranchers. In addition to their new lands, the park also opened up grazing in a field "east of the Clark Fork River, west of Deer Lodge City limits, south of Cottonwood Creek fence line and north of the park boundary fence." In 1991 this area was leased to a local rancher for winter pasture of 10 horses. The lease was terminated in November of 1993.[214]

During the early 1990s, the National Historic Site made several moves to consolidate their operations and to remove them from the center of the older historic core of the ranch most seen by visitors. In 1991, the maintenance shop was moved from the dairy barn (HS-9) to the Warren sales barn (HS-65). During the same year, the main administrative office was moved to a larger space at 210 Missouri Avenue. The curatorial office and archives, formerly located in the second floor of the ranch house (HS-1), and the maintenance office, formerly at the administrative offices, were moved to the former Warren residence (HS-58) in 1994.[215]

In 1992, new wayside exhibits were installed along the pedestrian path. The exhibits included a new wayside on 'railroads.' In addition, a new informational panel was added in the parking lot area and a new entrance gate and park signs were constructed and installed. The irrigation ditches and headgates of the Kohrs-Manning Ditch were cleaned and repaired, a storage shed (HS-34) and a loading chute (HS-69) were rehabilitated, and the headwalls on the bridge (HS-55) over the Kohrs-Manning Ditch were replaced.[216]

Construction was begun on a new "interpretive foot trail" through the Cottonwood Creek pasture in late 1993. The Special Use Permit allowing Pat George to lease the grazing land located there was discontinued. The interpretive trail was initiated in cooperation with the Montana Department of Fish, Wildlife and Parks and was designed to "tell the story of the relationship between the ranching industry and the natural resources that have always sustained it, and to increase public awareness of the importance of healthy riparian areas." The Montana Department of Fish, Wildlife and Parks also supplied funds for the acquisition and planting of willows and species along the nature trail's riparian zone. The nature trail was formally opened to the public in June of 1994. In 1995, Cottonwood Creek flooded eroding approximately 20 feet of creek bank and berm at an interpretive stop. Additional willow planting and some trail restoration was completed during the same year.[217]

In 1993 reclamation was begun by the State of Montana Abandoned Mine Reclamation Bureau on a gravel pit in the southwest portion of the park. The pit was fenced and subsequently filled, graded and revegetated. Tree swallow nests were installed in a variety of locations to mitigate the

[213] National Park Service, "SAR 1990;" National Park Service, "SAR 1991;" National Park Service, "SAR 1992;" McChristian, *Ranchers to Rangers*, np; Ronald Lang to Cheryl Clemmensen, November 14, 1991.
[214] Memorandum of Understanding between Glacier National Park and Grant-Kohrs Ranch National Historic Site, 1991-1992; Anthony J. Schetzsle to Superintendent, YELL, April 24, 1996; Grant-Kohrs Ranch, Special Use Permit 2600-007.
[215] McChristian, *Ranchers to Rangers*, np.
[216] National Park Service, "SAR 1992," np.
[217] National Park Service, "Grant-Kohrs Ranch Cottonwood Creek Nature Trail," np. Ms. in the Grant-Kohrs Ranch National Historic Site Library and Archives; National Park Service, "SAR 1995."

loss of habitat for bank swallows. During the same year, approximately 10 acres of ground was treated with Rozol to control the Columbian Ground Squirrel in the park.[218]

Con Warren died in March of 1993. The National Historic Site took possession of his real property in June of 1993 and Warren's heirs held an auction of his estate the following month. By 1995, the Warren residence had been converted for use as maintenance and curatorial offices and archives.[219]

In 1994, a Special Use Permit was issued to U. S. West to lay a trench for a fiber optics cable along the abandoned Milwaukee Railroad bed. In the process, the entire bed was sprayed with an herbicide to control weeds. [220]

A vegetation survey of the entire park was begun in 1993 and completed a year later by the University of Montana School of Forestry. By 1994 the entire riparian area was fenced to prohibit cattle from grazing on adjacent lands or accessing the Clark Fork River. In addition, in 1995, several cross fences were erected in the West Side hay fields. Cross fences were installed to force cattle to remain on certain pasture land and not overgraze others.[221]

Substantial work was done on the park's irrigation system in the mid-to-late 1990s to irrigate the additional lands acquired in 1988. Between 1994 and 1995, temporary weirs were erected on Johnson, Fred Burr, and No Name creeks. Likewise, in 1995 a temporary log boom was installed upstream from the Clark Fork River west side irrigation pump intake to insure that the debris carried by spring runoff flows would not damage the pump. During the same year, two culverts were installed in Big Gulch irrigation ditches to make harvest and removal of the hay crop easier. In 1997, a temporary diversion structure was placed in the Clark Fork River at the west side irrigation pump to supply it with a sufficient water intake, and perforated culverts or 'beaver pipes' were placed through existing beaver dams to alleviate targeted problem areas. A year later, a badly eroded concrete water diversion structure at the intersection of the West Side Ditch and Taylor Creek was repaired using rock and soil fill. The land was graded, reseeded and planted with willow trees.[222]

In 1996 Grant-Kohrs Ranch developed an Animal Use Plan for the park. The plan recommended that animals must be visible and accessible to park visitors. The recommended animals for the site included cattle, horses, poultry, dogs, and cats. In early 1996, the park's cattle herd was growing and included a total of 39 cows, 2 Hereford bulls, 20 calves, and 1 longhorn steer. The management strategy was to gradually build the herd over the ensuing 7 years, culling it to adjust the level as needed. By the end of 1997, the herd had grown to 45 cows, 17 replacement heifers, 45 calves, 2 bulls, 2 longhorn steers, and 1 longhorn heifer. Other animals on site included 5 Belgians, and 4 Quarterhorses.[223]

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[218] National Park Service, "SAR 1993;" Jack Yates to Tom Ulrich, April 19, 1993; Pesticide Use Log, Grant-Kohrs Ranch National Historic Site, N 50(1) C.F.
[219] National Park Service, "CLI" (Revised Draft 1/21/1997), 9.
[220] National Park Service, "SAR 1995."
[221] National Park Service, "SAR 1995;" [Work Request List], Maintenance Building File, Box 3, Folder 6.
[222] Stream Preservation Act Permit Application, Temporary River Debris Diversion, May 26, 1995; Stream Preservation Act Permit Application, Install Temporary Water Weir, May 26, 1995; [Work Request List], Maintenance Building File, Box 3, Folder 7.3; [Work Request List], Maintenance Building File, Box 3, Folder 6; Anthony J. Schetzsle to Wayne Hadley, July 25, 1997; Anthony J. Schetzsle to Wayne Hadley, August 7, 1997; Montana Stream Preservation Act Permit Application, "Repair Diversion Structure on Taylor Creek," GRKO D 3219, C.F.
[223] National Park Service, Animal Use Plan, Grant-Kohrs Ranch National Historic Site, 1996; Grant-Kohrs Ranch, Facilities Management Division, Annual Narrative Report, 1997.

In 1996, a new non-historic jack-leg fence was erected along a portion of the Kohrs-Manning Ditch between Cottonwood and Johnson Creeks, and a new 250 foot long non-historic jack-leg fence and dirt berm were erected along Johnson Creek just east of the west corrals to prohibit cattle from gaining access to it and to stabilize erosion there. A new livestock waterer was subsequently installed at Johnson Creek.[224]

In late 1996, the park made the decision to lease lands that had formerly been used under an agreement as winter grazing grounds for Glacier National Park horses, for expanded cattle grazing. The decision was based in part on financial pressures and the ability to charge a greater grazing AUM rate for cattle than for horses. By 1997, the park had 156 acres in irrigated grass production producing 389 tons of grass hay, 50 acres in barley producing 100 tons of barley hay, 290 acres in pasture, 72 acres in non-irrigated pasture, and in addition to their own livestock, a total of 100 cows grazing on leased land. As the park began to focus more upon the funds received from leased grazing, fencing and control of cattle became a prominent issue. To control cattle grazing, in 1997 the park installed approximately 3,300 linear feat of cross-fencing in the West Side fields. The following year 5/8 of a mile of cross-fencing was erected "paralleling Hartz and West Side ditches and crossing between Little Gulch field and Lower Taylor field.[225]

In 1997, the park began drawing up a plan to reclaim and restore portions of its agricultural lands. In addition to seeding, watering with wastewater effluent from the City of Deer Lodge's sewage lagoons was initiated. Shortly after the plan was developed, the City drilled three water quality monitoring wells within the park to enable monitoring of the effluent irrigation project. The hand-line system was installed and running in 2000. The pastures irrigated included "98.3 acres east of the Western Montana Railroad and 20.1 acres just east of the old Milwaukee right of way." [226]

Attempts to breach beaver dams within park lands throughout the mid-1980s and 1990s did not result in a permanent solution to the problems encountered with high water levels. In 1999, the park applied to and received permission from the Montana Department of Fish, Wildlife and Parks to remove all problem beaver dams "by hand and using hand tools."[227]

In 2000, a new Resource Building (003), just north of the Warren Sales Barn (HS-65) in the feedlot area, was constructed by the National Park Service. The Resource Building housed maintenance and natural resources offices previously located in the Warren residence, the maintenance shop, and in the town of Deer Lodge. In June of 2002, construction was completed on a new 8,650 square foot Museum Storage / Research Room / Lab and Office building and adjacent employee parking area. The facility was located just south of the current visitor center and parking area north of and adjacent to Johnson Creek. During the same year, an NHL wayside plaque was erected just off the visitor access trail after crossing underneath the railroad trestle. The new wayside consisted of a small concrete base with brick pedestal and a 15 x 16 inch bronze plaque. [228]

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[224] Montana Stream Preservation Act Permit Application, Fence Johnson Creek, September 1995.
[225] Grant-Kohrs Ranch, Special Use Permit, Disposition of Agricultural Lease, February 27, 1996; Anthony J. Schetzsle to Superintendent, YELL, April 24, 1996; Grant-Kohrs Ranch, Facilities Management Division, Annual Narrative Report, 1997; Grant-Kohrs Ranch, Compliance Review Form, May 14, 1998.
[226] Deer Lodge Wastewater Effluent Irrigation Project Operating Plan, n.d.; Grant-Kohrs Ranch, Special Use Permit, GRKO 6000-017; Cooperative Agreement between National Park Service and City of Deer Lodge, Montana, September 10, 1999; Larry Frederick to Glen Green, December 17, 1999.
[227] Anthony Schetzsle to Wayne Hadley, June 29, 1999.
[228] National Park Service, "Grant-Kohrs Ranch / Warren Ranch." National Register of Historic Places Registration Form, 7-43; National Park Service, "SAR 2002."

In order to provide a safer environment for herd management, in 2000 the NPS erected a portable corral and chute system. The chute and corral was 30 feet in length and was constructed of sheet metal, square tubing and round pipe and was painted brown to minimize visual impact to the historic landscape. In 2001, historic jack-leg fences on either side of the Clark Fork River adjacent to the west side of the Stuart field were moved to more accurately represent the location of Warren era fencing. Between 2001 and 2002, fields adjacent to the Clark Fork River were treated via aerial spraying with Redeem to control Canadian Thistle, and vegetation within the area along the southern park boundary west of Cottonwood Creek was pruned and cleared in an effort to reduce potential fuel load. In 2002, a temporary electrical fence was erected along the border of the pasture south of the new Visitor Center.

In 1997, one new flagstone path was created in the lower garden area, and one brick path was restored adjacent to the east and north sides of the Ranch House (HS-1) for safety reasons. The new flagstone path was laid extending from the kitchen porch steps paralleling the stone retaining wall out through to the garden area and the base of the rock stairs leading to the front lawn. A second brick path was restored extending from the boardwalk on the front lawn around the north end of the house gate to the front of the Blacksmith Shop (HS-3). A feed rack (HS-68) in the Warren Hereford Ranch complex was reconstructed in 1998. Restoration of the larger Ranch House (HS-1) yard cultural landscape was undertaken in 2001 and completed a year later. A new underground watering system was installed and a total of 33 cottonless black cottonwood trees were planted in the front yard in 2001. A year later, 24 cottonwood trees were replanted. In 2003, a replication white picket fence was installed. Work was also begun on the restoration of the historic Warren complex including the residence, garage, boat house and chicken coop. The interior of the residence was adapted for use as park headquarters. In 2001, six hazard trees surrounding the northern, eastern and southern sides of the Warren residence were removed. In 2003, a new 50 x 150 foot crushed gravel parking area was installed in the eastern portion of Whiskey Pasture, north of the Warren residence. Several existing tree stumps were also removed and historic vegetation was replanted.[229]

Landscape Characteristics by Chronological Period

Land Use

Residential	Con Warren continued to live adjacent to the National Historic Site until his death in 1993.
Ranching	The NPS continued to use portions of the home ranch for general ranching activities that supported the care and maintenance of their stock.
Grazing	The NPS continued to use portions of the home ranch as open range for his stock.
Agriculture	The NPS continued to farm and lease portions of the land they owned for agricultural purposes throughout the last quarter of the twentieth century.

[229] National Park Service, "SAR 2001;" Shapins Associates, "HS-1 Cultural Landscape," 70% Draft, 16.

Education and Interpretation	Since its establishment, the Grant-Kohrs Ranch National Historic Site has interpreted the history of ranching in Montana to the public.
Archeological investigations	Section 106 of the National Historic Preservation Act of 1966 required the National Historic Site to conduct archeological investigations on the federally held property.
Materials curation	The construction of the new curatorial storage facility enabled the NPS to carry out the curation of museum artifacts related to the history of the National Historic Site.
Cultural Traditions	
Irrigation Ditches	The NPS continues to clean and maintain the existing irrigation ditch system annually for the purposes of interpreting an active working ranch, and for providing irrigated fields for grazing and haying.
Jack-leg fencing	The NPS continued to maintain old and build new traditional jack-leg fencing throughout the National Historic Site.
Circulation	
Flagstone and brick paths built	Separate flagstone and brick paths are reconstructed in the lower garden area and on the eastern and northern sides of the Ranch House (HS-1) in 1997-1998.
Museum Storage facility parking area	The NPS constructed a new parking area adjacent to the new museum storage facility in 2002.
Gravel parking area laid	A new 50 x 150 foot gravel parking area is laid in the eastern portion of Whiskey Pasture, north of the Warren residence
Vegetation	
Grass reseeded and willow trees planted	During the course of restoring an eroded concrete water diversion feature at the intersection of the West Side ditch and Taylor Creek in 1998, the area was reseeded in native grasses and willow trees were planted
Effluent wastewater irrigation	In 2000, the NPS entered a cooperative agreement with the City of Deer Lodge to

	irrigate a portion of park lands with effluent wastewater.
Trees removed	In 2001, a total of six trees were removed from the southern, eastern and northern sides of the Warren residence.
Cottonless black cottonwood trees planted	Between 2001 and 2002, a total of 57 cottonless black cottonwood trees were planted in the front yard of the Ranch House (HS-1) to restore the historic landscape.
Trees planted	New historic vegetation was planted surrounding the Warren Residence in 2003.
Buildings and Structures	
Feed rack (HS-68) built	A feed rack (HS-68) in the Warren Hereford Ranch complex was reconstructed in 1998.
Resource building (003) built	The NPS constructed park resource building (003) just north of and adjacent to the garage / shop (HS-65) in 2000. The building housed maintenance and natural resources staff office and work space previously located elsewhere.
Museum storage facility (004) built	The NPS completed construction of a new museum storage facility south of and adjacent to the visitor parking area in 2002.
Small-Scale Features	
New wayside exhibits installed	In 1992 the NPS installed new wayside exhibits along the pedestrian trail from the visitor parking area to the ranch house (HS-1). The waysides included a new exhibit on railroads.
Riparian fencing erected	Based on the results of a vegetation survey, in 1994 the entire riparian area along the Clark Fork River was fenced to prohibit cattle grazing.
Cross-fencing erected	In 1995 an east-west cross fence was erected in the West Side hay fields.
Jack-Leg fence erected	A short section of non-historic jack-leg fence was erected along a portion of the Kohrs-Manning Ditch between Cottonwood and Johnson Creeks in 1996.
Jack-Leg fence erected	A 250 foot long section of non-historic jack-leg fence and earthen berm was erected along

	Johnson Creek in 1996 to prohibit access to cattle and to control erosion problems.
Livestock waterer placed	A new livestock waterer is placed along Johnson Creek in 1996.
Cross-fencing erected	Between 1997 and 1998, the park erected several thousand feet of cross fencing on the West Side fields to control grazing.
NHL wayside erected	A small concrete and brick wayside with bronze plaque was erected just off the visitor access trail after crossing underneath the railroad trestle in 2000.
Fencing moved	Jack-leg fencing on either side of the Clark Fork River adjacent to the west side of the Stuart field was moved in 2001 to more accurately represent historic Warren era fence location.
Portable corral and squeeze chute erected	A 30 foot long portable cattle corral, and squeeze chute, drum and lane were erected in the Warren feed lot area in 2001.
Temporary electrical fence erected	A temporary electrical fence was erected in the pasture south of the new Visitor Center in 2002.
Picket fence erected	A replica white picket fence was erected surrounding the front yard of the Ranch House (HS-1) in 2003.

Animal / Breed Table

Animal types and breeds documented to be present at the home ranch by chronological period.

Johnny Grant	**1860-1866**	
Date	*Animal / Breed*	*Notes*
1861-1866	"Cattle" [Shorthorn]	Grant bred and sold an unknown breed of cattle at his ranch. Several first hand accounts of the Grant ranch document that he had several thousand "head of cattle" on hand during this period.
1861-1866	"Ponies"	Grant bred and sold horses at his ranch. Several first hand accounts of the Grant ranch document that he had several thousand "ponies" on hand during this period.
Kohrs/Bielenberg	**1866-1887**	
Date	*Animal / Breed*	*Notes*
1866	"Cattle"	An 1866 image of the Kohrs residence shows long-horned cattle in the foreground. The breed of the cattle is not known, although they could be "Spanish" cattle due to the horn length pictured.
1866-1887	Work horses	Kohrs and Bielenberg kept a large stock of working horses at the home ranch for transportation and to aid in the management of the stock. It is not known what breeds the working horses were.
1866-1887	Cattle herds	Kohrs and Bielenberg kept two distinct herds of cattle during this period; a 'beef' herd kept at the home ranch to supply local and regional needs, and a 'breeding' herd kept in distant range lands. It is presumed that a majority of these cattle were obtained from western immigrants and therefore would have been breed types such as … introduced to the eastern states in the eighteenth century.
1868-1887	Milk cows	By 1868 at the latest, Kohrs and Bielenberg kept at least eight 'milk cows' at the home ranch. It is not known what breed these dairy cows were.
1868-1887	Sheep	By 1868 at the latest, Kohrs and Bielenberg kept a small herd of sheep and exhibited them at the Territorial Fairs. It is not known if these sheep were kept at the home ranch.
1870	Thoroughbred horse	Kohrs advertises the 'stallion service' of a thoroughbred horse in his possession. It is not known what breed the horse was.
1872	Longhorn cattle	John Bielenberg travels to Texas and brings back a large herd of Longhorn cattle to the Deer Lodge Valley.
1872	Shorthorn cattle	Conrad Kohrs purchases his first small herd of Shorthorn cattle composed of a few bulls and several hundred cows from the Midwest. These Shorthorn cattle, and other subsequent purchases, were used to improve the breeding of his own herd and by 1874 he had begun to sell registered Shorthorn bulls to other regional ranchers for breed improvement.
1878	Thoroughbred stallion	Kohrs purchases two thoroughbred stallions for the home ranch.
1879	Clydesdale stallions	Kohrs purchases two Clydesdale stallions and "a carload of Clyde mares." From this point on, Kohrs and Bielenberg begin active breeding of a registered Clydesdale draft horse herd.
1879	Merino rams	An 1879 edition of the *New Northwest* notes that John Bielenberg possessed two merino rams. It is not known whether these were kept at the home ranch.
1884	Shorthorn	M. A. Leeson's 1884 image of the Kohrs residence documents that Kohrs and Bielenberg were breeding Shorthorn cattle at the home ranch.
1884	Hereford	M. A. Leeson's 1884 image of the Kohrs residence documents that Kohrs and Bielenberg were breeding Hereford cattle at the home ranch. This is the first documentation that Kohrs and Bielenberg owned Hereford cattle. During the same year, Kohrs also sold a registered Hereford bull to a local rancher. This strongly suggests that registered Herefords were bred by Kohrs and Bielenberg by the early 1880s at the latest.
1884	Clydesdale	M. A. Leeson's 1884 image of the Kohrs residence documents that Kohrs and Bielenberg were breeding Clydesdale draft horses at the home ranch.
1884	Percheron-Norman	M. A. Leeson's 1884 image of the Kohrs residence documents that Kohrs and Bielenberg were breeding Percheron-Norman draft horses at the home ranch.
1884	Coach horses	M. A. Leeson's 1884 image of the Kohrs residence documents that Kohrs and Bielenberg were breeding thoroughbred coach horses at the home ranch.
1884	Angus bull	Kohrs and Bielenberg exhibit an Angus bull at the 1884 Territorial Fair. The Angus was valued as a premier beef stock. It is not known whether the

		Angus breed was kept at the home ranch.
1884	Ayrshire cattle	Kohrs and Bielenberg exhibit an Ayrshire cow at the 1884 Territorial Fair. The Ayrshire was valued as a commercial dairy cow. It is not known whether the Ayrshire breed was kept at the home ranch.
1885	Hereford	Kohrs and Bielenberg exhibit Hereford heifers, cows, calves, yearlings and bulls at the 1885 State Fair in Helena.
Kohrs/Bielenberg	**1887-1922**	
Date	*Animal / Breed*	*Notes*
1887	Angus and Hereford cross-breeds	In an 1887 edition of the *New Northwest*, Kohrs and Bielenberg announce that they have cross-bred Angus and Short Horn heifers and cross-bred Hereford and Short Horn heifers for sale or lease.
1887 – ca. 1907	Yorkshire hogs	In an interview, Con Warren notes that Conrad Kohrs raised Yorkshire hogs but stopped doing so around 1907 or 1910.
1887 – ca. 1922	Plymouth rock chickens	In an interview, Con Warren notes that Conrad Kohrs raised bronze Plymouth Rock Chickens.
1898	Holstein	Kohrs-Bielenberg Daybook notes the presence of two Holstein cows at the home ranch. GRKO 15615.
Ca. 1900	Hereford calves	Rosenberg has noted that the Kohrs and Bielenberg home ranch records for this period document an increased sale of Hereford calves. She speculates that this may reflect a gradual transition from a steer (castrated male sold for beef) and bull (non-castrated male) raising operation to a cow and calf operation.
1906-1922	Chickens	A 1906 daybook records the purchase of chickens and roosters. This is the earliest documentation for chickens at the home ranch, although it is likely they may have been present by 1868 or shortly thereafter. Other documents note that Augusta raised Rhode Island red chickens. A 1907 railroad map also documents a chicken house (non-extant structure G) north of bunkhouse row (HS-2).
19teens-1922	Turkeys	Helen Jorgenson, a housekeeper for Augusta Kohrs, was allowed to maintain a small flock of turkeys at the home ranch while she worked there.
1918-1926	Hereford	Kohrs / Bielenberg purchase a small, approximately 30 head, purebred Hereford herd from Henry Childs called the Helena Herd.
Con Warren	**1922-1940**	
Date	*Animal / Breed*	*Notes*
1931	Hereford	Con Warren inherits the remnants of the Kohrs / Bielenberg purebred Hereford herd.
1931-1936	Durham	Testing for Bang's disease in Warren's cattle herd notes the presence of a small dairy herd that included Durham cows. Durham cows are a variety of milking short horned cattle. This dairy products provided by this herd were sold to the Deer Lodge Creamery during the decade. However the herd slowly phased out as an integral part of the ranching operation by the end of the decade.
1932	Belgian	Warren makes his first purchase of a Belgian stallion. He subsequently purchases a herd of Belgian mares.
1933	Registered Hereford	Warren purchases a Hereford bull and ten heifers to start his own purebred registered Hereford herd.
1933-1945	Durocs / spotted red and black pigs	Con Warren begins to raise hogs during this period constructing a hog house and yard.
1935-1940	Chicken	Warren constructs a chicken coop (HS-59) and a new brooding (HS-21) and chicken house (HS-22) documenting that chickens were kept at the home ranch during the second quarter of the twentieth century.
1936	Registered Belgian	By this year, Warren's registered Belgian herd is composed of approximately 50 mares, three stallions, and four draft teams.
1937	Hereford	119 registered cattle, 111 pure-bred unregistered cattle. Conrad Kohrs Co. Inventory, Warren Papers
1937	Milch cows	10 milch cows. Conrad Kohrs Co. Inventory, Warren Papers.
1937	Work horses	17 work horses. Conrad Kohrs Co. Inventory, Warren Papers.
1937	Belgian horses	9 purebred Belgian draft horse mares and one stallion. Conrad Kohrs Co. Inventory, Warren Papers.
1930s	Mule	Warren kept a single mule, used predominantly as a pack animal, at his ranch.

1930s	Registered and Commercial Hereford	As Warren's registered Hereford herd grew, he established two distinct groups, a 'breeding' herd composed of a few bulls and several hundred heifers that grazed within a fenced pasture and were winter fed, and a 'market' herd composed of young cattle and steers that grazed upon leased or common range.
Con Warren	**1940-1958**	
Date	*Animal / Breed*	*Notes*
1940	Registered Belgian	Warren sells his entire breeding herd of Belgian draft horses. He does however keep at least two Belgian draft horse teams at the ranch house for agricultural uses.
1940	Chickens	Warren constructs a new chicken coop adjacent to the Warren residential complex to house an unknown number of chickens.
1945	Commercial Hereford	Warren sells the last of his 'commercial' Hereford herd composed predominantly of steers. From this point on Warren produces purebred registered Herefords only beginning to actively sell Hereford bulls at auction.
1946-1958	Holstein	Warren nursed approximately 32 of his registered Hereford bull calves with a small Holstein cow herd.
1947	Registered Hereford bulls	Warren purchases TT Triumphant and Proud Star, registered Hereford bulls that introduced the genetic dwarfism gene (achondropisi) into his herd.
1948	Holstein cows	Warren purchases a number of Holstein cows from the Schumate Dairy.
1958	Registered Hereford	Warren disperses his entire herd of registered Hereford cattle at auction.
Con Warren	**1958-1972**	
Date	*Animal / Breed*	*Notes*
1958	Commercial Hereford	Warren enters the business of feeding and selling ("finishing") commercial grade Hereford managing a herd of about 350 cattle.
1963	Commercial Hereford	Warren sells his small herd of commercial grade Hereford and enters the business of raising yearling steers (castrated males).
1966	Commercial Hereford	Warren sells his small herd of yearling steers and enters the business of raising Hereford cows and calves.
NPS / Warren	**1972-1988**	
Date	*Animal / Breed*	*Notes*
1975	Draft horses (4).	Park receives four draft horses from LBJ Ranch in Texas.
	Short horn cattle (4).	Park receives four shorthorn cattle from LBJ Ranch in Texas.
1977	Herefords, shorthorns, Belgians (2), saddle stock (3), chickens and cats.	List of livestock present at GRKO.
1979	Cattle (35)	Warren grazes cattle on 216 acres leased from NPS.
1980	Hereford, shorthorn, horses, ducks, geese, chickens.	List of livestock present at GRKO.
1981	Draft horses (6), saddle horses (4).	Grazing at GRKO in 1981.
	Cattle (150).	Warren grazes 150 cattle at GRKO through agricultural lease.
1982	Cows (6), heifers (3), steer calves (3), bull (1), oxen (2), geldings (4), filly (1), mares (2), saddle horse (1), ducks (3), chickens (40), rooster (1).	List of livestock present at GRKO.
	Cattle (19), draft horses (7), saddle horses (3).	Grazing at GRKO in 1982.

1983	Cows and heifers (17), steer (3), heifer calves (7), Hereford bull (1), geldings (4), filly (1), mares (2), saddle horse (1), hens (35), rooster (1).	List of livestock present at GRKO.
	Cattle (21), draft horses (7), saddle horses (2).	Grazing at GRKO in 1983.
1984	Heifers (4), longhorn bull (1), geldings (3), filly (1), mares (2), saddle horse (1), hens (20).	List of livestock preset at GRKO.
	Cattle (25), draft horses (7), saddle horses (2).	Grazing at GRKO in 1984.
1985	Cows (12), heifers (8), longhorn bull (1), Hereford bull (1), Belgians (16), saddle horse (1).	List of livestock preset at GRKO.
	Cattle (20), draft horses (12), saddle horses (2).	Grazing at GRKO in 1985.
1986	Cattle (22), draft horses (7), saddle horses (1).	Grazing at GRKO in 1986.
1987	Cattle (20), draft horses (7), saddle horses (2).	Grazing at GRKO in 1987.
NPS / Warren	**1988-2002**	
Date	*Animal / Breed*	*Notes*
1988	Cattle (20), draft horses (7), saddle horses (2).	Grazing at GRKO in 1988.
1989	Saddle horses (6)	NPS leases field south of Cottonwood Creek to Pat George for grazing.
	NPS Cattle (27), draft horses (7), saddle horses (5), Dave Johnson horses (2), Dave Johnson cattle (481).	Grazing at GRKO in 1989.
1991	Horses / mules (53)	NPS leases winter pasture to Glacier NP horses.
	Horses (10)	NPS leases field south of Cottonwood Creek to Pat George for grazing.
1992	Horses (10)	NPS leases field south of Cottonwood Creek to Pat George for grazing.
	Horses / mules (54)	NPS leases winter pasture to Glacier NP horses.
1993	Horses (10)	NPS leases field south of Cottonwood Creek to Pat George for grazing.
	Horses / mules (54)	NPS leases winter pasture to Glacier NP horses.
1994	Horses / mules (110)	NPS leases winter pasture to Glacier NP horses.
1996	Cows (39), Hereford bulls (2), calves (20), longhorn steer (1), Belgians (5), Quarter horses (4), U.S.F.S. horses (5).	List of livestock present at GRKO.
1997	Cows (45), heifers (17), calves (45), bulls (2), longhorn steers (2), longhorn heifer (1), Belgians (3), saddle horses (3), leased cows (100).	List of livestock present at GRKO.

Crop / Produce Table

Field crops and garden produce grown and seed purchased at the home ranch by chronological period.

Johnny Grant	**1860-1866**	
Date	*Crop*	*Notes*
Ca. 1863-1864	Oats	Grant cultivates "a couple of acres of oats" for at least two years in the early 1860s.
Ca. 1863-1864	Vegetables	Grant plants a large vegetable garden at his ranch (location unknown). The vegetables are devoured by beetles and grasshoppers.
1865	Oats	Conrad Kohrs purchases oat seed from Johnny Grant.
1865	Native Hay	Several tons of native hay, presumably harvested from the home ranch, is stored in the loft of a barn destroyed by fire in 1866.
Kohrs/Bielenberg	**1866-1887**	
Date	*Crop*	*Notes*
1873	Excelsior oats	Following the winter of 1872-1873, Kohrs plants excelsior oats "100 pounds to the acre" in an attempt to stock more winter feed for the cattle at the home ranch.
1870s – 1887	Hay and grains	During this period, Kohrs and Bielenberg expanded upon the old irrigation ditch system initiated by Grant. Although very little documentation exists as to the specific crops that were cultivated, it is likely that native hay and other grain crops were farmed.
1868-1887	Flowers	During this period, Augusta Kohrs plant a small garden south of and adjacent to the ranch house (HS-1). A variety of flowers are grown there.
Kohrs/Bielenberg	**1887-1922**	
Date	*Crop*	*Notes*
1889	Oats	Kohrs / Bielenberg order 4,795 lbs. of oats. It is not known whether this was seed. GRKO 15643
1890	Seed	Kohrs / Bielenberg order 1,000 lbs. of an unknown seed. GRKO 15643
1891	Seed	Kohrs / Bielenberg order 1,025 lbs. of an unknown seed. GRKO 15643
1893	Timothy	John Bielenberg order 1,000 lbs. of Timothy seed.
1894	Red clover	Conrad Kohrs orders 500 lbs. of red clover seed.
1896	Seed oats	Kohrs / Bielenberg order an unknown amount of seed oats. GRKO 15615.
1904	Wheat	J. H. Gerhmann recalls a wheat field adjacent to the creeks that was flooded by a beaver dam.
1907	Potatoes	Kohrs / Bielenberg order 2,100 potatoes. It is not known if these were seed potatoes. GRKO 15644.
1909	Alfalfa	Kohrs / Bielenberg order 1,096 lbs. of alfalfa seed. GRKO 15644.
19teens	Hay	Oral histories recall that Kohrs and Bielenberg "made a ton of hay for every cow or beef animal they had on the place, which meant 30,000 tons of hay."
Con Warren	**1922-1940**	
Date	*Crop*	*Notes*
1930-32	Hay	Warren "had a hard time putting up 100 tons" of hay from the entire farmable lands on the home ranch.
1930-1940	Potatoes	Warren grew several acres of potatoes, "up at the north end, on land he sold to Olson's."
1931	Alfalfa, timothy, clover, hay, and oats hay.	1931 hay report, Warren Papers.
1931	Hay, oats, wheat, potatoes and peas	In a letter to the Department of Agriculture, Warren reports that the potato and wheat crops were a failure, but that the hay, oat and pea crops were a minor success.

1932	Alfalfa, blue barley, oats, barley, and wheat.	In a 1932 letter to Sam McKennan, Warren reports that "I'm planning on seeding down in alfalfa, about sixty to seventy acres. We have as best as I can figure one hundred and fifty acres plowed up. I thought I would try some blue barley this year …25 acres. …This gives me about 24 acres for oats, 35 acres for barley, and 26 acres for wheat." WP S18, SSF.
1937	Oats, wheat and hay.	Oats, wheat and hay harvested from Warren's fields in 1937. Conrad Kohrs Co. Inventory, Warren Papers.
1937	Feed grains	A 1937 *Scribners Magazine* article notes that 200 acres of Warren's cultivated lands are planted in feed grains, including barley, oats and wheat.
1937	Root crops	A 1937 *Scribners Magazine* article notes that 20 acres of Warren's cultivated lands are planted in root crops, including mangels or mangel-wurzel.
1937	Timothy	A 1937 *Scribners Magazine* article notes that a substantial portion of Warren's irrigated acreage is cultivated in a variety of crops including Timothy.
1937	Clover	A 1937 *Scribners Magazine* article notes that a substantial portion of Warren's irrigated acreage is cultivated in a variety of crops including Clover.
1937	Alfalfa	A 1937 *Scribners Magazine* article notes that a substantial portion of Warren's irrigated acreage is cultivated in a variety of crops including Alfalfa.
1937	Native hay	A 1937 *Scribners Magazine* article notes that a substantial portion of Warren's irrigated acreage is cultivated in a variety of crops including Native Hay.
Late 1930s	Intermediate wheat grass	Warren noted that the Dalton property was cultivated in intermediate wheat grass, a crop that did well in drought conditions.
Con Warren	**1940-1958**	
Date	*Crop*	*Notes*
1940-1958	Wheat and oats	Applications to the Agricultural Conservation Program throughout the decade document that Warren was given wheat and oats allotments from the federal program.
1943	Seed potatoes	Con Warren orders 1,000 lbs. of seed potatoes.
1948	Wheat	A 1948 *Western Livestock Reporter* article documented the crop rotation of Warren's irrigated bottom lands adjacent to the Clark Fork River. Wheat was cultivated for steer feed.
1948	Oats	A 1948 *Western Livestock Reporter* article documented the crop rotation of Warren's irrigated bottom lands adjacent to the Clark Fork River. Oats were cultivated for steer feed.
1948	Alfalfa	A 1948 *Western Livestock Reporter* article documented the crop rotation of Warren's irrigated bottom lands adjacent to the Clark Fork River. Alfalfa was one of several crops cultivated.
1948	Timothy	A 1948 *Western Livestock Reporter* article documented the crop rotation of Warren's irrigated bottom lands adjacent to the Clark Fork River. Timothy was one of several crops cultivated.
1948	Hay	A 1948 *Western Livestock Reporter* article documented the crop rotation of Warren's irrigated bottom lands adjacent to the Clark Fork River. Native hay was one of several crops cultivated. Approximately 100 acres of hay were noted on the east side of the river, and the West Side meadows were noted to produce 800 tons of hay.
1951	Grass and clover varieties	Records from Warren's participation in the federal Agricultural Conservation Program document that he attempted to reseed his pasture and range lands planting a variety of native and non-native vegetation to improve their quality. During the early 1950s, these plants included alsike clover, alfalfa, brome grass, timothy, meadow fescue, ladino clover, orchard grass and strawberry clover. "We pretty well eliminated the alfalfa and had mostly grass hay."
Con Warren	**1958-1972**	
Date	*Crop*	*Notes*
1954-1980	Hay	"Fertilizing and irrigating almost doubled the hay yield from 17,000 – 18,000 to 30,000 bales, and then I found that using fertilizer and plenty of irrigation, I could maintain some stands without plowing them up all the time." (Con Warren to Rex Meyers, 8/14/1980).

1958-1972	Hay	By the late 1950s, Warren had abandoned the cultivation of grains at the home ranch because he could purchase inexpensive grain on the open market. Native hay therefore became the predominant crop cultivated in his irrigated fields. Towards the last quarter of the twentieth century, Warren leased a number of his hay lands to local farmers.
1962	Hay	Con Warren harvests 590 tons of hay.
1966 - 1972	Hay and grass	Warren winters and summers his small cow and calf herd feeding them "just on hay and grass."
1969	Hay	Con Warren harvests 31,395 bales of hay from his fields.
NPS / Warren	**1972-1988**	
1982	Hay	NPS contracts haying on a share basis and harvests 2,667 bales or 76 tons on 50 acres of meadow.
1984	Hay	NPS contracts haying on a share basis and harvests 2,834 bales.
1985	Hay	NPS contracts haying on a share basis and harvests 1,031 bales.
1986	Hay	NPS contracts haying on a share basis and harvests 1,498 bales.
NPS / Warren	**1988-2002**	
1988	Hay	NPS harvests 530 tons of hay.
1989-1996	Hay	Dave Johnson initiates a multi-year grazing and haying lease agreement with the NPS.
1993	Hay	NPS harvests 19,713 bales of hay.
1994	Hay	NPS harvests 11,513 bales of hay.
1995	Hay	NPS harvests 10,822 bales of hay.
1996	Hay	NPS harvests 17,726 bales of hay.
1997	Hay and barley hay	NPS harvests 9,462 bales of hay, and 1,830 bales of barley hay.
1998	Hay	NPS harvests 5,103 bales of hay.
2001	Hay	NPS harvests 468 tons of hay.

Field / Pasture Table

The following table records named fields, meadows and pastures in the documentary record. As expected, named fields are more prevalent during the Conrad Warren era of the last three quarters of the twentieth century when irrigation and cultivation at the home ranch was dramatically expanded. However field names used during the mid-twentieth century were most likely carried forward from earlier periods, and may relate to both their location near prominent geographic features and former landowners. Where possible, historic and contemporary field names are cross-referenced in the Inventory Tables of Existing Conditions and Contributing Resources found in Chapter Four.

Date	Field / Meadow/ Pasture Name	Crop / Grazing	Location / Description	Notes
1908	Stuart Field	No crop mentioned	The Stuart field was most likely acquired with the purchase of the Tom Stuart place in 1884. It is likely that the area immediately south of the Ranch House (HS-1) and east of the Kohrs-Manning Ditch was called the Stuart field during the Kohrs-Bielenberg era.	Con Warren noted that the Stuart Field had not been plowed since 1908.
1931	Lower Meadow	Hay	East along river	Hay report, Warren Papers
	Willow Meadow	Hay	Adjacent to river, below horse pasture	
	Stuart Meadow	Hay	As above	
	River Bridge Field	Hay	West Side	
	Lower West Side Field	Timothy and clover / oats hay / hay		
Late 1930s	Dalton property	Intermediate wheat grass	Former Dalton property	Interview with Con Warren
1969	West Side	Hay	West Side	Hay report, Warren Papers.
	Taylor Creek	Hay	The use of the Taylor Creek, Little Gulch, and Big Gulch fields most likely date to their acquisition by Warren in the late 1930s.	
	Little Gulch	Hay	The use of the Taylor Creek, Little Gulch, and Big Gulch fields most likely date to their acquisition by Warren in the late 1930s.	
	Stuart Field	Hay		
	Lower Meadow	Hay		
	Big Gulch	Hay	The use of the Taylor Creek, Little Gulch, and Big Gulch fields most likely date to their acquisition by Warren in the late 1930s.	

1980	Lower Meadow	Grazing	"South of an east west line extending from the west boundary of the Chicago, Milwaukee, St. Paul and Pacific Railroad right of way to the east bank of the Clark Fork River and four hundred feet north of and parallel to the north section line of Sections 32 and 33."	Grazing agreement between Con Warren and NPS
	Stuart Pasture	Hay	"West of the Kohrs-Manning Ditch and east and/or north of the small supply ditch used to irrigate this pasture."	
1984	North west field	Hay		NPS Haying notes
	Next small field	Hay		
	Large west field	Hay		
	Stuart field (along river)	Hay		
	Stuart field	Hay		
1985	Stuart field	Hay		NPS Haying notes
	Lower meadow	Hay		
1986	Stuart corral	Hay		NPS Haying notes
	Stuart field	Hay		
	East of slew	Hay		
	West of slew	Hay		
	Stuart (West of Kohrs-Manning Ditch)	Hay		
	East of Kohrs Manning	Hay		
1996	Stuart field	Hay / Barley Hay		NPS Hay notes
	Taylor meadow	Hay / Barley Hay		
	Pump meadow	Hay / Barley Hay		
1997	Stuart meadow	Hay / Barley Hay		NPS Hay notes
	Taylor creek meadow	Hay / Barley Hay		
	Big Gulch meadow	Hay / Barley Hay		
1998	Little Gulch field	Not mentioned		GRKO Compliance Review Form
	Lower Taylor field	Not mentioned		
	Taylor creek	Hay		NPS Hay notes
	Stuart	Hay		
2000	Front field	Not mentioned	East of the railroad right of way, west of Main Street (I-90) and north of Warren Hereford feed lots and corrals.	Effluent Project
	L-Barn field	Not mentioned	West of the railroad right of way, east of the Kohrs-Manning Ditch, north of the L-Barn, and south of the sewage lagoons.	Effluent Project
2001	Taylor	Hay		NPS Hay notes
	Stuart	Hay		
	Lower meadow 2-__1 west	Hay		
	Lower east side meadow	Hay		
2002	West side 2-__1 (upper, middle, lower)	Hay		NPS Hay notes
	Taylor creek (Stack field, up 1, up 2, down 1, down 2, down 3, down 4)	Hay		
	Stuart / Stuart Annex	Hay		

Water System Table

Establishment dates for the following water systems are taken from water right claims. Those water systems not linked to a known water rights claim number are listed at the bottom of the table.

Water System Name	Originator	Date of Origin	Source	Use	Montana Water Right No.
Unnamed ditch system	Grant	1862	Clark Fork River	Stock	162341
Unnamed spring	Grant	1862	Unnamed spring, tributary of Clark Fork River	Stock	162342
Unnamed spring	Grant	1862	Unnamed spring by Draft Horse Barn	Irrigation	162343
Unnamed ditch	Kohrs-Bielenberg	1866	Johnson Creek	Stock	162340
Unnamed ditch	Kohrs-Bielenberg	1866	North fork of Johnson Creek	Stock	216098
Kohrs-Manning Ditch	Kohrs - Bielenberg	1872	Clark Fork River	Stock	162339
Johnson Ditch (?)	Kohrs-Bielenberg	1884	Johnson Creek	Irrigation	162344
Kohrs-Manning Ditch	Kohrs-Bielenberg	1884	Johnson Creek	Stock	162335
Kohrs-Manning Ditch	Kohrs-Bielenberg	1884	Clark Fork River	Stock	162336
Kohrs-Manning Ditch	Kohrs-Bielenberg	1884	Unnamed spring, tributary of Clark Fork River	Stock	162338
Kohrs-Manning Ditch	Kohrs-Bielenberg	1885	Taylor Creek	Irrigation	092405
Pump	Kohrs-Bielenberg	1885	Clark Fork River	Irrigation	092041
West Side Ditch	Kading, et. al.	1889	Clark Fork River	Irrigation	092043
Pump	Kohrs-Bielenberg	1890	Unnamed spring, tributary of Clark Fork River	Domestic (Ranch House, HS-1?)	162346
Kohrs-Manning Ditch	Kohrs-Bielenberg	1895	Clark Fork River	Irrigation	092044
Unknown	Kohrs-Bielenberg	1904	North fork of Johnson Creek	Commercial (Lawn and garden use)	215969
Well	Kohrs-Bielenberg	1919	Ground Water	Domestic (Ranch House, HS-1?)	162347
Kohrs-Manning Ditch	Warren	1931	Clark Fork River	Irrigation	162345
Well	Warren	1934	Ground Water	Stock	092029
Well	Warren	1934	Ground Water	Domestic (Warren residence?)	092030
Well	Warren	1934	Ground Water	Domestic	092031
Kohrs-Manning Ditch	Warren	1940	Cottonwood Creek	Stock	162334
Kohrs-Manning Ditch	Warren	1940	Clark Fork River	Stock	162337
Pump	Railroad / NPS	1942	Clark Fork River	Commercial (Railroad gravel pit)	090691
Well	NPS	1999	Ground Water	Stock	109125
Other Water Systems					
Hartz Ditch	Kading, et. al. (?)	Ca. 1890s (?)	Lost Creek	Irrigation	N/A
Kohrs 'Big' Ditch	Kohrs-Bielenberg	Late 19th c. (?)	Clark Fork River	Irrigation	N/A
Salmonsen Waste Ditch	Kading, et. al. (?)	Ca. 1890s (?)	Taylor Creek	Irrigation	N/A
Taylor Ditch	Kading, et. al. (?)	Ca. 1890s (?)	Taylor Creek	Irrigation	N/A
Effluent standpipe / hand line system	Deer Lodge / NPS	1999	Sewage Lagoons	Irrigation	N/A



Figure 2-1: Hot Spring Mound in “Deer Lodge” Prairie of the Rocky Mountains, circa 1855-1860.

Source: Library of Congress, American Memory Collection. U.S. Serial Set, Number 1054 House Executive Document 56, 36th Congress, 1st Session, Hot Spring Mound, in the "Deer Lodge" Prairie, of the Rocky Mountains (http://memory.loc.gov).



Figure 2-2: Residence of John Grant, near Deer Lodge City, MT. August 6, 1865. Drawing by Granville Stuart.

Source: Stuart, Granville. "Residence of John Grant," August 6, 1865. In Diary and Sketchbook of a Journey to "America" in 1866, & Return Trip up the Missouri River to Fort Benton, Montana. Reprinted from the Virginia City Montana Post of January 1867. Los Angeles: Dawson's Book Shop, 1963.

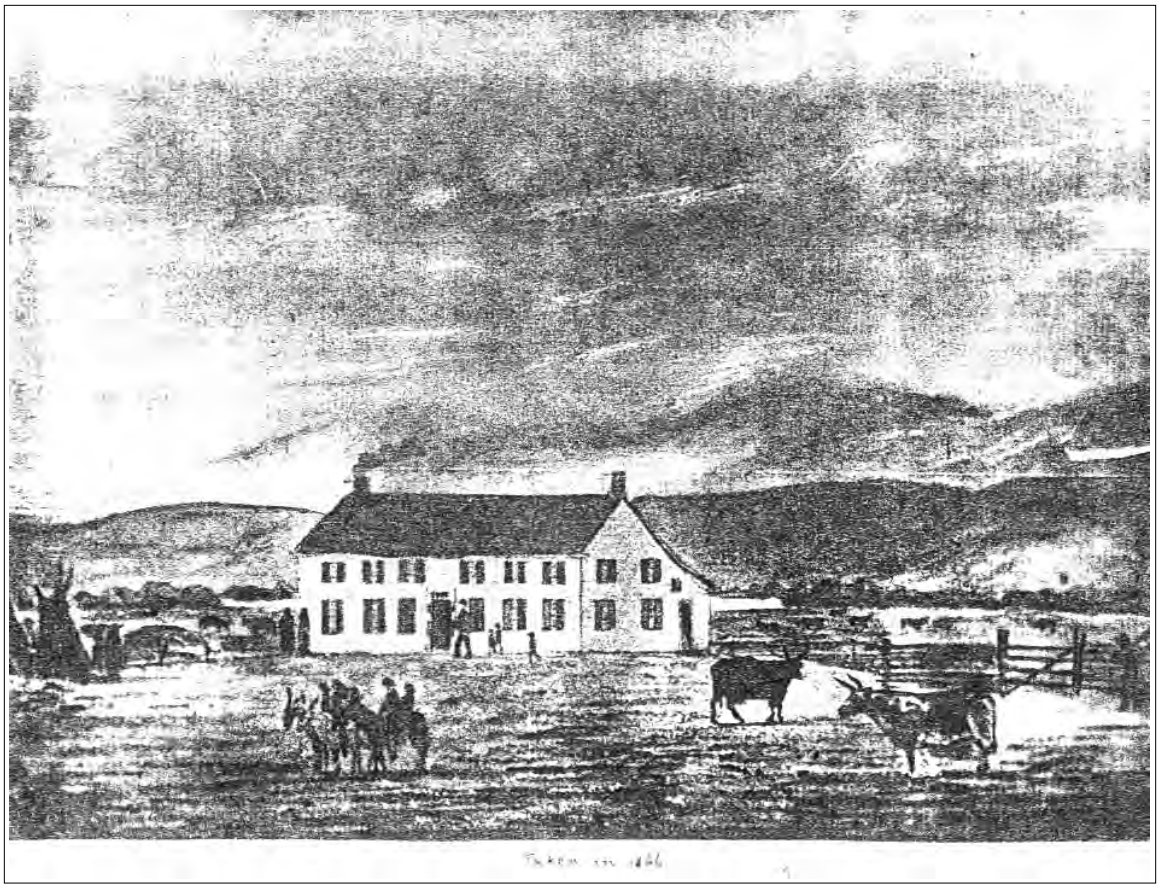


Figure 2-3: Residence of John F. Grant, purchased by Hon. Conrad Kohrs in 1866.

Source: Anonymous. "Residence of John F. Grant, purchased by Hon. Conrad Kohnrs in 1866." Taken in 1866. Grant-Kohrs Ranch National Historic Site archives. Original image located at the Montana Historical Society.

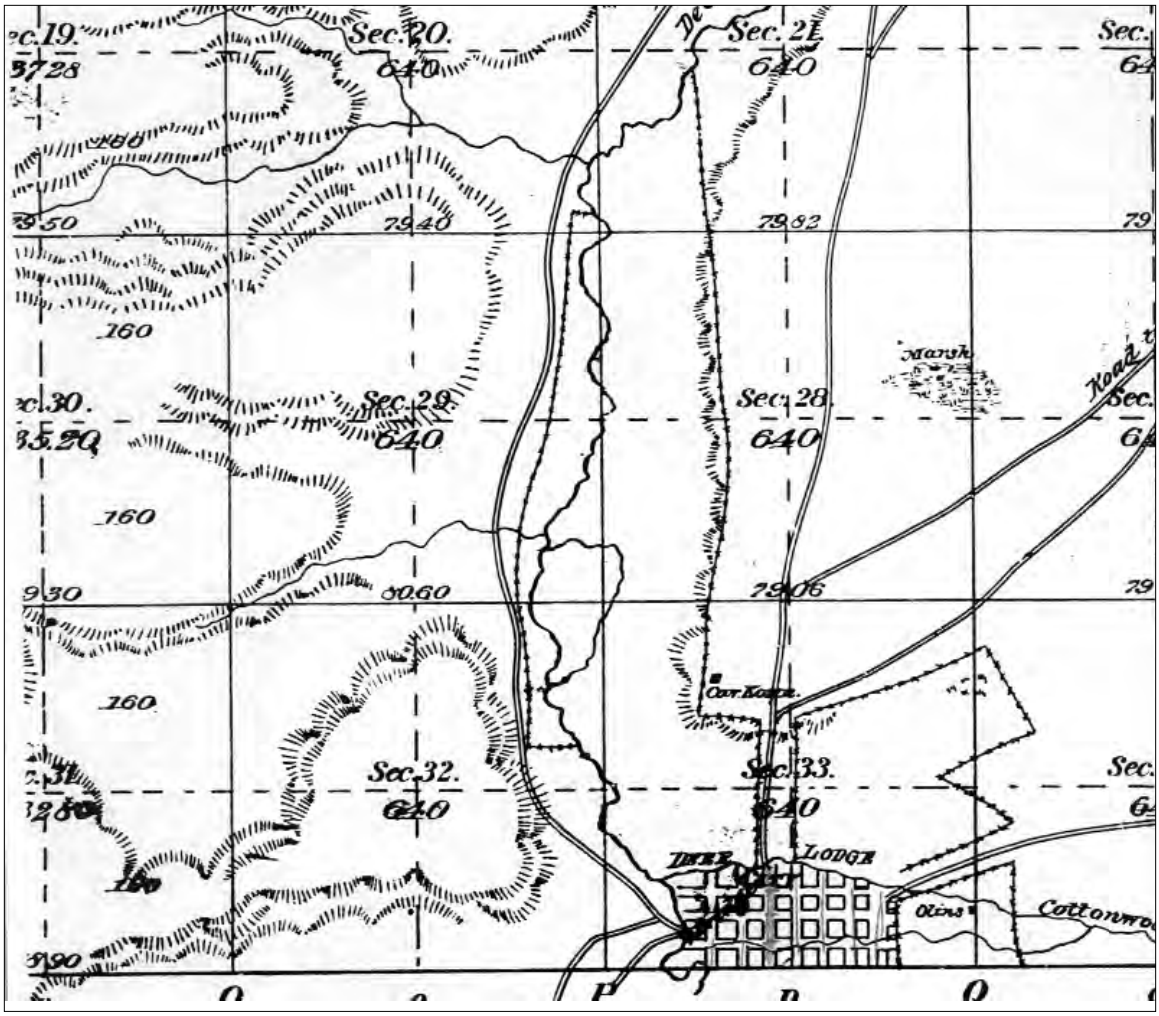


Figure 2-4: Detail of 1869 Survey T8N, R9W, showing Grant-Kohrs home ranch.

Source: U. S. Surveyor's General Office. Plat of Township 8 North, Range 9 West of the Principal Meridian, Montana. W. W. Johnson, October 1868. Billings: Bureau of Land Management. S. Meredith, Surveyor General, January 5, 1869.



Figure 2-5: Detail, Deer Lodge City, Montana 1881.

Source: Library of Congress, American Memory Collection. Rand McNally and Company, Chicago, 1881. Indexed county map of Montana with a new and original compilation and index, designating all post office towns and railroad stations. Call No. G4250 18811.R3 RR 247 (http://memory.loc.gov).

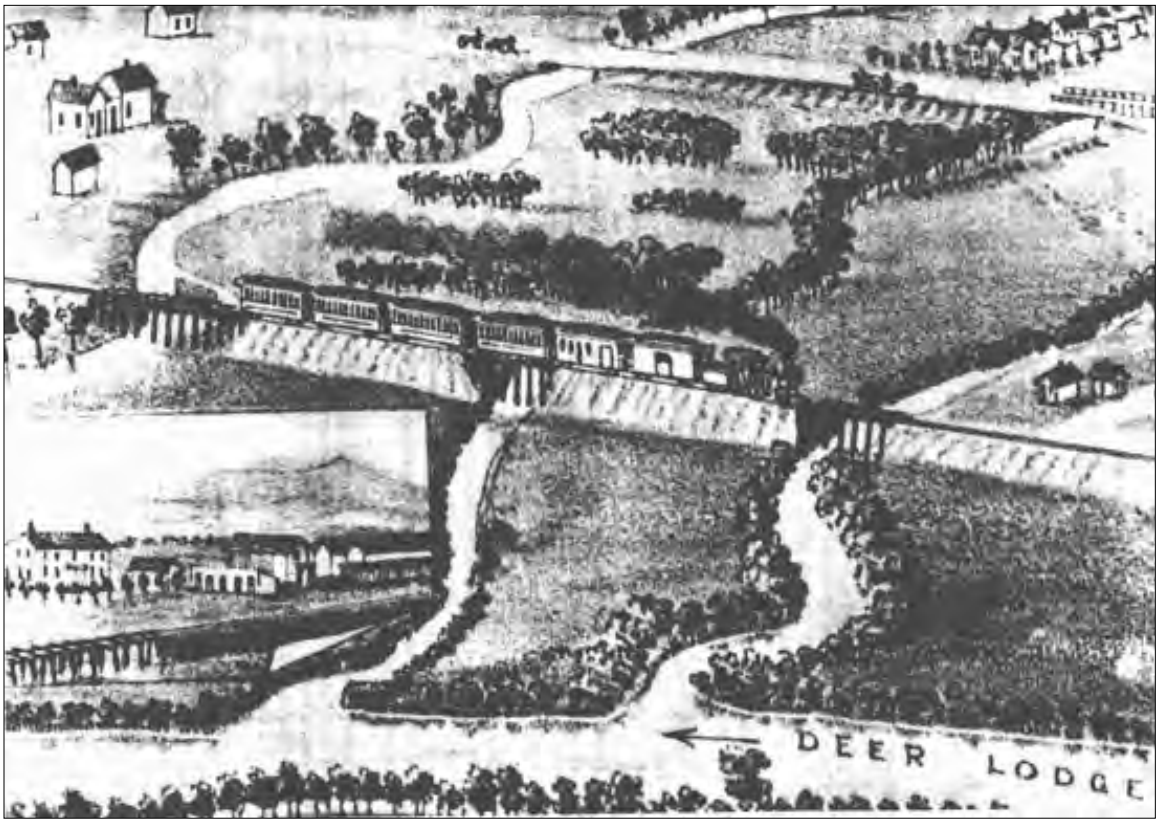


Figure 2-6: Bird's Eye View of Deer Lodge, County seat of Deer Lodge County, Montana. Inset showing the Grant-Kohrs Ranch House (Stoner), 1883.

Source: Stoner, J. J. "1883 Bird's Eye View of Deer Lodge City, County Seat of Deer Lodge County, Montana." Milwaukee: J. J. Stoner, 1883. Grant-Kohrs Ranch National Historic Site archives. Catalog no. GRKO 13985.

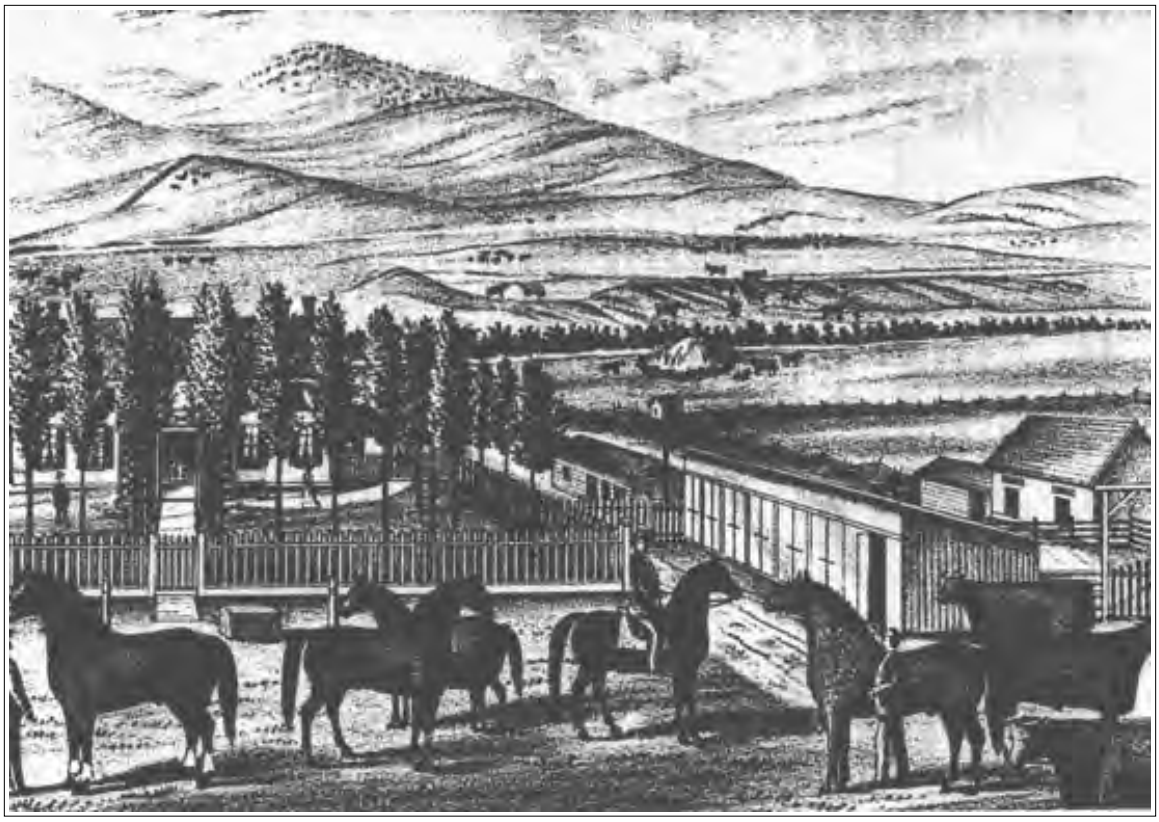


Figure 2-7: Grant-Kohrs ranch house published in *History of Montana*, (M.A. Leeson), 1884.

Source: Leeson, M. A. "Residence of Conrad Kohrs, Deer Lodge, Montana," 556. In History of Montana, 1884. Grant-Kohrs Ranch National Historic Site archives. Catalog no. GRKO 15668.

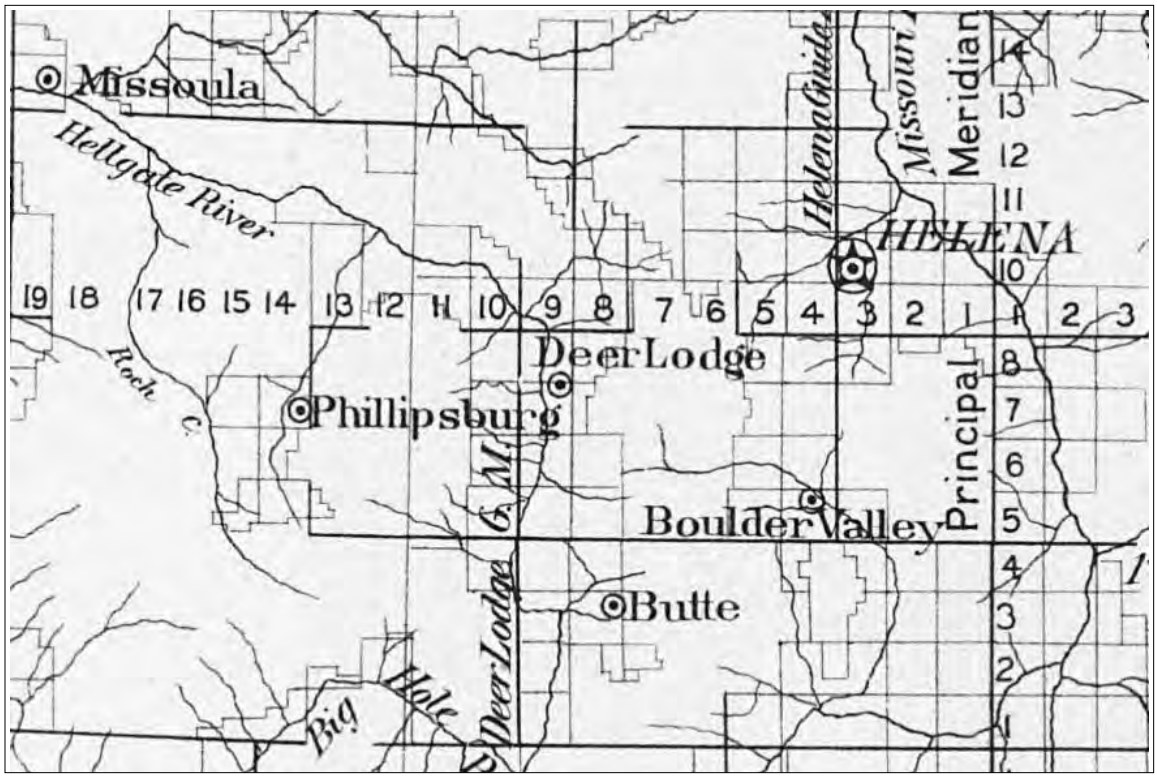


Figure 2-8: Detail of Deer Lodge Valley vicinity, Montana 1891.

Source: Library of Congress, American Memory Collection. U.S. Serial Set, Number 4015, 56th Congress, 1st Session, Pages 942 and 943, Indian Land Cessions in the United States, 1784 to 1894 (http://memory.loc.gov).



Figure 2-9: (16271) Front yard of Grant Kohrs Ranch House, circa 1900.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-10: (16281) Area in front of Grant Kohrs Ranch House, easterly view with phaeton buggy, circa 1900.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-11: (6276) William Kohrs Memorial Library Dedication. Men with long coats, trees and front yard of Grant Kohrs Ranch House, 1903.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-12: (16389H) Front yard of Grant Kohrs Ranch House with Will and Harry Gehrmann on horses, circa 1904.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-13: (4422HS) John Bielenberg and Gehrmann boys, circa 1904.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-14: (16533G) Robert and Anna Warren among whitewashed tree trunks, circa 1908.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-15: (1588149) Sweet Peas on trellis, circa 1910's.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-16: (11400L) Lower Ranch Yard circa 1900.

Source: Grant Kohrs Ranch NHS Archives

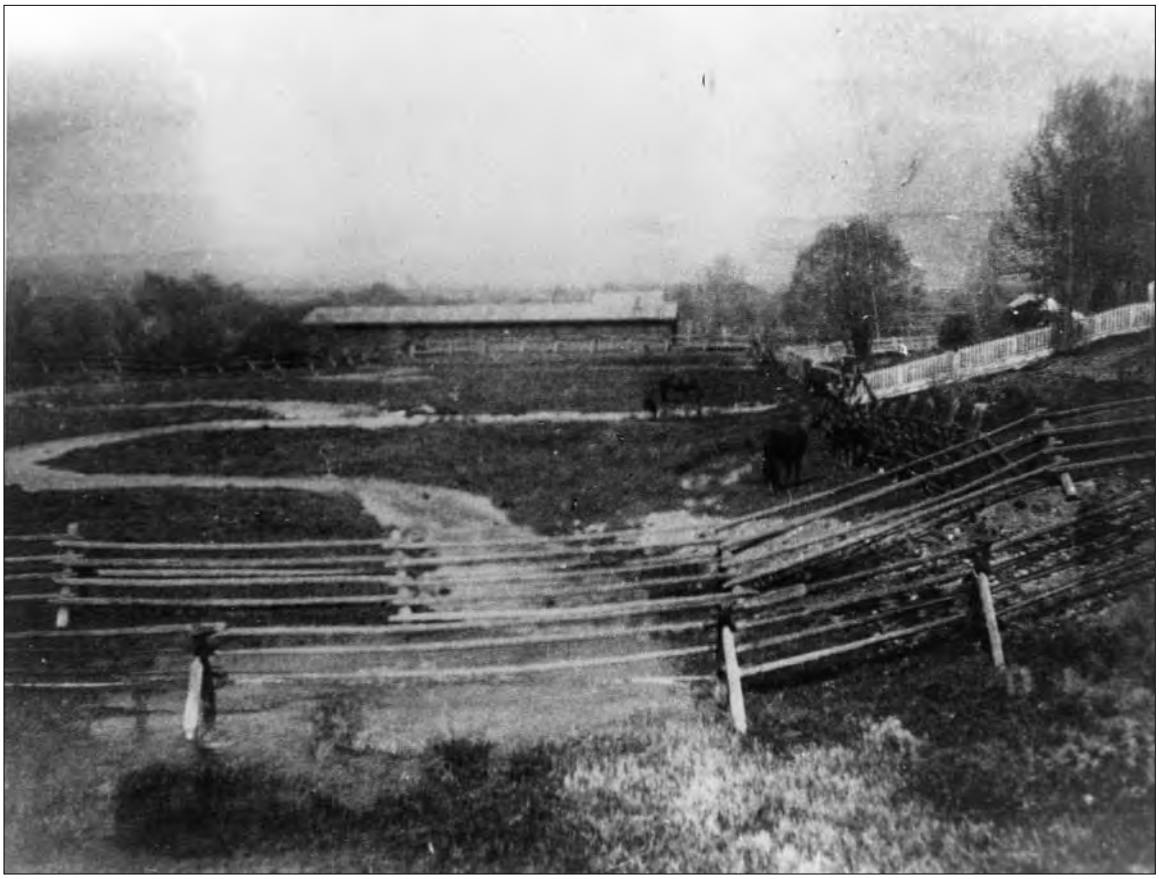


Figure 2-17: (CI, X) General view of ranch, Montana Historical Society Print, circa 1900.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-18: (6280H) Rear yard of Grant Kohrs Ranch House with Conrad and Augusta, circa 1890.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-19: (A3, XXXVII) Con Warren putting up hay with a beaver slide, circa 1910.

Source: Grant Kohrs Ranch NHS Archives

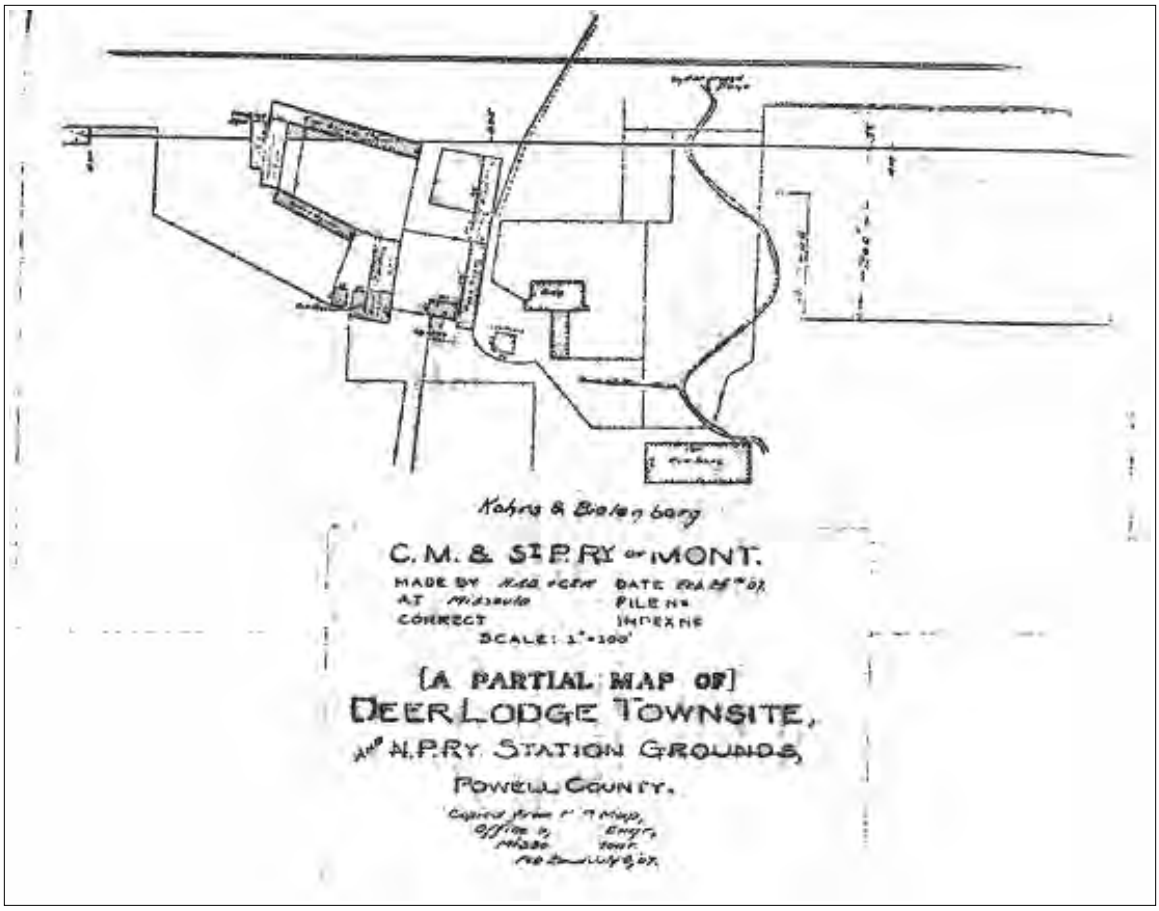


Figure 2-20: Partial Map of Deer Lodge Townsite, 1907.

Source: Chicago, Milwaukee, and St. Paul Railway of Montana. "A Partial Map of Deer Lodge Townsite and N.P.RY. Station Grounds, Powell County," Prepared by the Office of the Division Engineer, Northern Pacific Railroad, February 25, 1907. Ms. on file at the Grant-Kohrs Ranch National Historic Site Library and Archives, Deer Lodge, Montana.

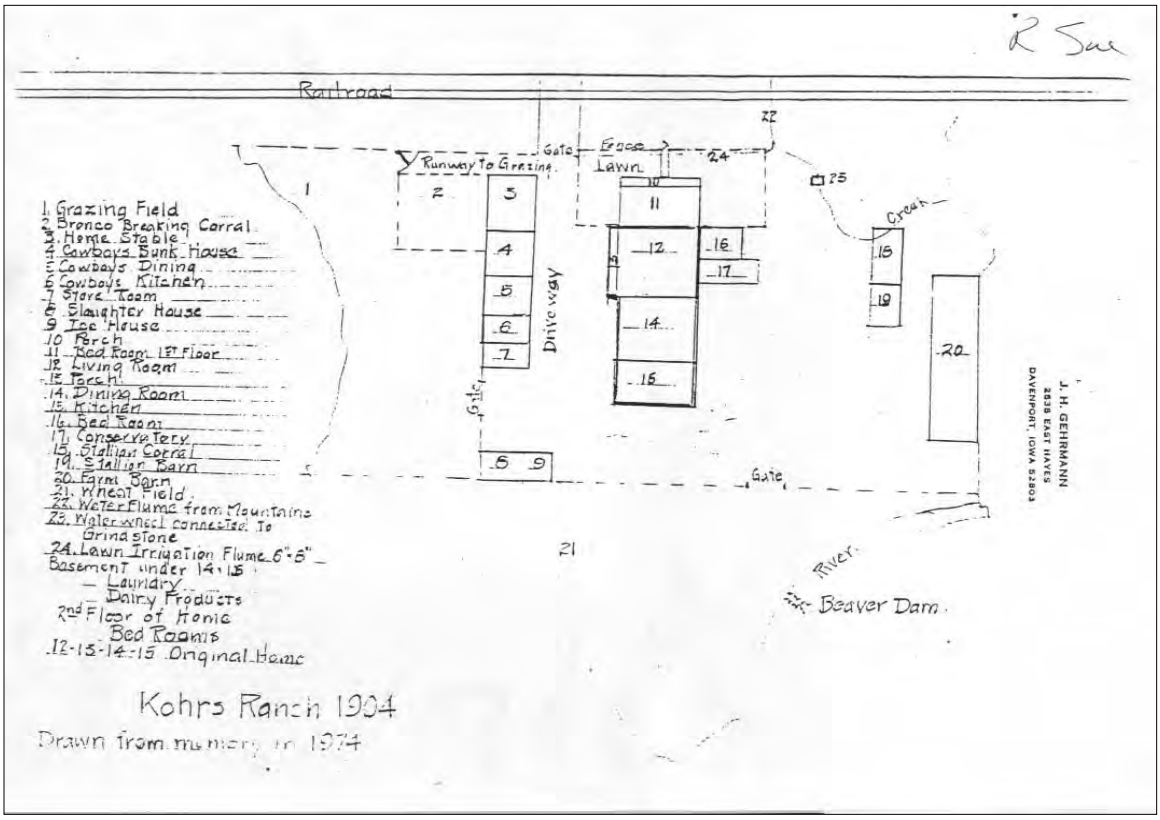


Figure 2-21: J. H. Gehrmann, "Kohrs Ranch 1904. Drawn from Memory in 1974," 1974.

Source: GRKO 15999 Series 1 Tape 7 Harry Gehrmann with Rex Meyers, January 4, 1982. Map dates 1974



Figure 2-22: (4995TH) Threshing hay, Ben Goldie's thresher, 1938.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-23: (4996TH) Threshing grain, Ben Goldie's thresher, Conrad Warren watching, 1938.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-24: (4999TH) Threshing grain, Ben Goldie's thresher, Conrad Warren watching, 1938.

Source: Grant Kohrs Ranch NHS Archives

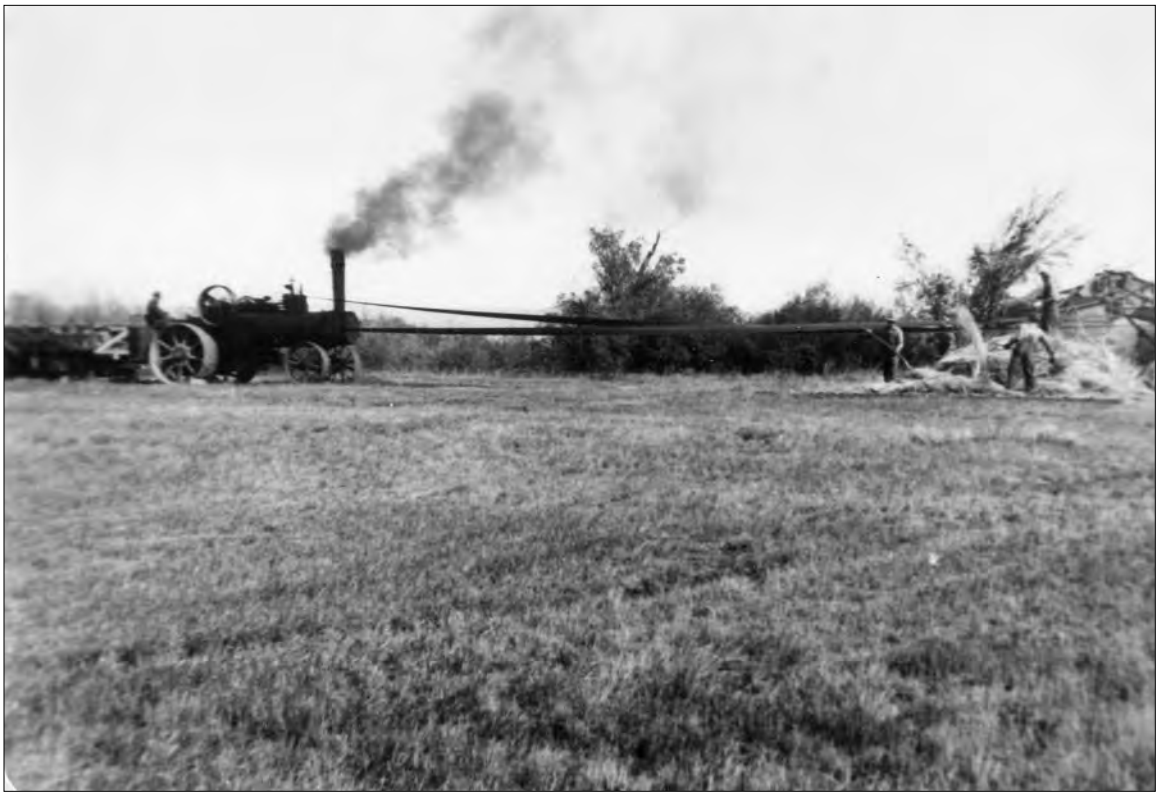


Figure 2-25: (4997TH) Threshing grain, Ben Goldie's thresher, 1938.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-26: (4998TH) Threshing hay, Ben Goldie's thresher, 1938.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-27: (16287) Front view of Grant Kohrs Ranch House, circa 1910.

Source: Grant Kohrs Ranch NHS Archives

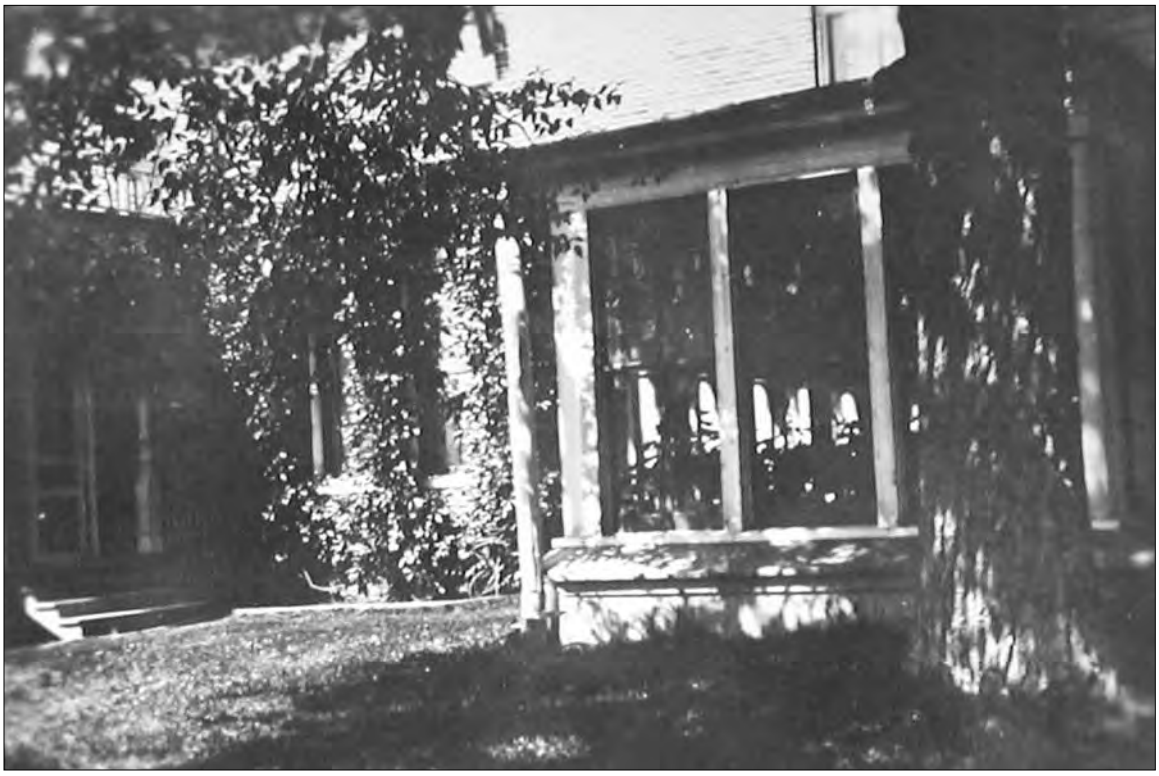


Figure 2-28: (15881-43) Side of Grant Kohrs Ranch House, conservatory, circa 1915.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-29: (Bache.12) Auntie in drive, Anna Kohrs Boardman, no date, possibly 1925.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-30: (Bache.2) Augusta Kohrs in the garden watering plants, circa 1930.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-31: (16109A) Feed Bunk (HS-52), circa 1940.

Source: Grant Kohrs Ranch NHS Archives

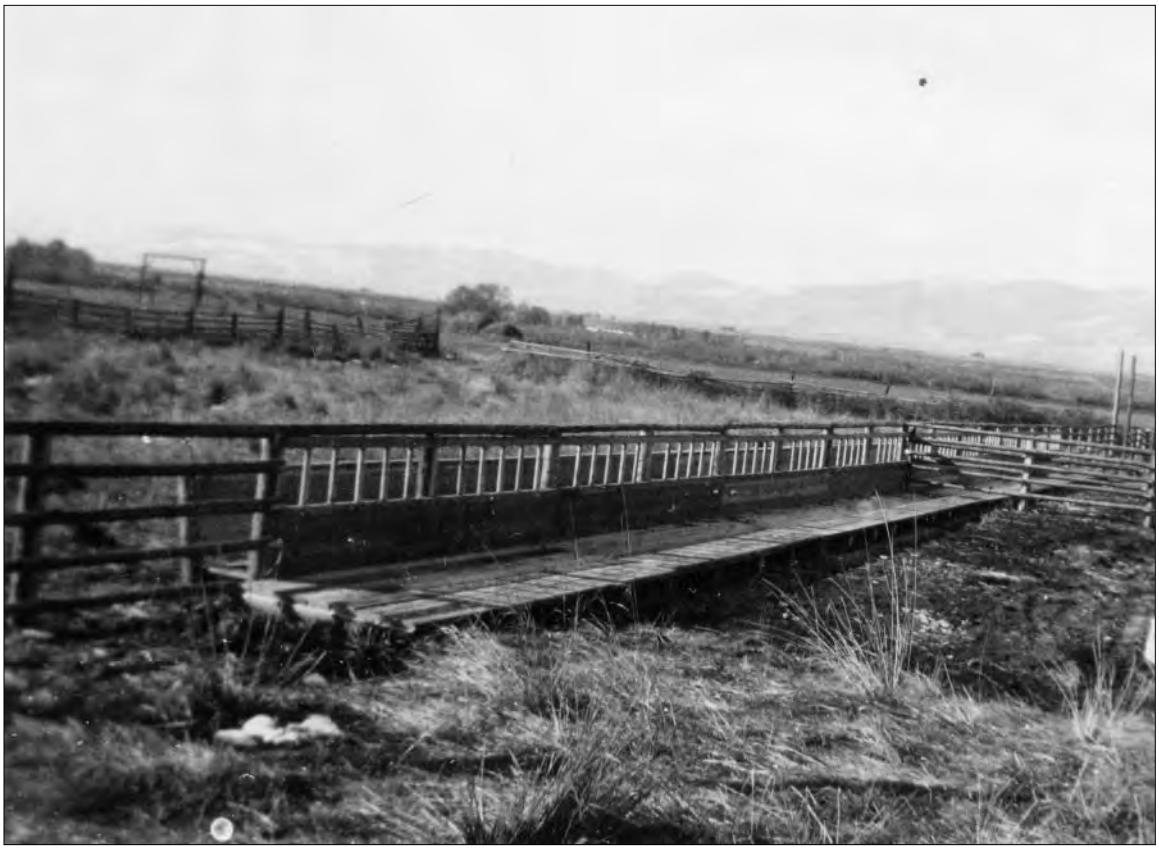


Figure 2-32: (16109B) Feed Bunk (HS-52), circa 1940.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-33: (16000L) Three horse team and moldboard plow, circa 1935.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-34: (15884.112) Feeding Belgians and Herefords in the field south of HS-58. No date, possibly 1935.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-35: (15884.124) Unknown structure located in Lower House Yard west of residence, 1937

Source: Grant Kohrs Ranch NHS Archives

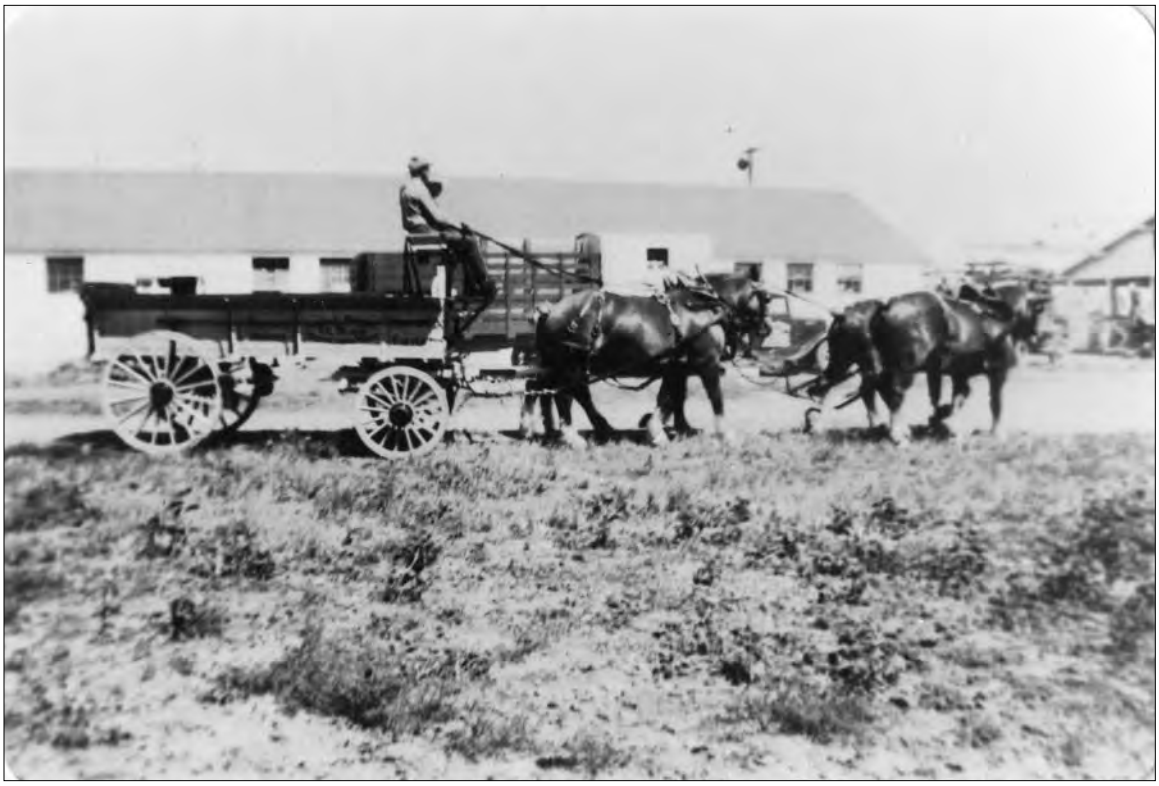


Figure 2-36: (4990WA) CK Show wagon, not at Grant Kohrs, probably at Great Falls, circa 1938.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-37: (4991SH) CK Show wagon, not at Grant Kohrs, probably at Great Falls, circa 1938.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-38: (16173L) Cattle at feed bunk, circa 1937.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-39: (6496HS) Conrad Warren branding cattle, 1937.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-40: (16154H) Conrad Warren and cattle feeding, 1937.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-41: (16172L) Conrad Warren with calves in corral, circa 1937.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-42: (15884-24) Nellie Warren in front of HS-58, Warren House foundation, with garage framing in background, 1934.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-43: (15884-25) Construction of new Warren residence with Nellie Warren, 1934.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-44: (5991) Warren residence, 1934.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-45: (5992) Warren residence, 1934.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-46: (5993) Warren residence, 1934.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-47: (5891) Pat Warren in yard (HS-58), ca. 1937.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-48: (5936) Pat Warren in yard (HS-58) with trellis in background, ca. 1937.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-49: (5931) Pat Warren in yard (HS-58) showing landscaped area between house and chicken coop, ca. 1938.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-50: (5881) Pat Warren in yard (HS-58) with sweet pea trellis in background, 1938.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-51: (5879) Pat Warren in yard (HS-58) with dog house in background, 1939.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-52: (15882.20) Pat and Bud Warren in yard between house (HS-58) and the North Fork of Johnson Creek, ca. 1942. Note there is no picket fence

Source: Grant Kohrs Ranch NHS Archives



Figure 2-53: (5964) Pat Warren in yard behind house (HS-58) with swing, ca. 1942.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-54: (16270H) Flower garden and shrubs, south side of Grant Kohrs Ranch House, Thoroughbred Barn in background. No date, possibly 1935.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-55: (1588451) Grant Kohrs Ranch House with fence and trees, no date, possibly 1936.

Source: Grant Kohrs Ranch NHS Archives

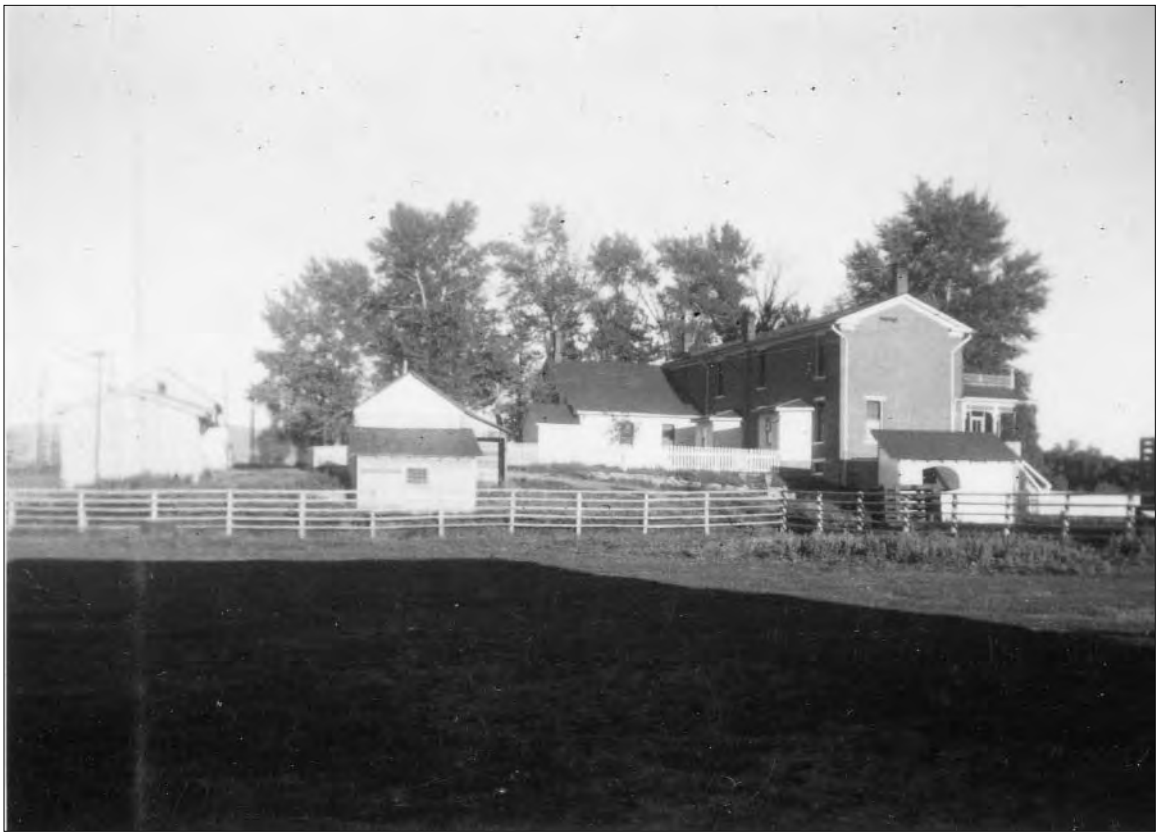


Figure 2-56: (4979LO) Grant Kohrs Ranch, circa 1937.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-57: (15884.140LowerYard1937) Lower House Yard, 1937. Note location of unknown structure between coal shed (HS-4) and ice house (HS-5).

Source: Grant Kohrs Ranch NHS Archives



Figure 2-58: (16841H) General view of ranch from the east, circa 1938.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-59: (4986HS) Jack Peters with Grant Kohrs Ranch House in background, 1938.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-60: (5995SH) Conrad Warren in lower yard with horse team, 1938.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-61: (4992BU) Haying on the west side, circa 1937.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-62: (4993BU) Haying on the west side, circa 1937.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-63: (6489HA) Grain stacks North West Little Meadow, circa 1937.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-64: (4994HA) Jayhawk Overshot Hay Stacker, 1938.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-65: (16158H) Conrad Warren on Sin, circa 1940.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-66: (16160H) Stallion Barn (HS-16), circa 1940.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-67: (16171W) Herefords in pasture, north of Warren Ranch, circa 1945.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-68: (16000H) High place looking west. Herefords grazing east of the ranch, Warren's summer pasture, circa 1950.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-69: (6833LO) View of ranch and cattle from northwest, circa 1940.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-70: (15969H) Warren House, 1947.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-71: (warrenHouse) Warren House, 1947. Note wire mesh gate is not in place at this time.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-72: (15967H) Grant Kohrs Ranch House and Bunkhouse Row, circa 1945.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-73: (16388H) Southwest view of Grant Kohrs Ranch House. No date, possibly 1952.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-74: (TREELAWN) Entry lane south of Bull Barns, no date.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-75: (16193A) Warren Hereford Ranch sign and barn, 1952.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-76: (15882.96) Picket fence behind Warren House (HS-58), shortly after construction, ca. 1953.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-77: (16058a) Birdbath and clothesline in Warren yard, 1964.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-78: (6582DE, SAME AS 16159D) Mt. Powell, Flint Creek Mountains, Deer Lodge Valley, possibly 1955.

Source: Grant Kohrs Ranch NHS Archives

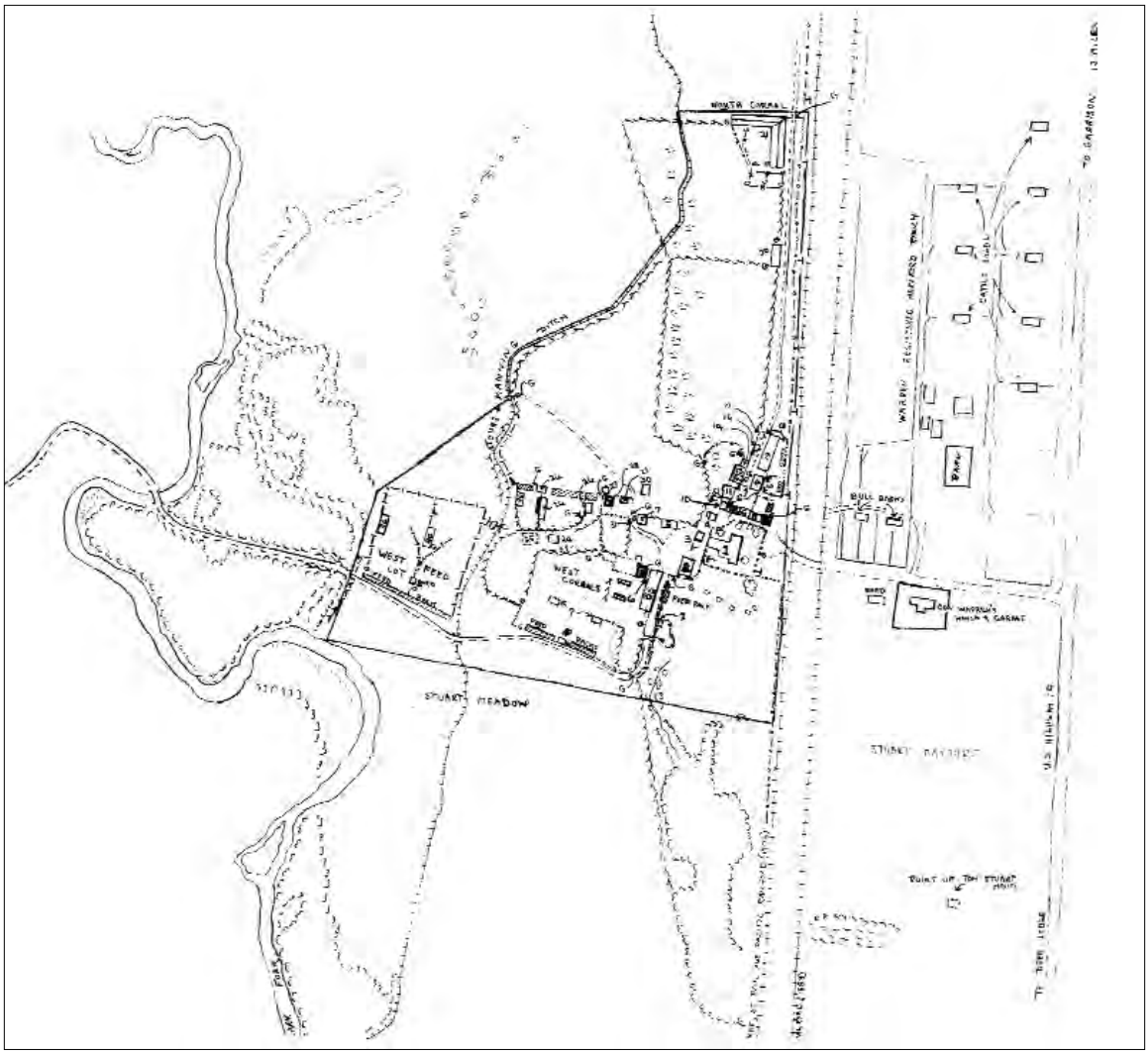


Figure 2-79: NPS Historical Base Map, 1958-1971.

Source: Grant Kohrs Ranch NHS Archives [unprocessed Resource Management Map Collection].



Figure 2-80: (16114G) Driveway approaching Grant Kohrs Ranch House with snow, 1972.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-81: (116274) Grant Kohrs Ranch House, No date.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-82: (6492HS) Front yard of Grant Kohrs Ranch House, no date.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-83: (MT-39-1) Aerial view of Grant Kohrs Ranch and neighboring town, taken from the southeast, October 1974.

Source: Jack E. Boucher, Photographer, Historic American Buildings Survey



Figure 2-84: (MT-39-3) Aerial view of Deer Lodge Valley with city and ranch in upper left, October 1974.

Source: Jack E. Boucher, Photographer, Historic American Buildings Survey



Figure 2-85: (MT-39-4) Aerial view of Grant Kohrs Ranch, taken from the north, ranch in center of photograph, Deer Lodge in upper left, October 1974.

Source: Jack E. Boucher, Photographer, Historic American Buildings Survey



Figure 2-86: (MT-39-5) Aerial view of Grant Kohrs Ranch, taken from the southwest, October 1974.

Source: Jack E. Boucher, Photographer, Historic American Buildings Survey



Figure 2-87: (MT-39-6) Aerial view of Grant Kohrs Ranch taken from the southwest,close-up of ranch and main outbuildings, October 1974.

Source: Jack E. Boucher, Photographer, Historic American Buildings Survey



Figure 2-88: (MT-39-7) Aerial view of Grant Kohrs Ranch, taken from the west, with feed lots in mid-ground, October 1974.

Source: Jack E. Boucher, Photographer, Historic American Buildings Survey



Figure 2-89: (MT-39-8) Aerial view of Grant Kohrs Ranch , taken from the northeast, October 1974.

Source: Jack E. Boucher, Photographer, Historic American Buildings Survey



Figure 2-90: (MT-39-9) Aerial view of Grant Kohrs Ranch, with Warren Ranch in mid-ground left, October 1974.

Source: Jack E. Boucher, Photographer, Historic American Buildings Survey



Figure 2-91: (MT-39-10) Aerial view of Grant Kohrs Ranch with Warren Ranch in the foreground, October 1974.

Source: Jack E. Boucher, Photographer, Historic American Buildings Survey



Figure 2-92: (MT-39-11) Aerial view of Grant Kohrs Ranch, taken from the southeast with ranch house behind picket fence in mid-ground, October 1974.

Source: Jack E. Boucher, Photographer, Historic American Buildings Survey



Figure 2-93: (MT-39-12) Aerial view of Grant Kohrs Ranch, taken from the northeast, just above the ranch house, October 1974.

Source: Jack E. Boucher, Photographer, Historic American Buildings Survey



Figure 2-94: (MT-39-13) Perspective view of Grant Kohrs Ranch, taken from western grounds, looking toward the ranch house and outbuildings, October 1974.

Source: Jack E. Boucher, Photographer, Historic American Buildings Survey



Figure 2-95: (MT-39-14) Perspective view of the west corrals, October 1974.

Source: Jack E. Boucher, Photographer, Historic American Buildings Survey



Figure 2-96: (MT-39-14) Perspective view of the west yard and outbuildings, October 1974.

Source: Jack E. Boucher, Photographer, Historic American Buildings Survey



Figure 2-97: (16009H) Grant Kohrs Ranch House looking east, 1985.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-98: (16198A) Grant Kohrs Ranch looking northwest toward rear of ice house, 1985.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-99: (16198H) Farm equipment, 1985.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-100: (15916H) Cattle in corral near sales barn, circa 1972-1988.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-101: Aerial of Grant Kohrs Ranch, circa 1947.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-102: Detail of aerial view of Grant Kohrs Ranch, circa 1947.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-103: Aerial view of Grant Kohrs Ranch, 1960.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-104: Detail of aerial view of Grant Kohrs Ranch, 1960.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-105: Aerial view of Grant Kohrs Ranch, 1972.

Source: Grant Kohrs Ranch NHS Archives

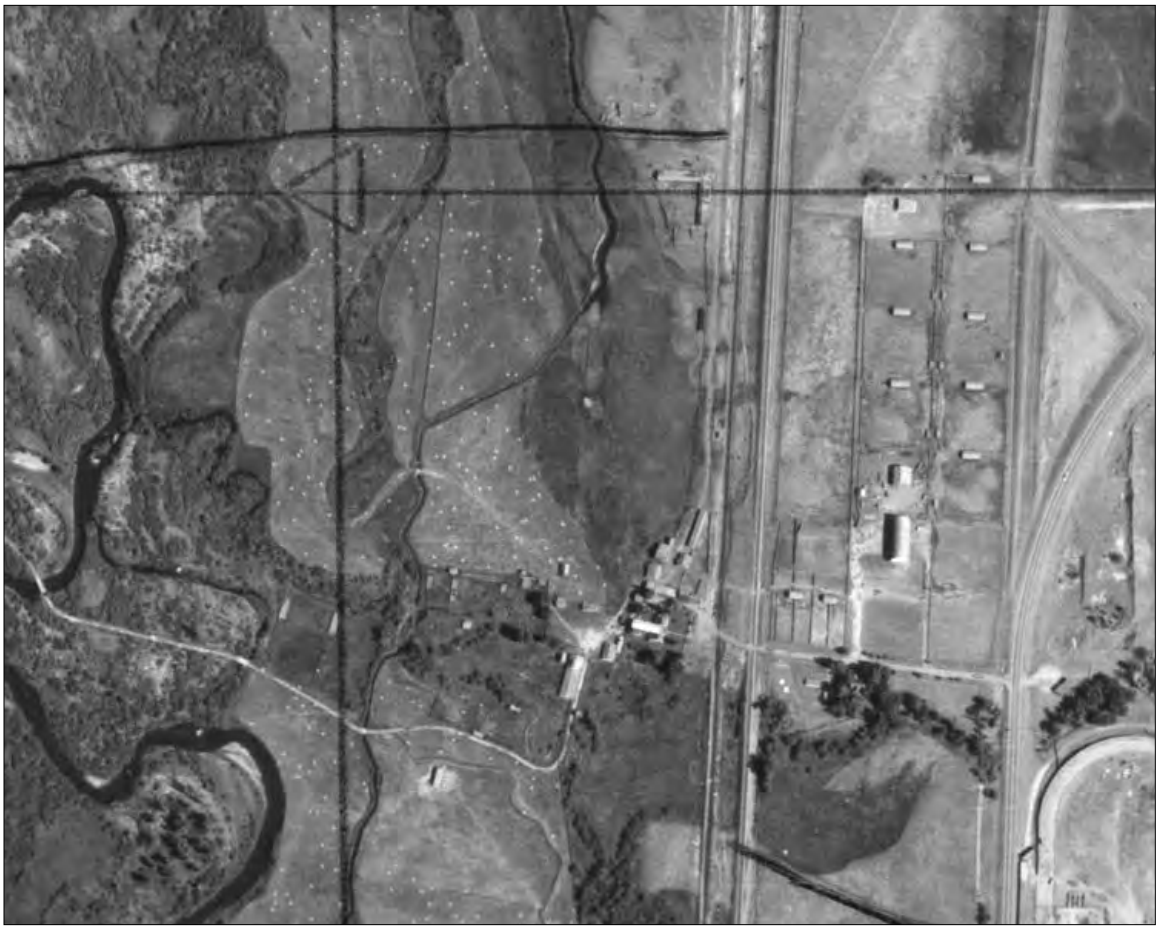


Figure 2-106: Detail of aerial view of Grant Kohrs Ranch, 1972.

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Source: Grant Kohrs Ranch NHS Archives



Figure 2-107: Aerial view of Grant Kohrs Ranch, 1979.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-108: Detail of aerial view of Grant Kohrs Ranch, 1979.

Source: Grant Kohrs Ranch NHS Archives

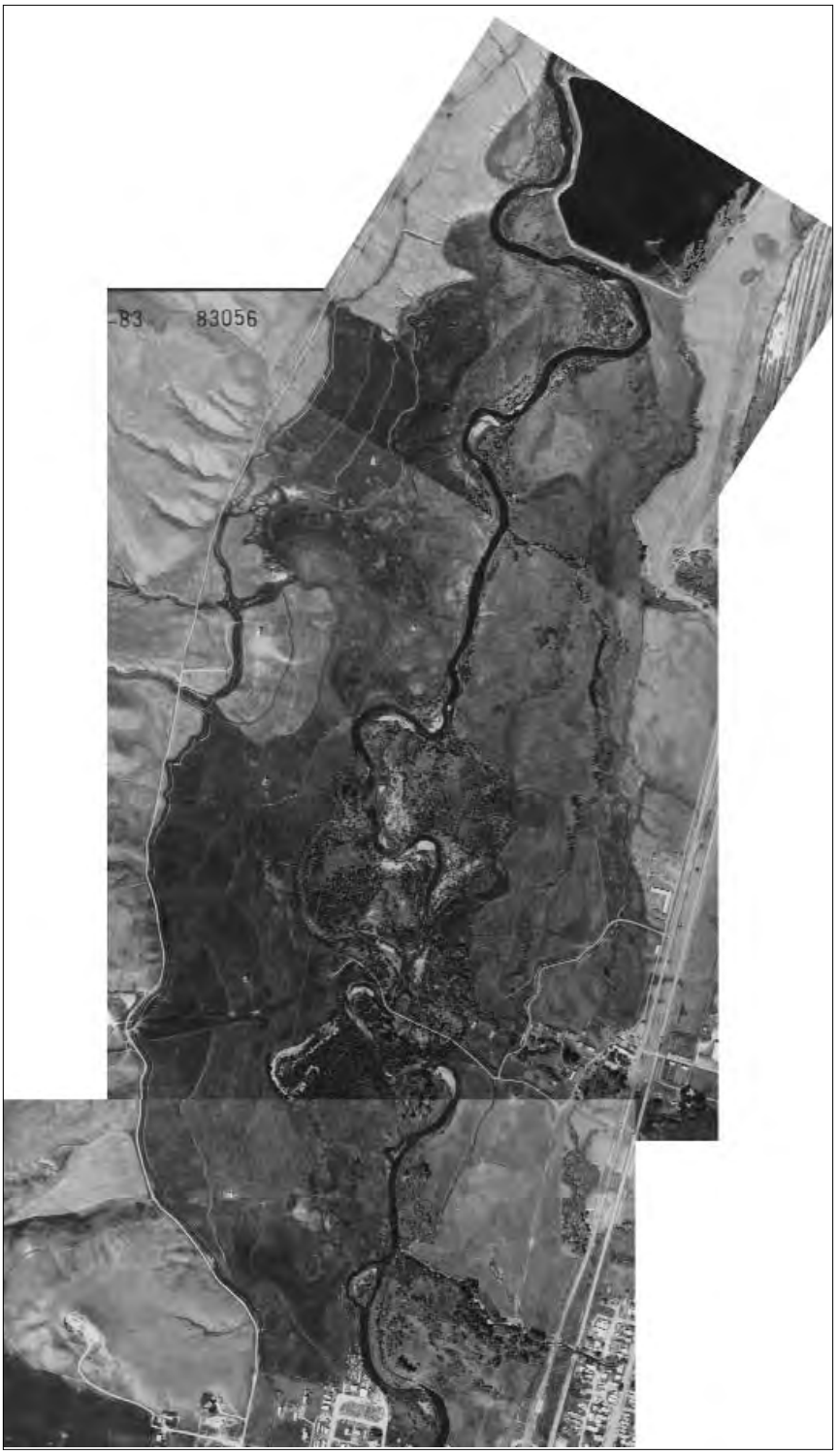


Figure 2-109: Aerial view of Grant Kohrs Ranch, 1983.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-110: Detail of aerial view of Grant Kohrs Ranch, 1983.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-111: Aerial view of Grant Kohrs Ranch, 1986.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-112: Detail of aerial view of Grant Kohrs Ranch, 1986.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-113: Aerial view of Grant Kohrs Ranch, 1994.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-114: (4-02) Detail of aerial view of Grant Kohrs Ranch, 1994.

Source: Grant Kohrs Ranch NHS Archives

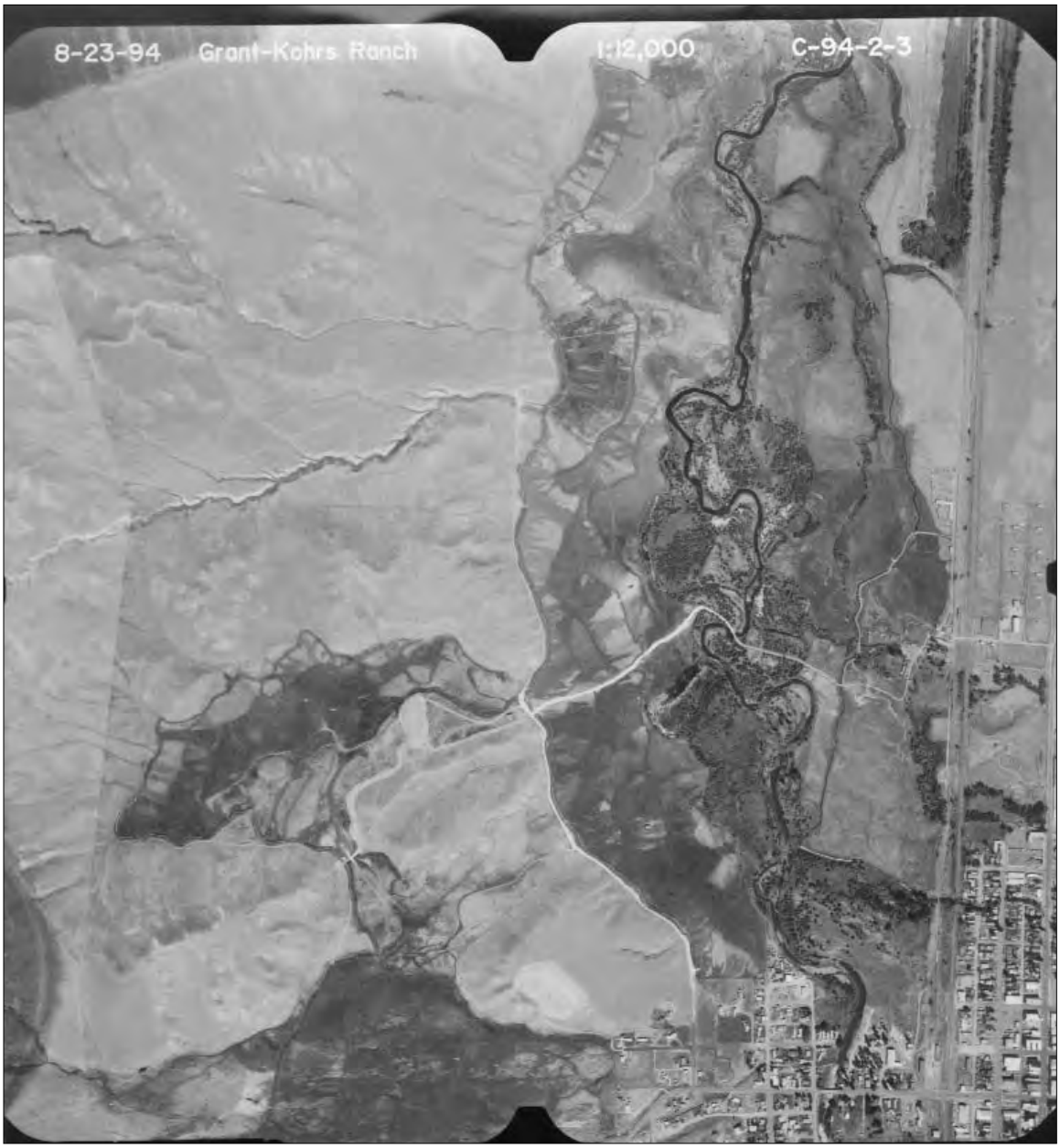


Figure 2-115: (GK_94-2) Aerial view of Grant Kohrs Ranch, 1994.

Source: Grant Kohrs Ranch NHS Archives



Figure 2-116: (gk_94-1) Aerial view of Grant Kohrs Ranch, circa 1994.

Source: Grant Kohrs Ranch NHS Archives

Period Plans

Road to Hell Gate

Bunchgrass

East Gulch

Johnson Creek

N. Fork of Johnson Creek

Cottonwood Creek

Deer Lodge

T. Stuart complex

J. Grant complex (see inset)

Notes:
- Livery stable and garden location is assumed based upon topography and location of other buildings.
- Bunkhouse configuration approximate, based upon 1865 G. Stuart drawing.
- Location of cultivated fields is assumed, based upon adjacency to nearby local drainages and wetter soils.
- Irrigation ditch c. 1861-1866 (possible predecessor to Kohrs-Manning Ditch) is not included in this period plan due to unknown length and orientation.
- Vegetation along streams and rivers assumed from passages in Granville Stuart, *Forty Years on the Frontier*, p. 97.

Oats and Hay

No Name Creek

Clark Fork River

Road to Hell Gate

West Gulch

Bunchgrass

Taylor Creek

Tipis

Bunkhouse

Stable

Log structure

House

Garden

Map Sources: Granville Stewart "Residence of John Grant, near Deer Lodge City Montana. August 6, 1865. Looking Northwest. No. 4."; U. S. Surveyor's General Office. Plat of Township 8 North, Range 9 West of the Principal Meridian, Montana. W. W. Johnson, October 1868. Billings: Bureau of Land Management; Tom Stuart site derived from Stoner, J. J. "1883 Bird's Eye View of Deer Lodge City, County Seat of Deer Lodge, Montana." Milwaukee: J. J. Stoner, 1883; Tributary streams and springs derived from National Park Service, Grant-Kohrs Ranch National Historic Site GIS Program, compiled 1998. Metadata avaliable from World Wide Web: [http://www.nps.gov/gis/metadata/grko/]; topography derived from Montana State Library Natural Resource Information System [http://nris.state.mt.us/gis/datalist.html].

J. Grant Complex (inset)
Scale: 1" = 200'

Legend:
- Roads
- Vegetation
- Bench
- Fences
- Streams/Sloughs
- Railroad
- Buildings/ Structures
- Springs
- Old Ditches
- Main Ditches
- Lateral Ditches
- Component Landscape Boundary Line
- GRKO Boundary Line
- Beaver Lodges

Scale: 1" = 1,200'

A/E FIRM PRIME NAME: Susan Maxman Architects CITY,STATE: Philadelphia, PA SUBCONTRACTOR NAME: John Milner Associates, Inc. CITY, STATE: Charlottesville, VA	DESIGNED: DRAWN: KLS TECH. REVIEW: RMM DATE: JULY 2004	SUB SHEET NO. H-1	GRANT-KOHRS RANCH **Period Plan c. 1865** GRANT-KOHRS RANCH NATIONAL HISTORIC SITE	DRAWING NO. PKG. NO. SHEET OF

Montana Highway 10
Bunchgrass
East Gulch
Northern Pacific Railroad
Johnson Creek
N. Fork of Johnson Creek
T. Stuart homesite
Cottonwood Creek
Grant-Kohrs complex (see inset)
Johnson Ditch
Kohrs-Manning Ditch
Oats, Hay, Wheat
Oats, Hay, Wheat
No Name Creek
County Road
Clark Fork River
West Gulch
Kohrs "Big" Ditch
Taylor Creek
Westside Ditch
Bunchgrass
Hartz Ditch
Kading Homesite

Notes:
- Tom Stuart site purchased by Kohrs in 1884; presence/condition of buildings in 1895 unknown.
- Kohrs "Big" Ditch (also known as Kohrs-Batterson Ditch) assumed to have been constructed c. 1885, due to water rights associated with Taylor Creek.
- Johnson Ditch assumed to be constructed c. 1874, due to water rights associated with Johnson Creek.
- Kading homesite assumed as Kading appropriated the Westside Ditch in 1891. It is possible that the Hartz Ditch may also have existed at this time.
- Location of cultivated fields is assumed, based upon adjacency to nearby local drainages and wetter soils.

Irrigation Ditch
HS-17
A-8
A-6
HS-2
Cottonwood Grid
Service Area
A-7
Garden
HS-40
HS-11
Drainage Ditch
HS-10
A-11
HS-14
HS-7
A-10
HS-5
A-9
HS-18
HS-19
HS-15
HS-16
HS-30

Map Sources: Albright, John. *Historic Resources Study and Historic Structure Report Historical Data, Kohrs and Bielenberg Home Ranch, Grant-Kohrs Ranch National Historic Site, Montana* . Denver: Denver Service Center, National Park Service, 1977; Chicago, Milwaukee, and St. Paul Railway of Montana. "A Partial Map of Deer Lodge Townsite and N.P.RY. Station Grounds, Powell County," Prepared by the Office of the Division Engineer, Northern Pacific Railroad, February 25, 1907. Ms. on file at the Grant-Kohrs Ranch National Historic Site Library and Archives, Deer Lodge, Montana; Historic Photos GRKO 11400L, 16281H, and 6280H, Grant Kohrs Ranch National Historic Site Archives; Leeson, M. A. "Residence of Conrad Kohrs, Deer Lodge, Montana," 556. In *History of Montana*. 1884 (GRKO 15668) on file at Grant-Kohrs Ranch National Historic Site Archives; Shappins Associates. "Cultural Landscape Inventory: Grant-Kohrs Ranch National Historic Site, Historic Structure No. 1 (HS-1) Cultural Landscape," (Draft Report). National Park Service, Intermountain Region. 2003; Stoner, J. J. "1883 Bird's Eye View of Deer Lodge City, County Seat of Deer Lodge County, Montana." Milwaukee: J. J. Stoner, 1883 (GRKO 13985) on file at Grant-Kohrs Ranch National Historic Site Archives; U. S. Surveyor's General Office. Plat of Township 8 North, Range 9 West of the Principal Meridian, Montana. W. W. Johnson, October 1868. Billings: Bureau of Land Management; Tributary streams and springs derived from National Park Service, Grant-Kohrs Ranch National Historic Site GIS Program, compiled 1998. Metadata avaliable from World Wide Web: [http://www.nps.gov/gis/metadata/grko/]; topography derived from Montana State Library Natural Resource Information System [http://nris.state.mt.us/gis/datalist.html].

Grant-Kohrs Complex (inset)
Scale: 1" = 200'

Legend:
- Roads
- Vegetation
- Bench
- Fences
- Streams/Sloughs
- Railroad
- Buildings/ Structures
- Springs
- Old Ditches
- Main Ditches
- Lateral Ditches
- Component Landscape Boundary Line
- GRKO Boundary Line
- Beaver Lodges

Scale: 1" = 1,200'

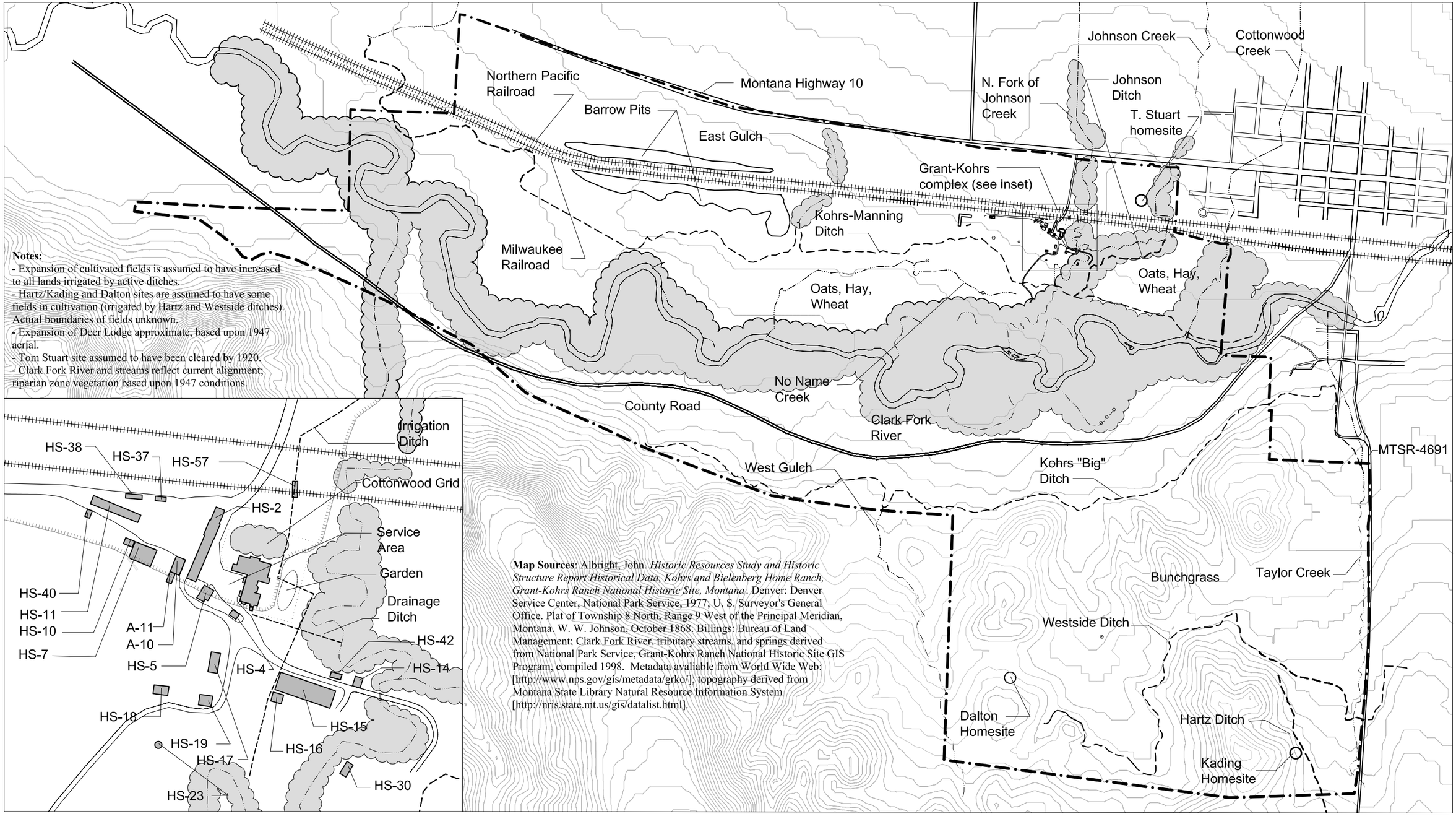
A/E FIRM
PRIME
NAME: Susan Maxman Architects
CITY,STATE: Philadelphia, PA
SUBCONTRACTOR
NAME: John Milner Associates, Inc.
CITY, STATE: Charlottesville, VA

DESIGNED:
DRAWN: KLS
TECH. REVIEW: RMM
DATE: JULY 2004

SUB SHEET NO. H-2

GRANT-KOHRS RANCH
Period Plan c. 1895
GRANT-KOHRS RANCH NATIONAL HISTORIC SITE

DRAWING NO.
PKG. NO.
SHEET
OF



Notes:
- Expansion of cultivated fields is assumed to have increased to all lands irrigated by active ditches.
- Hartz/Kading and Dalton sites are assumed to have some fields in cultivation (irrigated by Hartz and Westside ditches). Actual boundaries of fields unknown.
- Expansion of Deer Lodge approximate, based upon 1947 aerial.
- Tom Stuart site assumed to have been cleared by 1920.
- Clark Fork River and streams reflect current alignment; riparian zone vegetation based upon 1947 conditions.

Map Sources: Albright, John. *Historic Resources Study and Historic Structure Report Historical Data, Kohrs and Bielenberg Home Ranch, Grant-Kohrs Ranch National Historic Site, Montana*. Denver: Denver Service Center, National Park Service, 1977; U. S. Surveyor's General Office. Plat of Township 8 North, Range 9 West of the Principal Meridian, Montana. W. W. Johnson, October 1868. Billings: Bureau of Land Management; Clark Fork River, tributary streams, and springs derived from National Park Service, Grant-Kohrs Ranch National Historic Site GIS Program, compiled 1998. Metadata avaliable from World Wide Web: [http://www.nps.gov/gis/metadata/grko/]; topography derived from Montana State Library Natural Resource Information System [http://nris.state.mt.us/gis/datalist.html].

Grant-Kohrs Complex (inset)
Scale: 1" = 200'

Legend:
- Roads
- Vegetation
- Bench
- Fences
- Streams/Sloughs
- Railroad
- Buildings/ Structures
- Springs
- Old Ditches
- Main Ditches
- Lateral Ditches
- Component Landscape Boundary Line
- GRKO Boundary Line
- Beaver Lodges

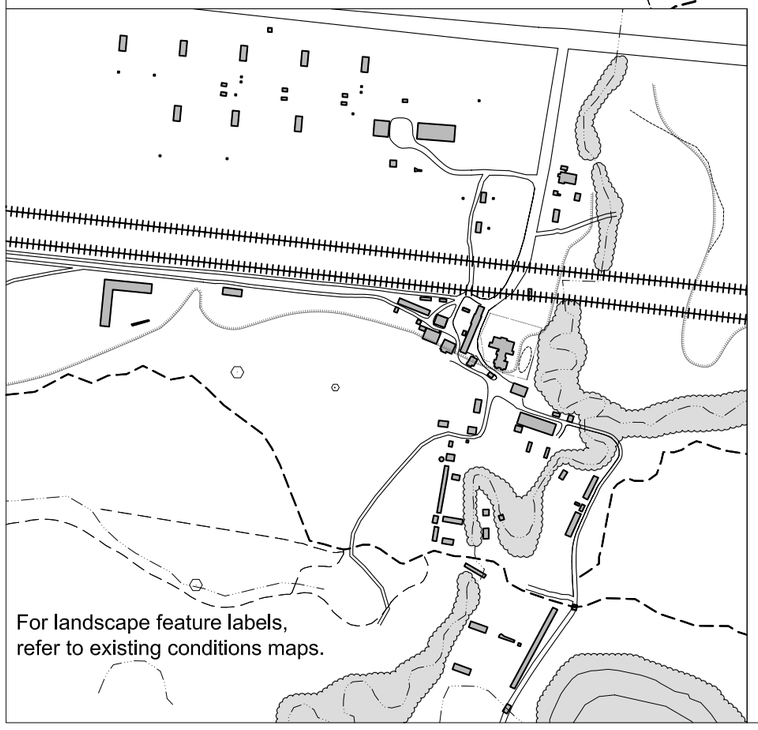
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A/E FIRM PRIME NAME: Susan Maxman Architects CITY,STATE: Philadelphia, PA SUBCONTRACTOR NAME: John Milner Associates, Inc. CITY, STATE: Charlottesville, VA	DESIGNED: DRAWN: KLS TECH. REVIEW: RMM DATE: JULY 2004	SUB SHEET NO. H-3	GRANT-KOHRS RANCH **Period Plan c. 1920** GRANT-KOHRS RANCH NATIONAL HISTORIC SITE	DRAWING NO. PKG. NO. SHEET OF

Notes:
- Hartz/Kading and Dalton sites are assumed to have been cleared by 1955.
- Expansion of Deer Lodge approximate based upon 1947 aerial.
- Clark Fork River and ditches reflect current alignment; riparian zone based upon 1947 aerial photograph.

- Historic alignment of dirt roads in western upper pasture area unknown; conditions based upon current alignment; eastern area alignment based upon 1983 aerial photo.
- Contours intentionally removed from this period plan for graphic clarity of lateral ditches.

Grant-Kohrs and Warren complexes (see inset)
Northern Pacific Railroad
Barrow Pits
Montana Highway 10
East Gulch
Johnson Creek
Cottonwood Creek
N. Fork of Johnson Creek
Johnson Ditch
Kohrs-Manning Ditch
Grains and Potatoes
Milwaukee Railroad
Clark Fork River
Hay and Grains
Hay and Grains
No Name Creek
MTSR-4691
Warren Ditch
County Road
Hay and Grains
Clark Fork River Bridge Road
West Gulch
Kohrs "Big" Ditch
Gravel Pit
Bunchgrass
Taylor Creek
Hay
Westside Ditch
Hay
Hartz Ditch



Map Sources: Albright, John. *Historic Resources Study and Historic Structure Report Historical Data, Kohrs and Bielenberg Home Ranch, Grant-Kohrs Ranch National Historic Site, Montana*. Denver: Denver Service Center, National Park Service, 1977; 1947 and 1960 aerial photos, Grant-Kohrs Ranch National Historic Site archives; Location of Clark Fork River, tributary streams, springs, ditches, borrow pits and railroads derived from National Park Service, Grant-Kohrs Ranch National Historic Site GIS Program, compiled 1998. Metadata avaliable from World Wide Web: [http://www.nps.gov/gis/metadata/grko/] and Montana State Library Natural Resource Information System [http://nris.state.mt.us/gis/datalist.html].

Grant-Kohrs and Warren Complexes (inset)
Scale: 1" = 500'

Legend:
- Roads
- Vegetation
- Bench
- Fences
- Streams/Sloughs
- Railroad
- Buildings/ Structures
- Springs
- Old Ditches
- Main Ditches
- Lateral Ditches
- Component Landscape Boundary Line
- GRKO Boundary Line
- Beaver Lodges

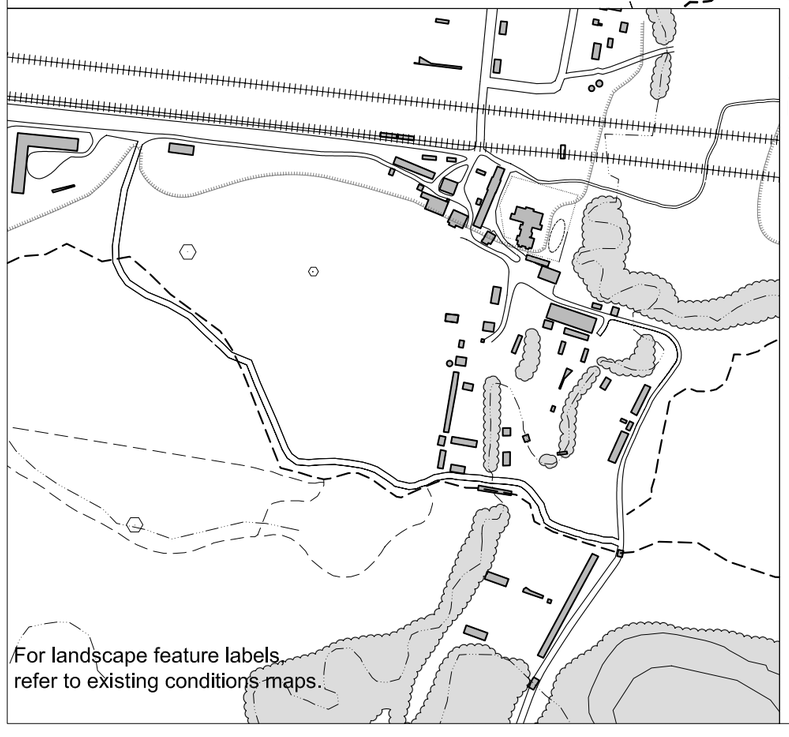
Scale: 1" = 1,200'

A/E FIRM PRIME NAME: Susan Maxman Architects CITY,STATE: Philadelphia, PA SUBCONTRACTOR NAME: John Milner Associates, Inc. CITY, STATE: Charlottesville, VA	DESIGNED: DRAWN: KLS TECH. REVIEW: RMM DATE: JULY 2004	SUB SHEET NO. H-4	GRANT-KOHRS RANCH **Period Plan c. 1955** GRANT-KOHRS RANCH NATIONAL HISTORIC SITE	DRAWING NO. PKG. NO. SHEET OF

Notes:
- Expansion of Deer Lodge and vicinity approximate based upon 1993 aerial.
- Clark Fork River and ditches reflect current alignment; riparian zone based upon 1983 aerial photograph.
- Historic alignment of dirt roads in western upper pasture area unknown; conditions based upon current alignment; eastern area alignment based upon 1983 aerial photo.

- Contours intentionally removed from this period plan for graphic clarity of lateral ditches.

Grant-Kohrs and Warren complexes (see inset)
N. Fork of Johnson Creek
Johnson Creek
Cottonwood Creek
Montana Western Railroad
Barrow Pits
Business Loop 90
Development Zone
East Gulch
Kohrs-Manning Ditch
Sewage Treatment Pond
Clark Fork River
Hay
Johnson Ditch
Old Milwaukee Railroad
No Name Creek
Warren Ditch
County Road
Hay
Hay
West Gulch
Kohrs "Big" Ditch
Clark Fork River Bridge Road
Gravel Pit
Bunchgrass
Taylor Creek
Hay
Westside Ditch
Hay
Hartz Ditch
MTSR-4691



Grant-Kohrs and Warren Complexes (inset)
Scale: 1" = 500'

Map Sources: Albright, John. *Historic Resources Study and Historic Structure Report Historical Data, Kohrs and Bielenberg Home Ranch, Grant-Kohrs Ranch National Historic Site, Montana*. Denver: Denver Service Center, National Park Service, 1977; 1983, 1986 and 1993 aerial photos, Grant-Kohrs Ranch National Historic Site archives; Location of Clark Fork River, tributary streams, springs, ditches, borrow pits and railroads derived from National Park Service, Grant-Kohrs Ranch National Historic Site GIS Program, compiled 1998. Metadata avaliable from World Wide Web: [http://www.nps.gov/gis/metadata/grko/] and Montana State Library Natural Resource Information System [http://nris.state.mt.us/gis/datalist.html].

Legend:
- Roads
- Vegetation
- Bench
- Fences
- Streams/Sloughs
- Railroad
- Buildings/ Structures
- Springs
- Old Ditches
- Main Ditches
- Lateral Ditches
- Component Landscape Boundary Line
- GRKO Boundary Line
- Beaver Lodges

Scale: 1" = 1,200'

A/E FIRM
PRIME
NAME: Susan Maxman Architects
CITY,STATE: Philadelphia, PA
SUBCONTRACTOR
NAME: John Milner Assodates, Inc.
CITY, STATE: Charlottesville, VA

DESIGNED:
DRAWN: KLS
TECH. REVIEW: RMM
DATE: JULY 2004

SUB SHEET NO. H-5

GRANT-KOHRS RANCH
Period Plan c. 1982
GRANT-KOHRS RANCH NATIONAL HISTORIC SITE

DRAWING NO.
PKG. NO.
SHEET
OF

Notes:
- Fences intentionally removed from this period plan to equally compare known built landscape features with other period plans.
- Contours intentionally removed from this period plan for graphic clarity of lateral ditches.

Burlington Northern (formerly Montana Western Railroad)
Grant-Kohrs and Warren complexes (see inset)
N. Fork of Johnson Creek
Johnson Creek
Cottonwood Creek
Irrigation Risers
Barrow Pits
Business Loop 90
Development Zone
East Gulch
Effluent Wells
Irrigation Risers
Effluent Wells
Sewage Treatment Ponds
Old Sewage Pond
Kohrs-Manning Ditch
Hay
Old Milwaukee Railroad
Johnson Ditch
Clark Fork River
Pasture
No Name Creek
Hay
Hay
Warren Ditch
West Gulch
Kohrs "Big" Ditch
Clark Fork River Bridge Road
County Road
Taylor Creek
Hay
Westside Ditch
Hay
Hartz Ditch
MTSR-4691

For landscape feature labels, refer to existing conditions maps.

Map Sources: Base mapping referenced to Grant-Kohrs Ranch National Historic Site 1994 aerial photographs and Montana 1:24,000 scale State Plane DRG quadrangles. GIS data was exported into Autocad format for production of base maps and further further detailed with additional data collected in the field.

The following data was provided by the National Park Service, Grant-Kohrs Ranch National Historic Site GIS Program (shapefile format), which was compiled 1998 and updated/field-checked by OCULUS/JMA during the October 2002 site visit: fences and gates; boundary lines; utility lines; fire hydrants; irrigation ditches, headgates, pipes, and risers; culverts; river boundaries; roads; railroad tracks; unvegetated slickens and tailings; fields; trails; cottonwood trees; beaver lodges and dams; hydrology; and groundwater monitoring wells. Metadata for this data is avaliable from World Wide Web: [http://www.nps.gov/gis/metadata/grko/]. Wetlands, hypsography (topography), and Montana 1:24,000 scale State Plane DRG quadrangles were derived from Montana State Library Natural Resource Information System, metadata available from: [http://nris.state.mt.us/gis/datalist.html].

Grant-Kohrs and Warren Complexes (inset)
Scale: 1" = 500'

Legend:
- Roads
- Vegetation
- Bench
- Fences
- Streams/Sloughs
- Railroad
- Buildings/ Structures
- Springs
- Old Ditches
- Main Ditches
- Lateral Ditches
- Component Landscape Boundary Line
- GRKO Boundary Line
- Beaver Lodges

Scale: 1" = 1,200'

DRAFT - WORK IN PROGRESS

A/E FIRM PRIME NAME: Susan Maxman Architects CITY,STATE: Philadelphia, PA SUBCONTRACTOR NAME: John Milner Associates, Inc. CITY, STATE: Charlottesville, VA	DESIGNED: DRAWN: KLS TECH. REVIEW: RMM DATE: JULY 2004	SUB SHEET NO. H-6	GRANT-KOHRS RANCH **Period Plan 2003** GRANT-KOHRS RANCH NATIONAL HISTORIC SITE	DRAWING NO. PKG. NO. SHEET OF

Chapter Three: Existing Conditions Documentation

CHAPTER 3: EXISTING CONDITIONS DOCUMENTATION

Introduction to Existing Conditions Documentation

This chapter includes written, graphic, and photographic documentation of 2002-2003 existing landscape conditions at Grant-Kohrs Ranch National Historic Site. This documentation is based primarily upon field investigations of the project area and is supplemented by existing conditions documentation contained in the Cultural Landscape Inventories (Amphion 1997 and Shapins 1999 and 2003). A site description and overview of landscape organization for the entire Ranch introduces this chapter and provides a context for the more detailed information that follows. Existing conditions documentation is presented for each of the nine major landscape zones comprising the project area and includes descriptions of existing landscape features, systems, and land-use patterns that are organized by the following landscape characteristics:

- natural systems and features;
- vegetation;
- spatial organization;
- land use;
- constructed water features;
- circulation;
- views and vistas.
- buildings and structures;
- objects and small-scale features; and
- archeological and missing features

The landscape characteristics selected to organize the narrative description of the project area are based upon the NPS Statement of Work and guidance offered in the *Guide to Cultural Landscape Reports: Contents, Process, and Techniques* (1998). National Register Bulletin 30: *Guidelines for Evaluating and Documenting Rural Historic Landscapes* and National Register Bulletin 18: *How to Evaluate and Nominate Designed Historic Landscapes* provided additional guidance.
The existing conditions documentation was undertaken for separate landscape areas owing to the size of the Ranch and complexity of existing features and systems within the study area. The project study area was broken down into the following component landscape areas (see Map 3-1):

- **Home Ranch Complex:** This area includes all landscape features associated with the core complex of the Grant-Kohrs Ranch. It is bounded by the railroad corridor on the east, the riparian corridor of the Clark Fork River on the west, and consists of the Lower Yards, Lower House Yards, Bunkhouse Yards, Johnson Creek Field, West Corrals, and West Feedlots.
- **East Feed Lot/Warren Hereford Ranch**: This area consists of the area east of the railroad corridor, which was developed by Con Warren. It contains the land bordered by the main entry road on the south, the park boundary on the east, the rail corridor on the west, and the south edge of Front Field on the north;
- **Grant-Kohrs Residence:** This consists of the features contained with the domestic landscape immediately surrounding the ranch home built by John Grant, and later, Conrad Kohrs;

- **Warren Residence:** This consists of the features contained with the domestic landscape immediately surrounding the home built by Conrad Warren;
- **Pasture/Hay Field:** This area includes the irrigated and low-lying lands bordering the Clark Fork riparian corridor. It consists of Stuart Field, the Lower Yard Fields, the North Meadows, L-Barn Fields, Western Hay Fields, Olson Fields, as well as the Front Field located to the north of the East Feed Lot.
- **Upland Pasture:** This area includes the land west of the Westside Ditch, and includes Big Gulch, Little Gulch, and Taylor Field, as well as the ranges and hilltops in between. While this area contains both hay fields and pasture land, it is considered a separate component landscape because of its relative sense of isolation from the rest of the ranch.
- **Riparian Area/Woodland:** This area consists of the riparian woodlands found along the Clark Fork River corridor, Johnson Creek, Cottonwood Creek, and the Olson property along the park's northern boundary.
- **Railroad Bed & Barrow Pit/Wetland:** This area consists of the linear railroad corridor and utility lines associated with it. It also includes the depressed wetland areas (barrow pits) bordering the railroad corridor.
- **Development Zone:** This area contains the Visitor Center building, restrooms, curatorial building, and visitor parking lot. A portion of Johnson Creek comprises the southern boundary of this zone.

Existing conditions documentation was collected and integrated from various sources. Overview level documentation of the ranch built upon the previously prepared *Cultural Landscape Inventory* (Draft, 1997) and *Cultural Landscape Analysis* (1987). Documentation for the Grant-Kohrs residence was based primarily upon the Level II Cultural Landscape Inventory (70% Draft, 2003). Documentation for the Warren Residence was derived from the *Conrad and Nellie Warren Residence Historic Structure Report* (Draft, 2001). In addition, a tremendous amount of background information is embedded in the multi-volume *Historic Resource Study, Cultural Resources Statement, and Historic Structure Report* (1979) for the Grant-Kohrs Ranch National Historic Site. These resources, along with the Geographic Information Systems (GIS) mapping data provided by the park, served as base information for identifying landscape resources and their dates of origin. These references were supplemented by field observations conducted during October of 2002 for the purpose of field-checking and supplementing base-map data, as well as for conducting photographic documentation of each component landscape. Park staff was consulted throughout the data collection process to provide supplemental information and answer questions posed by the research team.

Overview of Grant-Kohrs Ranch National Historic Site Existing Conditions
[maps and photographs are found at the end of this chapter]

The Grant-Kohrs National Historic Site is located in the intermountain grassland region of west-central Montana, nestled in Deer Lodge Valley along the Clark Fork of the Columbia River (see Map 3- 2). The valley, which is approximately 50 miles long and 10-15 miles wide, is defined by the Flint Creek Mountain Range to the west and the Continental Divide to the east. While the valley is predominately in private ownership, the mountain ranges are federally owned and managed as the Deer Lodge and Helena National Forests.

The Ranch lies adjacent to, and directly northwest of, the city of Deer Lodge, formerly known as Cottonwood for the water-loving trees that grew along the tributary creek bearing the same name (see Map 3-3). Established in 1860 as a result of John Grant's efforts to entice western settlers into the valley where he located his home ranch, the valley, and later the town, was renamed Deer

Lodge. The name Deer Lodge is said to have originated with the Snake Indian name for a large mound created by hot springs that attracted white-tailed deer. In 1841, this feature was described as "a cone-like butte 30' high with a natural spring coming from the top." [1] This steaming mound was said to resemble an Indian lodge with campfire smoke rising from it.

The Deer Lodge Valley experiences a semi-arid inland mountain climate with average annual high and low temperatures of 56 and 28 degrees respectively. It receives an average of only 10.6 inches of precipitation per year, with most rainfall occurring in the months of May and June.[2] Topography influences and sustains a variety of microclimates within the inter-mountain region, with the higher mountain elevations receiving more precipitation and cooler temperatures; in contrast, the valleys receive less precipitation and warmer temperatures. The standard temperature change with increasing elevation is about -10 degrees Fahrenheit for every 100 feet.[3]

Changes in microclimate impact the native flora and fauna communities found within the larger region and a complex mosaic of vegetation patterns reflect four different elevation zones. The alpine-tundra is the highest and most extreme plant community within the region. It can be found on the highest mountain peaks, such as Deer Lodge Mountain and Mount Powell, which are comprised of mostly rocky slopes with small, low-growing plants that are adapted to rapid growth during the short, cold summers. The subalpine zone extends below the bottom edge of the alpine-tundra zone. Cool temperatures and greater moisture in this area provide good habitat for forests, which consists primarily of dense Engelmann spruce and subalpine fir trees. The montane zone (also known as the Douglas fir zone) acts as a transitional area between the valley bottoms and the steeper terrain. This zone supports the greatest variety of wildflowers, trees and shrubs; Douglas firs and lodgepole pines dominate the forests.[4] Although all three of these zones exist outside of the present-day Grant-Kohrs Ranch, they frame the views from within it, and provide the historic ecological and visual context of the ranching activities that have taken place in the valley over the past 150 years.

The valley floors and benches comprise the lowest elevations and is the zone within which the Grant-Kohrs Ranch National Historic Site is located. The benches are a visually defining feature within the valley and mark the boundary between the wetter, alluvial soils along the riparian zone, and the well-drained loams found in the upper elevations. The historic ranch home built by John Grant was located along the bench on the eastern side of the river.

Collectively known as the grassland zone, this area was historically dominated by native bunchgrass habitat, and comprised of mostly western wheatgrass, bluebunch wheatgrass, bitterroot, phlox, cactus, and Astragalus species.[5] These grasses are what originally attracted John Grant to settle in Deer Lodge Valley and what sustained the cattle that grazed on the open range until the late 19th century. Throughout the 20th century, the valleys of the inter-mountain region lost much of their native vegetation as the open range became overgrazed, and ranchers realized that their livestock needed to be contained to sustain the herd.

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[1] Father DeSmet quoted in: Staff, Grant-Kohrs Ranch NHS, "Resource Management Plan: Grant-Kohrs Ranch National Historic Site" (1986), I-2.
[2] Western Regional Climate Center, "Deer Lodge, Montana: Period of Record Monthly Climate Summary," Available: http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?mtdeel, (Accessed 3 October 2002).
[3] Linda Kershaw, et al., *Plants of the Rocky Mountains* (converted from degrees Celsius) (Edmonton, Alberta: Lone Pine Publishing, 1998), 13.
[4] "Circle Tour Guide Book" (Published in partnership between the Deer Lodge National Forest, the Louisiana-Pacific Corporation, and the Deer Lodge Chamber of Commerce), 1.
[5] Rocky Mountain Region, National Park Service, *Cultural Landscape Analysis:Grant-Kohrs Ranch National Historic Site* (June 1987), 7.

Natural Systems and Features

Geology and Soils
The underlying geology of the surrounding region is complex (see Map 3-4). The Flint Creek Range to the east of Deer Lodge Valley was formed by Sapphire block, the enormous chunk of the earth's crust that moved 50 miles to the east about 70-75 million years ago. This range consists of sedimentary layers (mostly sandstone) that were folded by the movement of the Sapphire block. Granite magma intrusions form the mountain peaks.[6]

The high valleys of the Flint Creek Range were gouged by glaciers that descended to the elevation of the valley floor. These glaciers left their marks in the deeply carved peaks, sharp ridges, and valleys shaped like deep troughs. Glacial moraine can be found at the mouth of many creeks.[7]

The high benches found in the Deer Lodge Valley are basin fill deposits, and represent the valley floor as it was before the modern streams began to erode their valleys into it sometime between two and three million years ago.[8] Soils on the ranch are generally alluvial in nature, deposited by the Clark Fork River and its tributaries. These soils are typically very deep loams, which are a fertile mixture of sand, clay, and decomposed organic matter (see Map 3-5).

Topography
The topography of the Deer Lodge Valley region varies quite drastically, as elevations of the surrounding mountains rise to almost 9000 feet above sea level in the surrounding Deerlodge National Forest. Mount Powell, the tallest peak in the region at 10,156 feet above sea level, provides a stunning backdrop to valley views and activities (see Map 3-6). Deer Lodge Mountain, which is located directly to the east of Mount Powell, is visually more prominent from the ranch complex and approximates an elevation of 9,170 feet. Because of the proximity to the ranch and its western orientation, the Flint Creek Range, of which Mount Powell and Deer Lodge Mountain are a part, is more visually dominant than the Continental Divide to the east.

Topography changes within the Grant-Kohrs Ranch are less extreme than its surrounding context; elevations of the western foothills rise to over 4600 feet in the hilly southwest area of the Ranch (the upland pasture), and fall to 4460 along the lower portion of the river valley in the northeast corner of the site (a difference of 140 feet). Likewise, slopes range from 35% in the upland pasture, to virtually flat areas in the floodplain. Despite the lack of extremes within the park itself, the subtle changes in elevation significantly impact the use of land, particularly the location of ranch buildings, corrals, feed lots, infrastructure, and domestic functions. The riparian corridor, its adjacent, irrigated meadows and stream tributaries, the benchlands, man-made wetlands, and upland pastures all reflect human adaptations to the natural physiographic conditions.

Hydrology
There are six small tributary creeks and nine natural springs located on the Ranch that feed into the Clark Fork River (see Map 3-6). Spring Creek runs through the northern area of the property; Johnson Creek and its Northern Fork flow through the center of the ranch, and Cottonwood Creek flows through the city of Deer Lodge before traversing along the south boundary of the Ranch complex. No Name Creek, originating from a natural spring near the Ranch complex, traverses

[6] David Alt and Donald W. Hyndman, *Roadside Geology of Montana* (Missoula: Mountain Press Publishing Company, 1986), 166-167.
[7] Alt and Hyndman, 167.
[8] Alt and Hyndman, 168.

through the Lower Yard Fields and North Meadow before joining the Clark Fork. Taylor Creek runs along the southern boundary of the Ranch property, paralleling MTSR 4691. This natural abundance of fresh water, coupled with the natural topography and deep soils discussed earlier, provided the Grant, Kohrs, and Warren families the natural resources needed to support their domestic and ranching activities for over 150 years.

Vegetation

The ranch is comprised of a variety of different plant communities. These include the irrigated hay fields, dry ranges, riparian woodlands, wetlands, and domestic landscapes (see Map 3-7). Variations in plant communities relate to the availability of water (whether natural or irrigated), as well as variations in soil type and cultural influences.

Although areas of native grasses still remain, exotic grass species dominate the meadows and upland areas of the Grant-Kohrs. Major hay grasses found on the ranch consist of smooth brome (Bromus inermis), common timothy (Phleum partense), redtop bentgrass (Agrostis alba), and white clover (Trifolium repens). These grasses are found in fields where irrigation ditches provide the water necessary to sustain their agricultural production.[9]

The predominant pasture grasses consist of Kentucky bluegrass (Poa pratensis), redtop bentgrass, smooth brome, crested wheatgrass (Agropyron cristatum), and white clover. These grasses are generally found on the upland areas of the ranch that are not irrigated with surface ditches. The front fields, hand irrigated with water lines connected to the effluent ponds, also contain these species. Although all of these predominant meadow and pasture grasses are exotic species, a few natives, such as bluebunch wheatgrass, western wheatgrass (Agropyron smithii), and needle-and-thread grass (Stipa comata) can still be found in these areas. This is particularly true within the Upland Pasture area west of the Clark Fork River.[10]

One small area (27 acres) inside the park boundary remains as the only relatively intact piece of native prairie. This area had been fenced, and thus ungrazed for many years. A portion of it was historically used as a barrow pit for the adjacent railroad bed.[11] This parcel contains the native grasses and forbs found in the inter-mountain region.[12]

In contrast to the shrubby vegetation found along the riparian corridor, the cattail-laden wetland, and rolling fields of pasture grasses, the landscapes of the home ranch and the Warren house provide an abundance of domestic plants found no where else on the property. These include tree species such as the pine, spruce, ash, birch, and maple, as well as several other native and non-native shrubs and perennials.

As mentioned earlier, young black cottonwoods dominate the front yard of the home ranch. Juniper, boxelder, ash, willow, and spruce also surround the home. Like the Warren complex, the home ranch has several native and non-native shrubs and perennials in the garden, including

[9] Species and location information derived from Janet Hardin, "Plant Species & Locations, GRKO Database, Final Inventory" (Missoula: University of Montana, Division of Biological Sciences, June 3, 2003).
[10] Species and location information derived from Janet Hardin, "Plant Species & Locations, GRKO Database, Final Inventory" (Missoula: University of Montana, Division of Biological Sciences, June 3, 2003).
[11] Douglas C. McChristian, *Ranchers to Rangers: An Administrative History of the Grant-Kohrs Ranch National Historic Site,* National Park Service: Rocky Mountain Cluster (1977), 80.
[12] Gary J. Ray, "Baseline Plant Inventory of the Grant-Kohrs Ranch: Supplementary to the Floral & Faunal Survey and Toxic Metal Contamination Study of the Grant-Kohrs Ranch National Historic Site" (Missoula: Gordon Environmental Laboratory, University of Montana Botany Department, 1984), 4.

lilacs and barberries. These domestic yards will be described in more detail in the component landscape section of this report.

Spatial Organization

The spatial organization of the Grant-Kohrs Ranch directly represents the day-to-day operations of a working cattle ranch and reflects cultural adaptations to the natural environment, as well as to changes that occurred in the larger physical, technological, and economic context of its 140 year history. At a large scale, the site is organized with the Home Ranch building complex and Warren Hereford Ranch complex at its nucleus, surrounded by fenced pastures and feedlots, which are bounded by the outlying hay fields and rangelands.

The Clark Fork River generally divides the ranch in half, with all the domestic buildings and buildings associated with cattle ranching operations located to its east. The land on the west side of the river consists of pastures and hayfields; the bench land along the western edge of the ranch is very prominent in this area. The northern section of the ranch is dominated by the effluent ponds and wetlands associated with Deer Lodge sewage treatment, while the southern edge is dominated by both hay fields and pastures (refer to Map 3-7).

The Home Ranch complex and the Warren Hereford Ranch complex are separated by the north-south oriented Burlington Northern and Milwaukee railroad lines and the raised track beds, barrow pits, and utility lines. The two ranch complexes are physically linked by two east-west running roads. The southern road, Kohrs-Warren Lane, connects the Home Ranch complex with Business Route 90, and the northern Main Entry Road serves the ranch operations of the Warren and Home Ranch complexes.

The NPS Development Zone, which includes the visitor contact station and restrooms, parking lot, and curatorial storage building is located in the southeast corner of the ranch, bounded by the railroad tracks to the west and Business Route 90 to the east. It is connected to the rest of the ranch by a pedestrian underpass.

Land Use

While the primary land uses within the Grant-Kohrs Ranch continue to be associated with cattle ranching operations, preservation, interpretation, and visitor services are also contemporary uses, (see Map 3-8). Ranching practices depend heavily upon the pastures found in the upland areas to the west and along the Clark Fork River, as well as the irrigated Front Field to the east. Hay fields comprise the lower meadows along the Clark Fork River (which are occasionally used for pasture), the irrigation ditches and flumes which provide water for the fields, and the corrals, loafing sheds, and feed lots found in both the Home Ranch Complex and Warren Hereford Ranch Complex. Most of the interpretative exhibits, archival storage, and visitor services are concentrated in the Development Zone, the Home Ranch Complex, and the Warren Hereford Ranch Complex.

There are several challenges associated with maintaining a “working ranch” in a way that effectively responds to the needs of responsible resource management and public education and interpretation at a National Historic Site. A “working ranch” may be defined as a self-sustaining agricultural business, whose purpose is to generate profit through livestock production. Within the context of this historic site, Grant-Kohrs Ranch is a self-sustaining agricultural showcase,

whose purpose is public education and preservation of historic livestock production. This is an important distinction from a privately-owned ranch.[13]

As articulated in the 1996 draft Animal Use Plan, the challenges associated with this distinction stem from the need to operate in a businesslike manner by incorporating a marketing strategy and making the program economically viable. Proceeds from the cattle sales may support maintenance, interpretation, or other public education endeavors, but only after livestock program objectives are met. Although livestock may be considered as an educational resource for the historic ranch, there may be increasing temptation to rely on the program for ancillary funding in times of lean park budgets. Commercialization has to be guarded against, as it could compromise the educational purpose for the livestock program's existence, and ostensibly, the site's resource preservation mandate as well.[14]

Other challenges are associated with maintaining and interpreting a working cattle ranch. In order to interpret the history of the western US range cattle industry at the ranch, the animals must be as visible and accessible to park visitors as possible, within the necessary constrains of public safety, proper land use, and animal welfare. Second, the interpretive staff has to be involved in livestock feeding and care, consistent with competing division work requirements associated with being NPS employees.[15] Other challenges include mitigating wear and tear on historic features, such as fences and barns, minimizing ranching effects on natural processes, protecting sensitive species of native plants and animals and their habitats—including managing grazing operations so that existing native vegetative communities persist in moving toward the potential native plant communities, minimizing soil erosion, the spread of noxious weeds, and pesticide use, and protecting surface waters from fecal and chemical contamination.[16]

Ranching

In 1996 a draft Animal Use Plan was prepared for the ranch in order to articulate the interpretive role and practical function of livestock management at Grant-Kohrs Ranch. This plan recommended the diversity of livestock breeds, including cattle, horses, and other farm animals, such as poultry, which would reflect the ranching traditions associated with the close of the open range, while facilitating the revenue flow needed to keep the program viable. These recommendations included a 2003 target herd of four longhorn steers, six mixed-breed steers, two Hereford bulls, one Shorthorn bull, one Angus Bull, and 39 cows. The Plan also recommended five Belgian and saddle horses, two breeding mares and one or two colts, as well as three quarter horses and up to five U.S. Forest Service (USFS) horses kept at the park under agreement for use by employees of Deer Lodge/Beaverhead National Forest. As this plan was never finalized or implemented, its recommendations will be evaluated during the development of the treatment plan for this CLR (Part II).

Today the ranch maintains approximately 94 head of cattle, including several breed yearlings born in the spring. Breeds include Hereford, English Shorthorn, Longhorn, and Angus, as well as cross-breeds of the four types. Special use permits for grazing privileges are also issued by the ranch to private individuals on a competitive basis for a fee, based upon Animal Unit Months (AUMs) allocations. In general, one cow and calf equals one animal unit (AU); in the absence of a calf, one cow equals one AU. AUMs are based upon the number of months that they forage. In

[13] "Animal Use Plan," Grant-Kohrs Ranch National Historic Site, 2. (Grant-Kohrs Ranch National Historic Site Archives, Resource Building Files, 1996).
[14] "Animal Use Plan," 2.
[15] "Animal Use Plan," 3.
[16] "Management Goals," Grant Kohrs Ranch National Historic Site, Internal memorandum (Grant-Kohrs Ranch National Historic Site Archives, Resource Management Files, November 1992).

this case, the 94 head of cattle are based upon 1128 AUMs for the calendar year (12 months of forage).[17]

Nine horses are also cared for on the ranch. These include three saddle horses (Quarter horse), two Belgian draft horses, and the five USFS horses on leased pasture. Private horse use is allowed on the ranch. During visitor season, the ranch also usually cares for a few chickens, ducks and turkeys.

The number and breeds of livestock maintained at the ranch is based upon available resources and economic viability. This number fluctuates annually, as does the use of specific pastures for grazing, which occurs 12 months a year. Calving occurs February through April of each year, with breeding taking place between June and August. Pasturing is adaptive and based upon Best Management Practices (BMPs), the needs of the park, and the resources available. Current usage of the individual pastures (i.e. grazing and/or haying) is addressed in detail within the following component landscape sections.

Ranching operations within the Park also include the day to day functions of caring for the livestock, such as saddling and harnessing horses, calving, feeding, watering, vaccinating, branding, maintaining livestock sales records, equipment maintenance, etc.

Agriculture

As a working ranch, the Grant-Kohrs Ranch NHS also continues to cultivate hay on a contract basis within the irrigated fields (the NPS does not cultivate any field crops). In 2002, hay production constituted approximately 418 acres (18 of which were alfalfa).[18] The total tonnage for all hay baled on the ranch was 233 tons (comprising approximately 2,017 bales).[19]

Hay is harvested by local ranchers under contract by the NPS, which generally occurs in July and August of each year. Remaining grass is grazed by Park livestock and occasionally leased as AUMs for private cattle grazing during the fall.[20] Generally, cattle are moved into the meadows after the hay harvest is complete each year and pastured until it becomes necessary to feed them hay in the winter. Pastures and meadows are grazed on a rotation basis, as determined by the rancher, to prevent overgrazing and to protect resources. After several months of grazing, there is an accumulation of dried, hard manure that needs to be broken up so haying machinery in not damaged. This is accomplished by pulling a harrow with a tractor or team of horses over the surface of the meadows.[21]

Fertilization generally occurs in the spring of each year (for selected fields). Generally, each field is fertilized with a commercial fertilizer on a bi-annual basis. This is done under contract. Haying is done with a swather, which cuts the grass and puts it into windows. If the hay becomes wet, it is necessary to turn it a second time with a side-delivery rake hooked onto a tractor. The hay is then baled and hauled off the ranch by the lessee. Any portion retained by the NPS is stacked. To protect the haystacks from cattle, hay panels are brought in the fall and removed

[17] NPS comments, 75% CLR draft review.
[18] Montana Agricultural Statistic Service, Letter to Mr. Ben Bobowski (Grant-Kohrs Ranch National Historic Site Archives, Resource Management files, January 21, 2003).
[19] Internal park statistics, "Custom hay work for summer 2002. Cut, baled, and stacked by Dave Johnson" (Grant-Kohrs Ranch National Historic Site Archives, Resource Management files, no date).
[20] Grant-Kohrs Ranch National Historic Site, "Lease Operations," Internal memorandum to Superintendent (Grant-Kohrs Ranch National Historic Site Archives, Central files, February 14, 1996).
[21] Grant-Kohrs Ranch National Historic Site, "Assessment of Actions Having an Effect on Cultural Resources, Agricultural Practices," Project No. GRKO 95-10 (Grant-Kohrs Ranch National Historic Site Archives, 1995).

again in the spring. They are about 16 feet long and made of 3-4 inch lodgepole pine split rails. Wooden or steel posts are used to secure the panels in the ground.[22]

Interpretation/Preservation
Occurring adjacent to and simultaneously within all these ranching operations are the interpretive uses associated with the National Park Service operations. While interpretative uses are focused within the Home Ranch Complex, specifically the ranch house, bunkhouse, thoroughbred barn, blacksmith shop, buggy shed, dairy, ice house, and granary, which contain interpretive exhibits, the entire complex and surrounding landscape provide context for visitor understanding of historic ranching operations. A variety of interpretive programs are also organized and conducted on the ranch. These include demonstrations of cowboy/ranch hand skills, horse-drawn public interpretive tours, public demonstrations of traditional haying, costumed interpretation, and calving displays.[23] Preservation is ongoing throughout the ranch, as NPS staff work to ensure cultural resources are maintained to the Secretary of Interior standards for Treatment of Historic Properties. This includes maintenance of historic structures, fences, vegetation, and exhibits, as well as the restoration and/or reconstruction of historic features, when necessary.

Visitor Services/Administration/Storage
National Park Service administrative uses are concentrated within the Warren Hereford Ranch complex, which include the Resource Management/Maintenance Office and Maintenance Shop. In 2002, the NPS moved the Grant Kohrs Ranch NHS administrative offices from Deer Lodge to the Warren House. National Park Service visitor services are provided in the Development Zone east of the railroad tracks, as well as within the blacksmith shop, which provides rest room facilities. The NPS also maintains a curatorial storage facility in the Development Zone.
Water Treatment/Effluent Irrigation
Approximately four acres within the ranch boundary are dedicated to sewage treatment. These lands are owned and operated by the City of Deer Lodge (lands were purchased in 1958-59). Uses include four settling ponds and a pump house located in the northern section of the ranch. In 1999 the NPS installed an irrigation system, which consists of irrigation mainlines, risers, and handlines, to irrigate select pasture grasses with water from the settling ponds. More information regarding this system is found under the Constructed Water Features section.

Conservation
Wetlands and riparian areas comprise approximately 20% of the ranch, and include the fenced areas of Clark Fork floodplain, the old sewage lagoon located to the south of the current settling ponds, and the barrow pits located on either side of the railroad corridor. The fenced areas surrounding Johnson and Cottonwood Creeks are also considered riparian habitat.

The NPS currently maintains a scenic easement on 160 acres of land in the northern most section of the park. This easement is intended to protect the ranch's northern viewshed.

Transportation/Utilities
Circa 1879, the Utah Northern Railroad (acquired by the Northern Pacific Railroad Company in 1888) established a line through Deer Lodge. Today, the Burlington Northern Santa Fe Railroad uses this east track, with an average of two trains passing each day. The western track Milwaukee Railroad, built in 1908, ceased operation in 1982. A portion of the tracks remain, as does the graded railroad bed. This line is used to interpret the role of the railroad in ranching operations.

[22] Grant-Kohrs Ranch National Historic Site, "Assessment of Actions Having an Effect on Cultural Resources, Agricultural Practices," Project No. GRKO 95-10 (Grant-Kohrs Ranch National Historic Site Archives, 1995).
[23] Grant-Kohrs Ranch National Historic Site, "1998 Garrison Gold Award," Nomination Form (Grant-Kohrs Ranch National Historic Site Archives, Central files, February 25, 1998).

Pest Control

As part of the Park's ranching operations, the NPS manages beaver and skunk populations on the ranch. While beavers are a native species that occupy an essential ecological niche, they are at times considered pests. In many areas of the ranch their presence is welcomed, or at least tolerated. However, in other areas, the beavers' construction of structures, manipulation of riparian vegetation, burrowing in the waterways, etc., interfere with daily operations of the ranch, disrupt the historic patterns and features of the landscape, and limit the management of a number of other important natural and cultural resources. Some negative effects of these types of beaver activity include flooding of fences and gates, flooding of historic hay fields, dammed irrigation ditches, restriction of cattle grazing and rotation by flooded pastures, alteration of vegetation patterns, overland flow of water across slickens that re-suspend toxic sediments, etc. Recently the NPS has begun to authorize trapping and removal of beaver under a Special Use Permit.[24] Trapping of skunks, which are often found in the outbuildings within the historic district, has also been authorized via a Special Use Permit.[25]

Constructed Water Features

The Grant-Kohrs ranch supports an elaborate irrigation system that was begun in 1896 (see Map 3-9). This system consists of irrigation ditches, diversion dams, pipes, headgates, risers, culverts, pumps, flumes, and hand lines. Overall, this system irrigates over approximately 400 acres of land.

Most of the fields and a few portions of the west feedlots contain irrigation ditches. The system is comprised of primary (or "main") ditches that draw water from natural water sources, such as the Clark Fork River, Cottonwood Creek, Taylor Creek, Johnson Creek, and several unnamed springs.

These ditches generally follow the natural contours of the land and are the primary source of water for smaller irrigation channels that feed off of it. Each ditch includes the head gate or pump, earthen main ditch (which is approximately 18" wide and several feet deep), and appropriation gates. Some of the headgates are constructed with four-inch by four-inch timbers with two-inch lumber staked on edge to divert and regulate the flow of water into ancillary ditches. Other headgates are constructed of concrete with grooves in the side of the concrete for boards to divert and control the flow of water.[26]

Metal and wooden appropriation/distribution gates of various configurations and a series of canvas dams control the distribution of water to various fields.[27] Diversion dams, located every few hundred feet along the way, are composed of rubber impregnated canvas (or a heavy rubber sheet in some cases) attached, as a manuscript is attached on a scroll, to sturdy poles, usually three to four inches in diameter. When flooding is desired in a given area the pole is placed across the ditch and the fabric dropped into the hole, the bottom held by any available nearby stones. The water then rises and spills over the edge or out of vents in the low berm along the ditch cut with a shovel. When not in use, the portable diversion dams are thrown alongside the ditch.[28]

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[24] Natural Resource Management Specialist, "Beaver Control at GRKO," Memorandum (Grant-Kohrs Ranch National Historic Site Archives, Central files, February 2, 1999).
[25] Grant-Kohrs Ranch National Historic Site, "Special Use Permit, Beaver and Skunk Trapping" (Grant-Kohrs Ranch National Historic Site Archives, Central files, March 21, 2003).
[26] Grant-Kohrs Ranch National Historic Site, "Assessment of Actions Having an Effect on Cultural Resources, Agricultural Practices," Project No. GRKO 95-10 (Grant-Kohrs Ranch National Historic Site Archives, 1995).
[27] Shapins Associates, *Grant Kohrs Ranch National Historic Site Cultural Landscape Inventory, Level 0 Park Reconnaissance Survey*, Draft (June 1999), 9.
[28] John Albright, Historic Resources Study and Historic Structure Report Historical Data, Kohrs and Bielenberg Home Ranch, Grant-Kohrs Ranch National Historic Site, Montana (Denver: Denver Service Center, National Park Service, 1977), 157-158.

Secondary ditches (or "laterals") are generally smaller in width, and are dependent upon the primary ditches for their water source. Independent ditches are those that derive their water from a natural water feature, such as a creek or spring, but which do not irrigate any secondary ditches.

There are several main ditches that flow north through the Ranch. These include the Kohrs-Manning Ditch, Westside Ditch, Kohrs Ditch, which is also known as "The Big Ditch," Hartz Ditch, and Johnson Ditch. These constructed water features, including the variety of lateral ditches, head gates, dams, pipes, pumps, flumes, and culverts, will be further described within their corresponding component landscape areas.

Throughout the year, this complex irrigation system must be consistently maintained to ensure operability. Ditches are maintained annually, and cleaned with a tractor and ditcher, and in some areas a backhoe.[29] Although no longer allowed due to protocols outlined in the Wildland Fire Management Plan, spring ditch burning has been proposed as an efficient means to accomplish vegetation removal.[30] Annual cleaning is important to maintain the flow of water by clearing out the dense tufts of grass that take advantage of the wet soil conditions, and which may become clogged with the thick growth. Routine maintenance also involves repairs to ditches, culverts, and headgates, including the replacement or construction of new headgates, culverts, dam backers and canvas dams, when needed.[31] As is the case with other natural resource management and maintenance practices, the park faces challenges in balancing the desire and functionality of new equipment technologies and materials, with the use of traditional technologies and materials historically employed on the ranch.

Constructed water features within the Park also include a handline irrigation system that provides effluent irrigation to Front Field and L-Barn Field. There is also enough line to irrigate the large western corral located in the East Feed Lot. All of the irrigation pipe in this area is completely removable, with the exception of the mainline, which has risers with valve opening elbows. This system, which was installed by the NPS in the mid-1990s, replaced a historic hand line irrigation system installed by Con Warren in ca. 1954.[32]

Circulation

There are several types of circulation systems throughout the Grant-Kohrs Ranch (see Map 3-10). Primary roads connect the core of the Grant-Kohrs Ranch NHS to its larger context. These are comprised of east-west oriented main entry roads connecting the Ranch with Main Street, or U.S. Highway 10, which is also referred to as Business Loop 90. This road provides access to I-90 to the north, and the City of Deer Lodge to the south. There are two entrances to the core of the Ranch from this road. The oldest, referred to in this report as Kohrs-Warren Lane (also known as Warren Lane), is generally centered on axis with the ranch house, and provides access to the Warren residence. A second parallel road to the north, the Main Entry Drive (also referred to as Cattle Drive), services the red barn and larger Warren Herford Ranch complex. This road passes over the railroad tracks, and provides access to the larger Home Ranch complex, the lower

[29] Grant-Kohrs Ranch National Historic Site, "Compliance Review Form, Annual Cleaning of Ditches," Internal park document (Grant-Kohrs Ranch National Historic Site archives, June 4, 2003).
[30] Grant-Kohrs Ranch National Historic Site, "Wildland Fire Management Plan and Environmental Assessment" (On file at the Grant-Kohrs Ranch NHS archives, July 2002).
[31] Grant-Kohrs Ranch National Historic Site, "Spring Ranch Work," Internal park notes (Grant-Kohrs Ranch National Historic Site, Deer Lodge Montana, Resource Management files, no date).
[32] Grant-Kohrs Ranch National Historic Site, "Info on Hand Line," Portion of report prepared to describe impacts associated with installation of hand line system (On file at the Grant-Kohrs Ranch NHS archives, No date).

meadows, and upper pastures to the west. A southern entrance drive (Grant Circle) provides access to the visitor center and parking area.

Secondary roads provide north-south internal access throughout the Ranch, via the primary roads. These include all the dirt and gravel roads around the Home Ranch complex, the gravel county road along the western benchland (Kohrs Ditch Road), the unpaved road along the west edge of the railroad corridor, and the unpaved road paralleling Business Loop 90 on the eastern edge of Front Field. Also included in this category is the unpaved road providing access to the effluent ponds from Business Loop 90 at the northern end of Front Field.

Tertiary roads are those that pass through and provide access to meadows and pasture land. These roads are not well defined (except by culvert locations).

The only formal pedestrian path within the Ranch connects the Development Zone with the ranch home via a pedestrian underpass. This path also connects to the Cottonwood Trail, which provides interpretative signage.

As mentioned earlier, the eastern railroad track remains as a significant circulation feature today, as the Burlington Northern Santa Fe Railroad utilizes this line. As the railroad corridor is elevated above the surrounding grade, the feature serves as a divider between the Warren Hereford Ranch, located to the east, and the Home Ranch Complex, located to the west.

Views and Vistas

Overall, the expansive views and wide-open spaces of Deer Lodge Valley play an important role in establishing the character of Grant-Kohrs Ranch. Flint Creek Range and the distant peaks of Mt. Powell and Deer Lodge Mountain provide a stunning backdrop to the rolling foothills below (see Photo 3-1). It is this range which contributes to the rugged feel and sense of isolation of the Ranch, and the snow-capped peaks of the highest mountains easily remind valley inhabitants of the harsh and unforgiving conditions characteristic of Montana winters.

The openness of the western hills and pastures also contrast vividly with the human-scaled buildings clusters, corrals, and fields that comprise the Home Ranch and Warren Hereford Ranch complexes. These hills also contrast with the flat river benches, rich colors, and fine textures aligning the Clark Fork River and provide the Ranch with a sense of enclosure. All these views are essential components of the open, rugged, and isolated character that defines the physical and cultural context of the Grant-Kohrs Ranch.

Views to the east of the Ranch are defined by the City of Deer Lodge, Business Loop 90, and the modern residential and commercial development located along it (see Photo 3-2). Hillcrest Cemetery to the south, where members of the family are buried, including Kohrs' young son, William, is also visible from many locations on the ranch.

The day to day cattle ranching operations which continue within the Ranch are visual reminders of the historic uses associated with this cultural landscape. Cattle and horses also activate the Ranch and add visual diversity, authenticity, and enrichment to the visitor experience (see Photo 3-3).

Buildings and Structures

The Grant-Kohrs Ranch NHS includes 94 extant structures that are located in two primary clusters: the Kohrs and Bielenberg Home Ranch and the Warren Herford Ranch (see Map 3-11). Most of the structures are directly related to either domestic life on the Ranch, or cattle ranching operations. They represent three distinct phases of development, reflecting the Grant era, Kohrs era, and Warren era.

Ranching related buildings and structures include barns, cow sheds, stock shelters, feed racks and bunkers, feed and hay storage sheds, scales, beef hoists, and squeeze chutes. Several structures are associated with the natural and constructed water features present on the ranch, and include a flume, bridges, and pump houses.

Many structures are related to both ranching operations and domestic daily life, such as the blacksmith shop, granary, dairy, ice house, buggy shed, garage, brooding house, chicken house, and bunkhouse. The Ranch House and the Warren House, as well as some other structures, such as privies, are associated most closely with domestic life. Several of these buildings are now used for interpretive and NPS administrative purposes, while others support contemporary ranching activities. Some buildings, such as the new curatorial storage building, are exclusively used for administrative purposes.

Individual buildings and structures will be further described within their corresponding component landscape areas.

Objects and Small-scale Features

Most of the objects and small-scale features within the Ranch relate to ranching operations, domestic life, or National Park Service interpretation. As stated in the CLI, "the landscape is not rich in pure ornament, but many of these small-scale features depict craftsmanship and proportion that make them more than purely functional. These elements reflect the lives of those who made this ranch their home."[33]

These features include, but are not limited to a variety of fence types, gates, retaining walls, fire hydrants, hose boxes, utility poles, old farm equipment, informational and directional signs, interpretive signs, historic railroad cattle cars, and water troughs.

Fences are the most predominant and character-defining small scale features on the ranch. As a working ranch raising a number of different kinds of animals (at least two separate breeds of cattle and three types of horses at any given time), the ranch has many small enclosures, corrals, or feedlots delineated by fences. Detailed descriptions of these fences, as well as other objects and small-scale features, are included within their corresponding component landscapes.

[33] Amphion, "Grant-Kohrs Ranch National Historic Site, Cultural Landscape Inventory (CLI)," Revised Draft (January 1997), 39.

Archeological & Missing Features

There have been eleven archeological surveys with the Grant-Kohrs Ranch since 1973. During the first study, conducted by Sharrock and Keyser, four prehistoric sites were recorded. All these sites were found to be surface manifestations and probably dated to the Late Prehistoric period. Since the 1973 inventory, 1600 acres have been added to the Ranch. Known sites within these additional acres include four prehistoric and 11 historic archeological sites.

A total of 21 components have been identified in the Grant Kohrs Ranch that can be categorized into seven site types:[34]

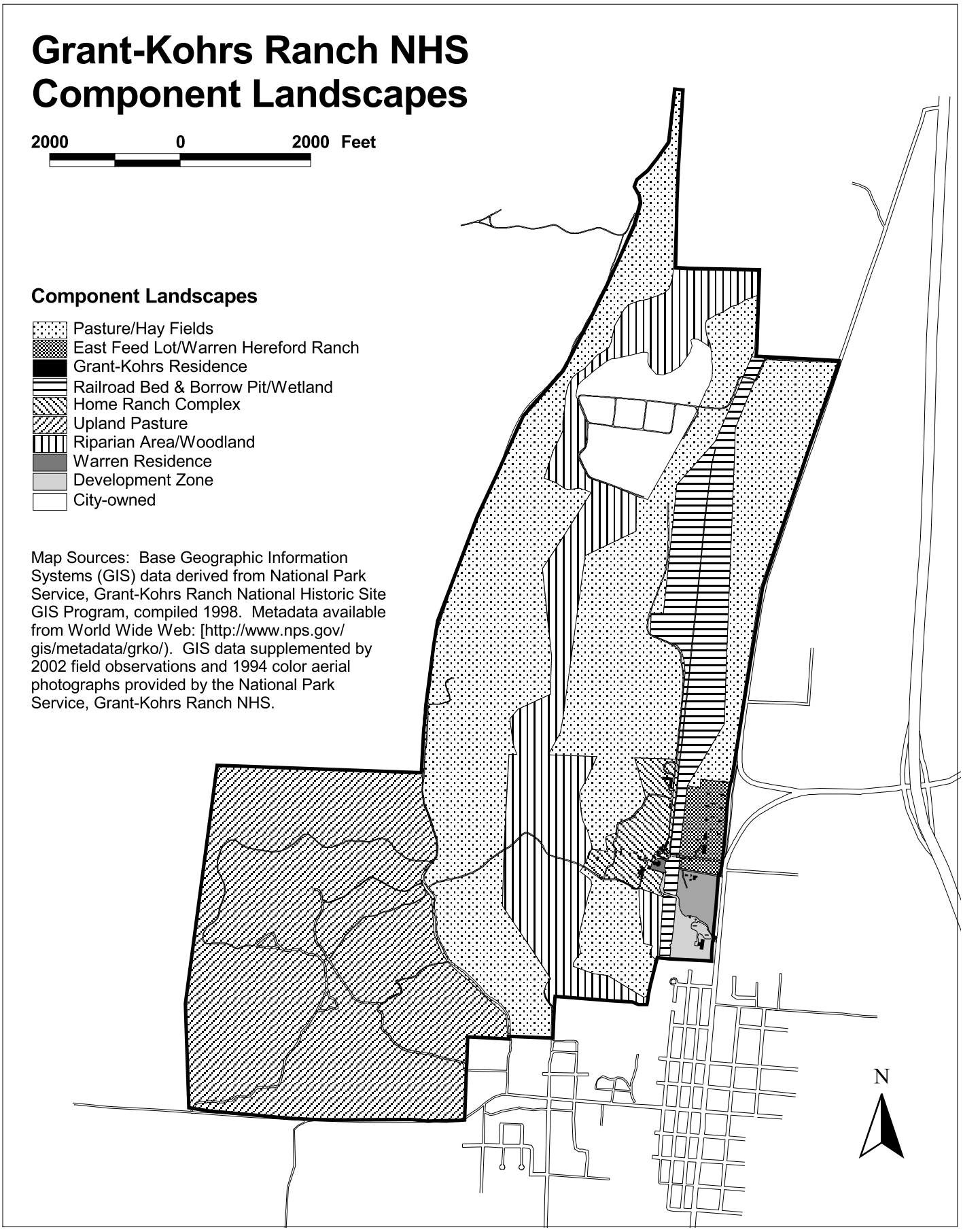
- Depression (one site)
- District (one site)
- Dump (nine sites)
- Homestead (one site)
- Mine (one site)
- Open (five sites)
- Unknown (three sites)

Based upon a 1989 survey (Hartley, et al), National Register status was reviewed for four sites. After testing, a determination of "not eligible" was made for three of the four sites identified; the fourth site remains unevaluated as it could not be relocated during the 1989 investigation.[35]

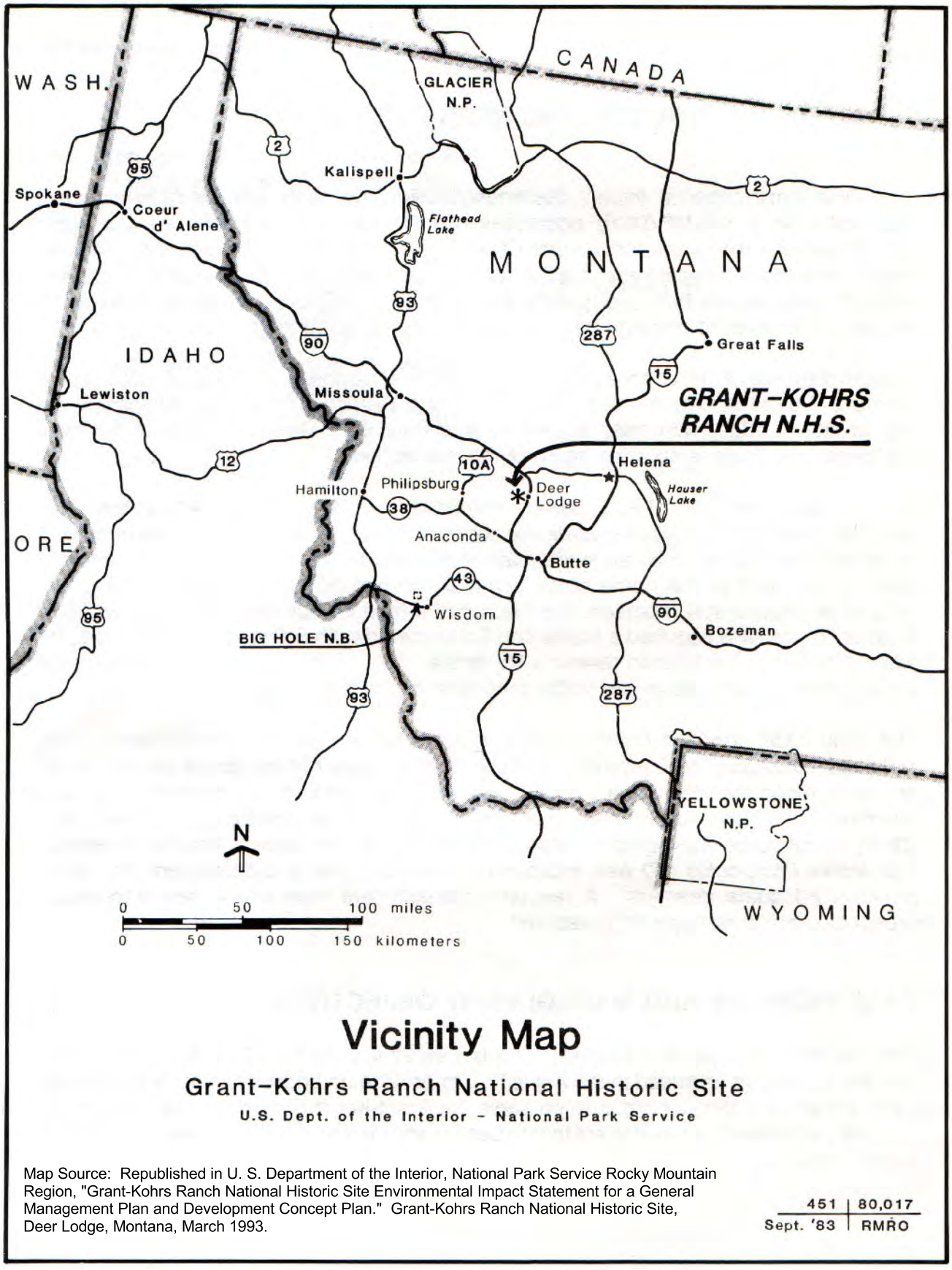
Between June 30 and July 23, 2003, a Class III cultural resource inventory was conducted in an approximately 1600-acre area of study within the Grant-Kohrs Ranch National Historical Site (24PW118). The inventory was conducted by The University of Montana, Department of Anthropology, for the National Park Service. During this inventory, four previously identified prehistoric sites and sixteen previously identified historic sites were revisited and their status updated, and eight previously unidentified historical sites and sixteen isolated historic and prehistoric artefacts and features were located and recorded.[36] Readers should refer to this report for more detailed information on archeological resources within the park. Due to the sensitive nature of these features, specific information regarding their location has been removed from this document.

Missing features are those that were once present on the ranch, but have since been removed, or which are no longer operational in their present form. These features are documented in more detail within each of the component landscapes.

[34] Amphion, 38.
[35] Amphion, 38.
[36] Garvey, S. Raven, Mark A. Carper, and Robert C. O'Boyle, *Grant-Kohrs Ranch National Historic Site: Cultural Resources Inventory* (Prepared by the University of Montana under the supervision of Dr. Thomas Foor and Dr. William Prentiss, December 2003).



Map 3-1: Component Landscapes



Vicinity Map

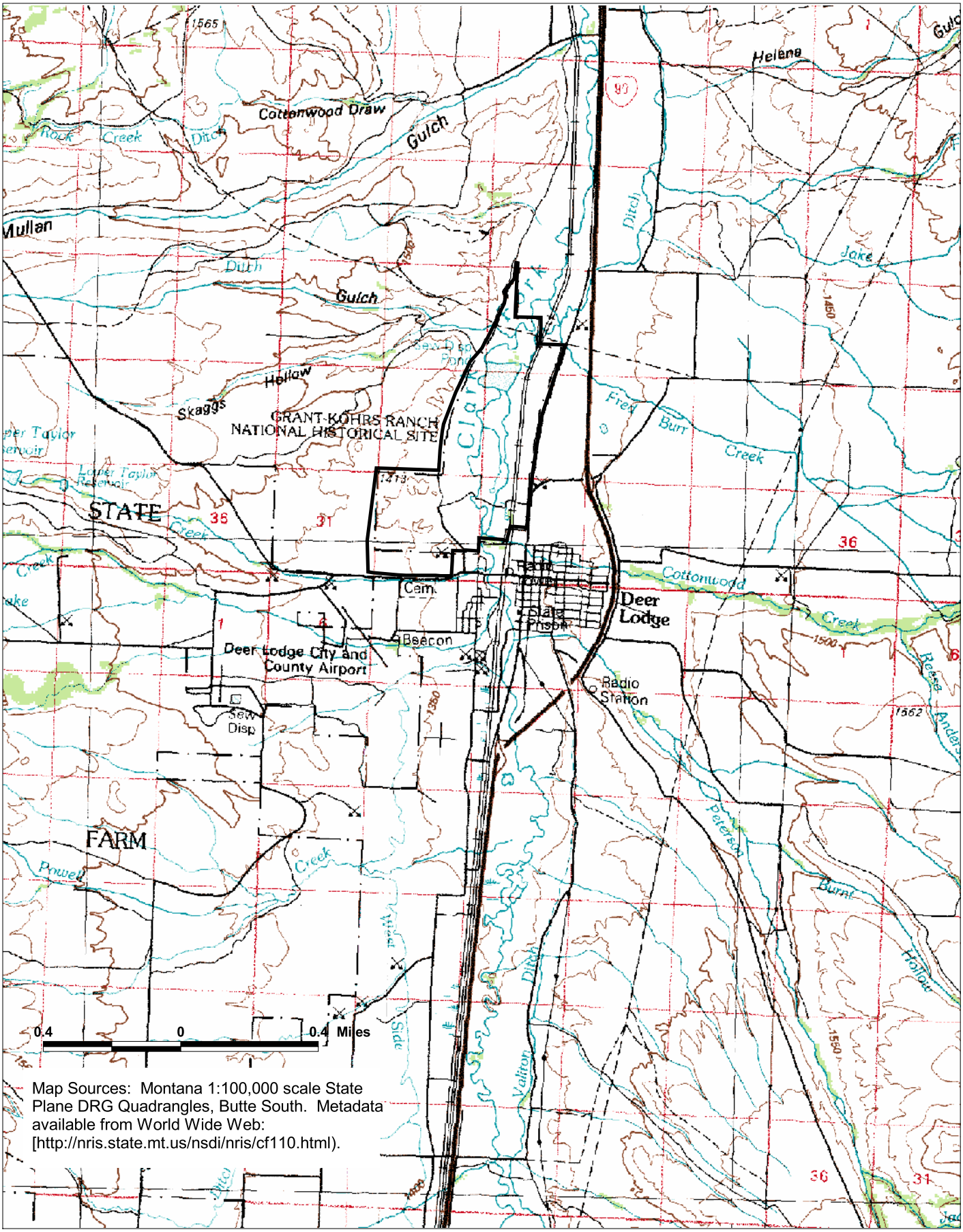
Grant-Kohrs Ranch National Historic Site

U.S. Dept. of the Interior - National Park Service

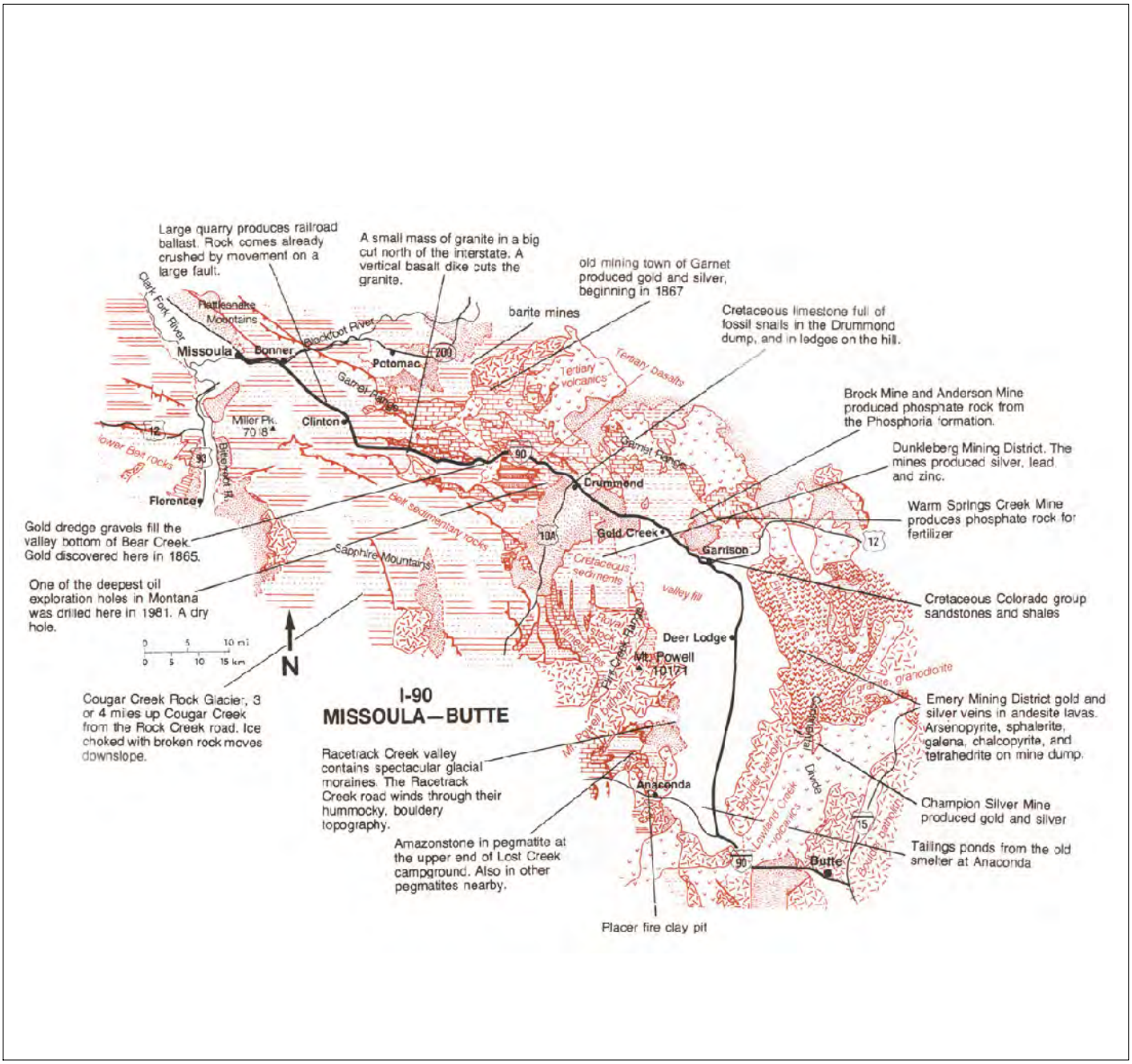
Map Source: Republished in U. S. Department of the Interior, National Park Service Rocky Mountain Region, "Grant-Kohrs Ranch National Historic Site Environmental Impact Statement for a General Management Plan and Development Concept Plan." Grant-Kohrs Ranch National Historic Site, Deer Lodge, Montana, March 1993.

451 | 80,017
Sept. '83 | RMRO

Map 3-2: Vicinity Map



Map 3-3: Location Map



Map 3-4: Regional Geology

Map Source: David Alt and Donald W. Hyndman, Roadside Geology of Montana (Missoula: Mountain Press Publishing Company, 1986), 162.

Grant-Kohrs Ranch NHS
Soils

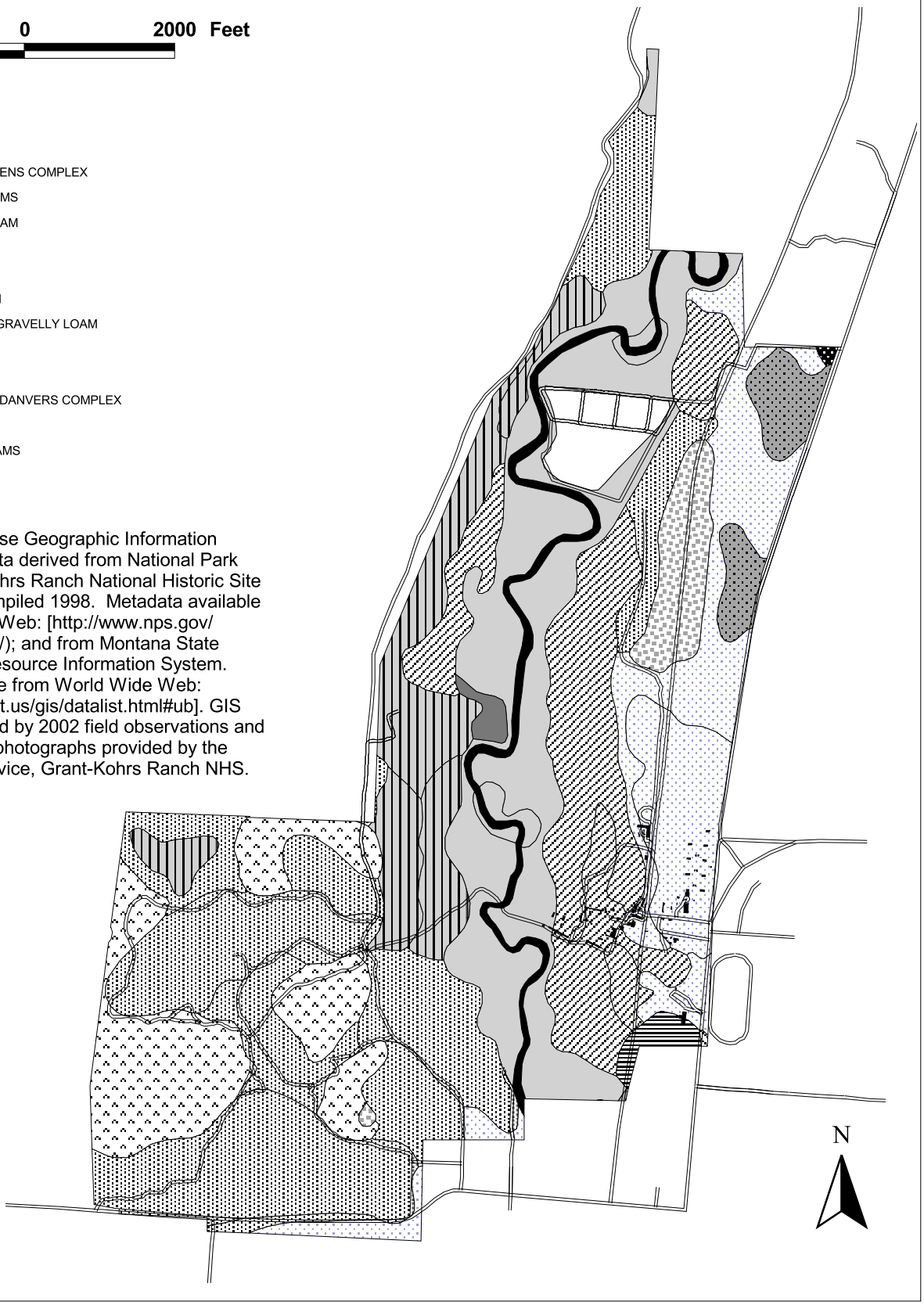
2000 0 2000 Feet

STRUCTURES
ROADS

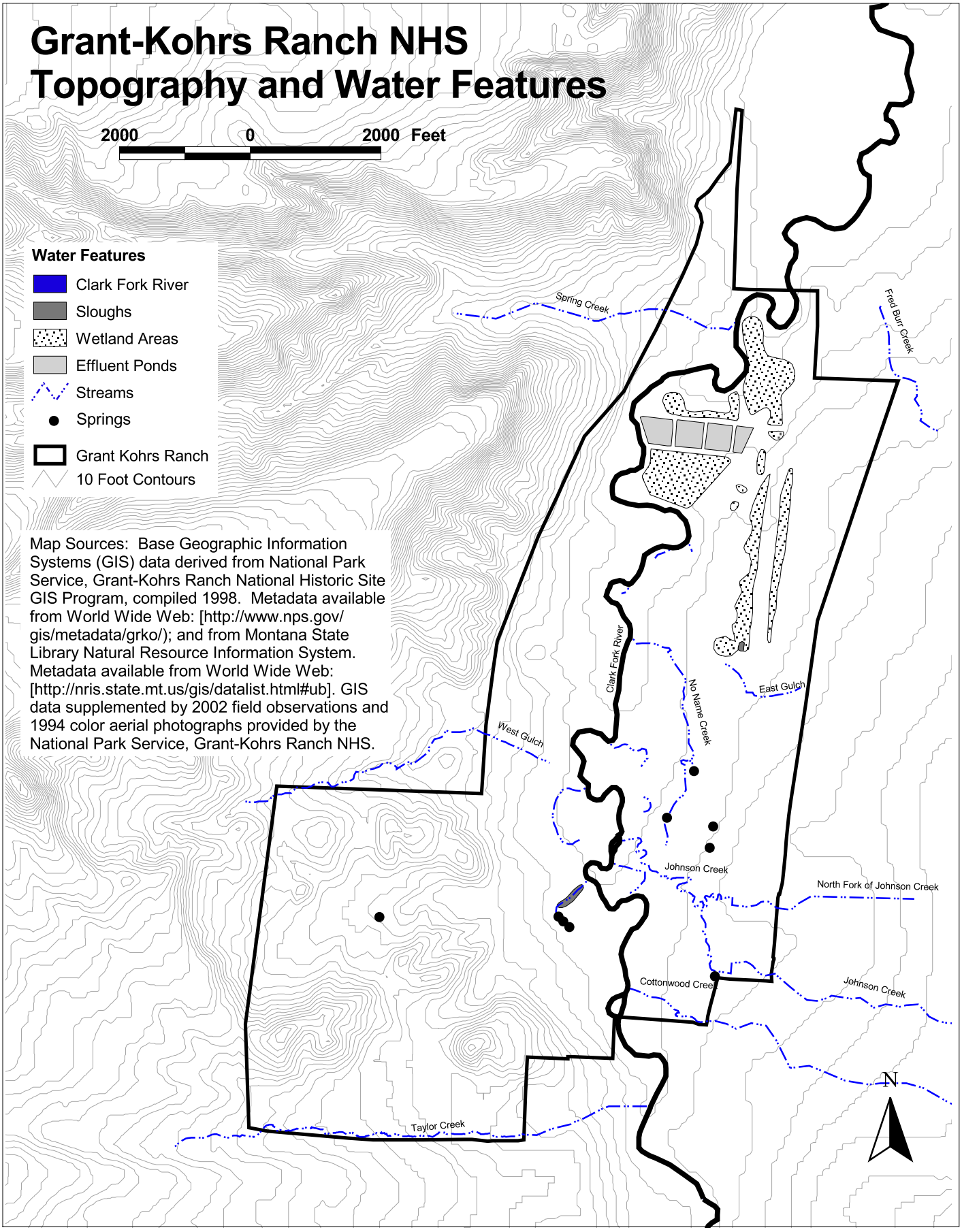
Soils

AQUENTS-SLICKENS COMPLEX
BEAVERELL LOAMS
BOHNLY SILT LOAM
CETRACK LOAM
CON LOAMs
GREGSON LOAM
KLEINSCHMIDT GRAVELLY LOAM
DISTURBED
GRAVELLY PITS
ROY-SHAWMUT-DANVERS COMPLEX
SAYPO LOAM
TETONVIEW LOAMS
VARNEY LOAMS
WATER

Map Sources: Base Geographic Information Systems (GIS) data derived from National Park Service, Grant-Kohrs Ranch National Historic Site GIS Program, compiled 1998. Metadata available from World Wide Web: [http://www.nps.gov/gis/metadata/grko/); and from Montana State Library Natural Resource Information System. Metadata available from World Wide Web: [http://nris.state.mt.us/gis/datalist.html#ub]. GIS data supplemented by 2002 field observations and 1994 color aerial photographs provided by the National Park Service, Grant-Kohrs Ranch NHS.



Map 3-5: Soils



Map 3-6: Topography and Water Features

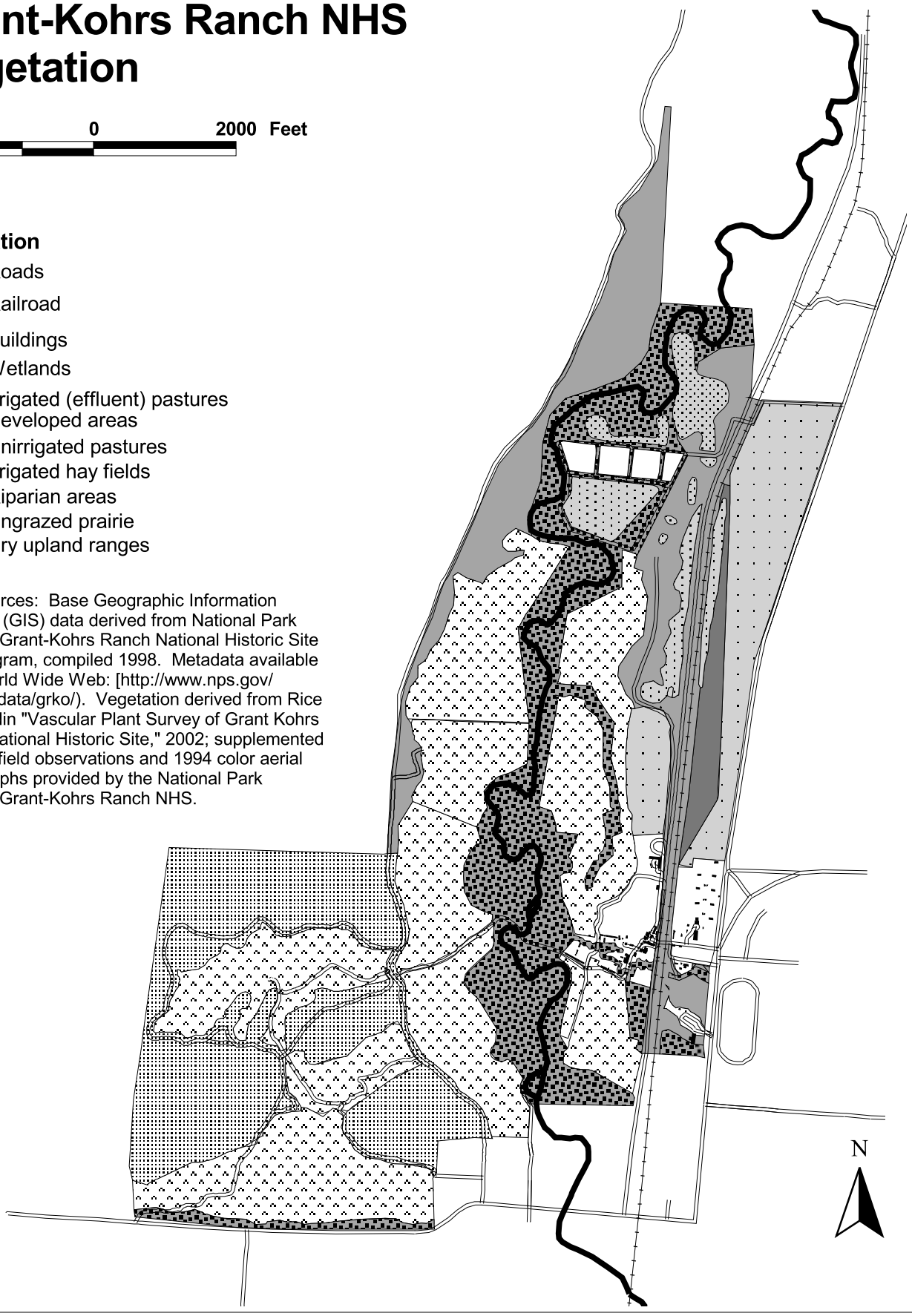
Grant-Kohrs Ranch NHS
Vegetation

2000 0 2000 Feet

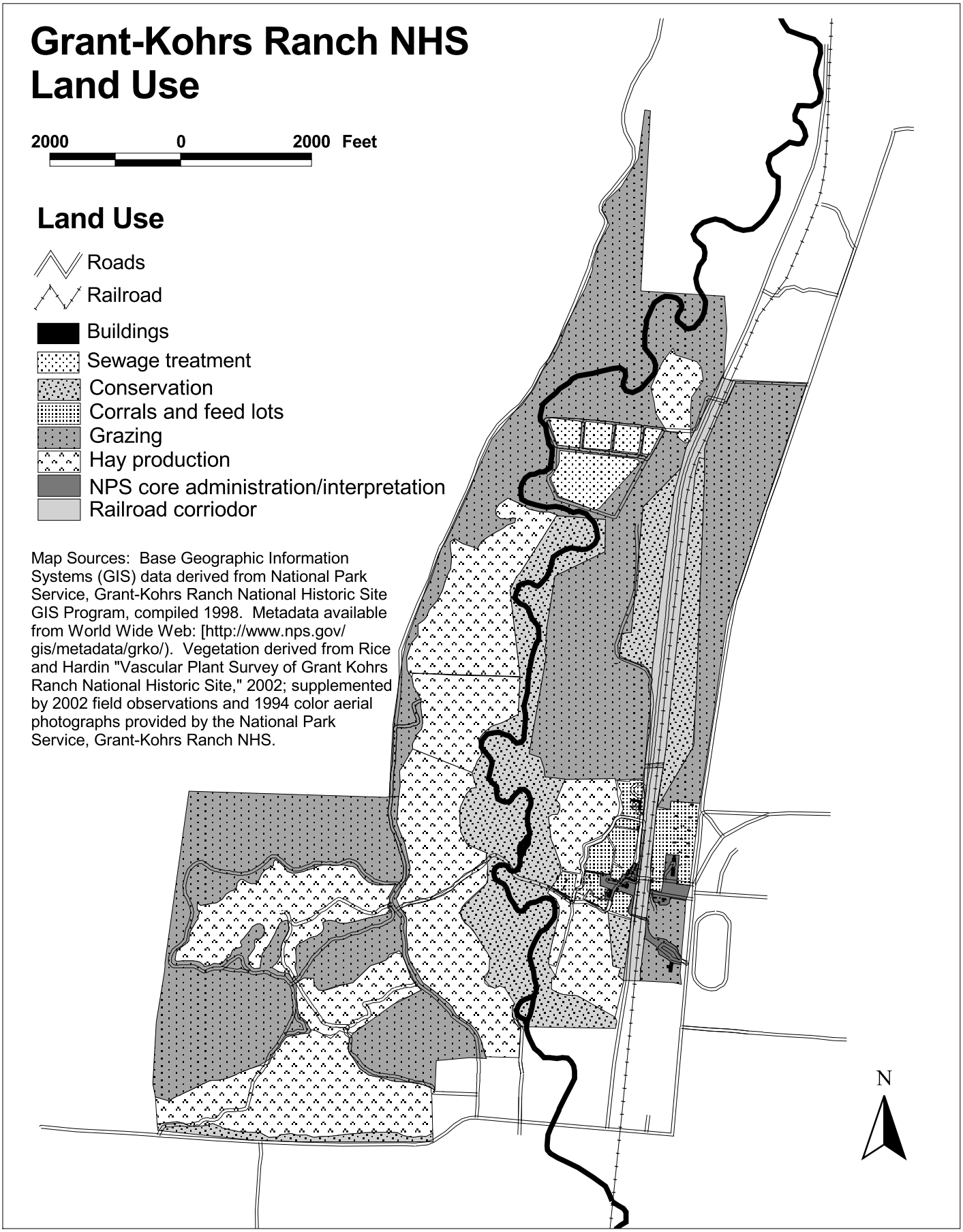
Vegetation

- Roads
- Railroad
- Buildings
- Wetlands
- Irrigated (effluent) pastures
- Developed areas
- Unirrigated pastures
- Irrigated hay fields
- Riparian areas
- Ungrazed prairie
- Dry upland ranges

Map Sources: Base Geographic Information Systems (GIS) data derived from National Park Service, Grant-Kohrs Ranch National Historic Site GIS Program, compiled 1998. Metadata available from World Wide Web: [http://www.nps.gov/gis/metadata/grko/). Vegetation derived from Rice and Hardin "Vascular Plant Survey of Grant Kohrs Ranch National Historic Site," 2002; supplemented by 2002 field observations and 1994 color aerial photographs provided by the National Park Service, Grant-Kohrs Ranch NHS.

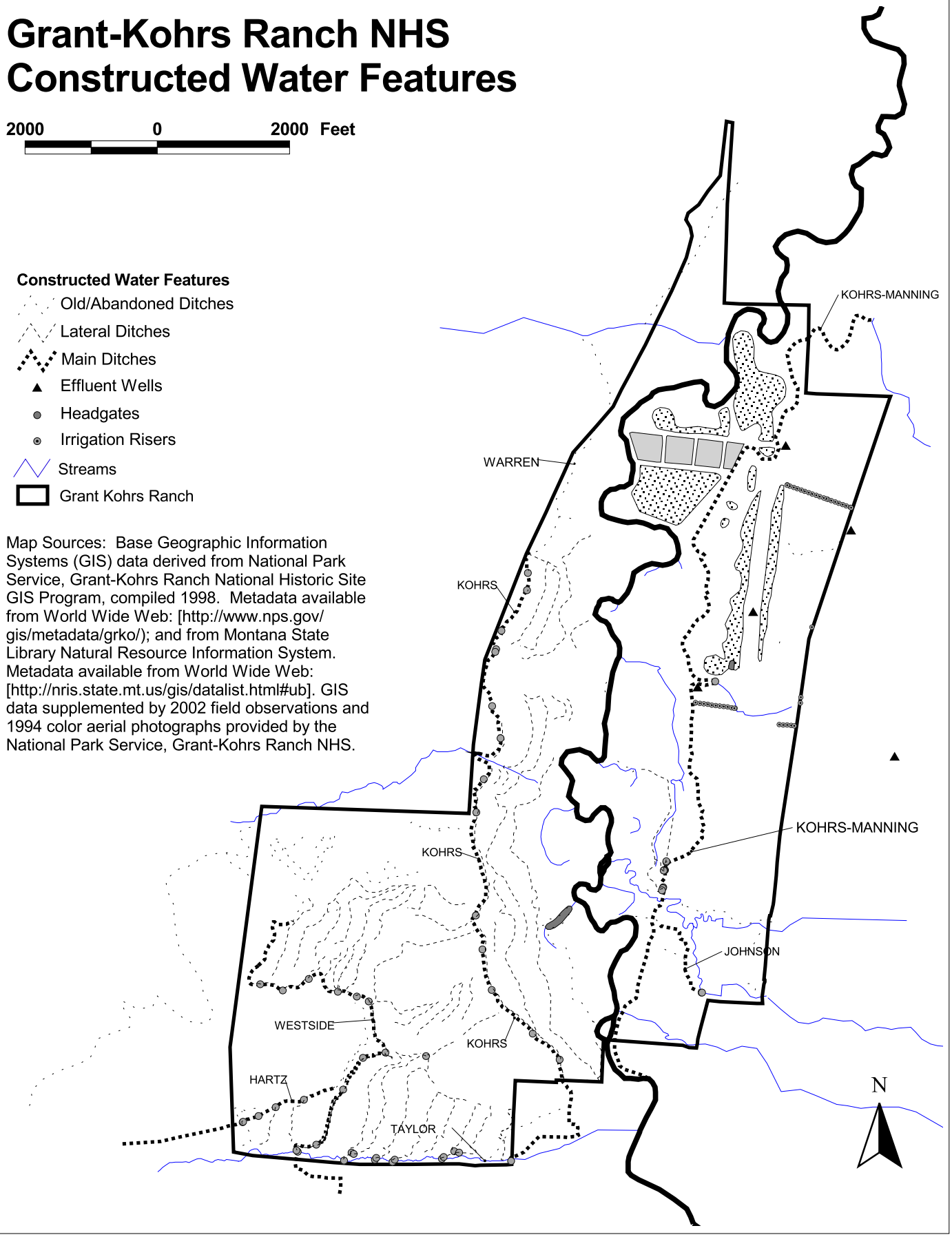


Map 3-7: Vegetation

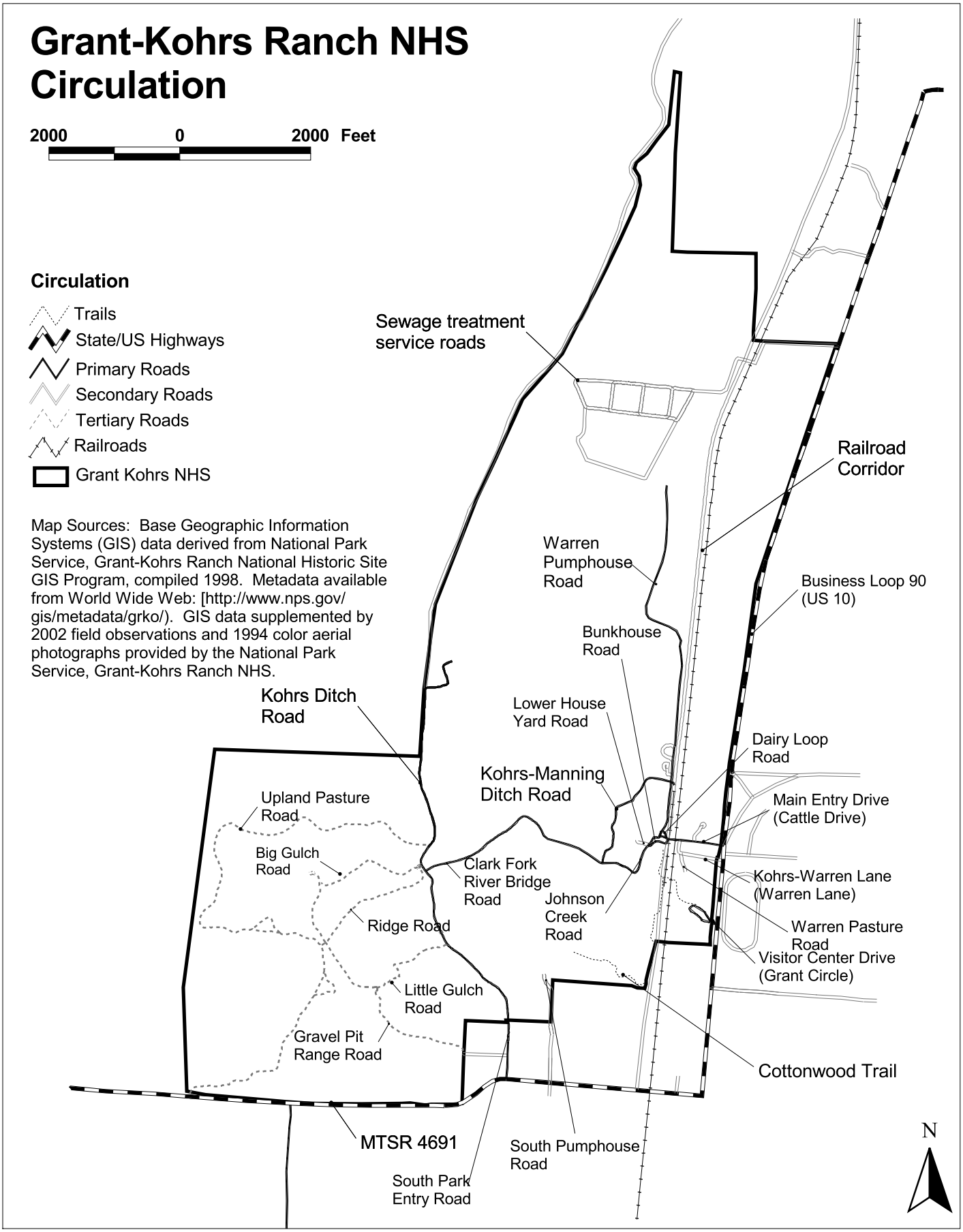


Map 3-8: Land Use

Grant-Kohrs Ranch NHS
Constructed Water Features



Map 3-9: Constructed Water Features



Map 3-10: Circulation



JMA, October 2002

Photo 3-1 : (Z-23) Flint Creek Range and the distant peaks of Mt. Powell and Deerlodge Mountain provide a stunning backdrop to the rolling foothills below.



JMA, October 2002

Photo 3-2 : (RA-01) Views to the east of the Ranch are defined by the City of Deer Lodge, Business Loop 90, and the modern residential and commercial development located along it.



JMA, October 2002

Photo 3-3 : (U-09) . Cattle and horses also activate the Ranch, adding visual diversity, authenticity, and enrichment to the visitor experience.

Home Ranch

Home Ranch Complex

[Existing conditions inventory maps and photographs are found at the end of this section]

Introduction

The Home Ranch Complex contains the most highly developed area within the Grant-Kohrs Ranch National Historic Site. Historically, this area served as the hub of ranch operations, providing such functions as housing, equipment and food storage, and health maintenance care for livestock. Approximately 36 acres in size, it was also the center of ranch management. Dominated by a variety of historic structures, the landscape is an integral part of the area, both in terms of the spatial relationships between buildings and the various landscape elements.[1]

Natural Systems and Features

[see Map EC-1 at the end of this section]

The Grant-Kohrs Ranch complex sits along the edge of the bench overlooking the Clark Fork River. This bench is comprised of a deep, well-drained Beaverell Cobbly Loam, and contains the oldest structures on the Ranch, including the bunkhouse (HS-2), ice house (HS-5), draft horse barn (HS-7), and oxen barn (HS-10).

Below this bench to the west, land slopes gently down into the Johnson Creek floodplain at an approximate 4% grade. Most of the other structures in the home ranch complex reside in this area, which consists of a deep, poorly drained Tetonview Loam. Some standing water was evident in this area during the site visit, creating boggy conditions in the lower feedlots adjacent to the creek.

Johnson Creek was and continues to be the most culturally significant creek within the Grant-Kohrs Ranch, as the domestic and working buildings of the Ranch grew up around it (see Photo 3-1-1). Johnson Creek begins near a natural spring west of Interstate 90 and flows west along the northern boundary of Deer Lodge. It is fed by another natural spring located just inside the southeast boundary of the Ranch. Here it is contained by fences that allow riparian vegetation to flourish. The smaller north fork of Johnson Creek begins north of the fairgrounds and passes behind the Warren residence before joining its southern counterpart in Johnson Creek field, near the ranch home.

Two natural springs are also located within the Home Ranch complex. These are located in the Lower Yards, which lies to the northwest of the developed area. These springs contribute to the wet conditions found in this field.

Vegetation

[see Map EC-1 at the end of this section]

Much of the natural vegetation that would be found along the banks of Johnson Creek has been removed within the area of the home ranch complex, as this area has been intensively grazed and actively developed for ranching operations (see the vegetation description in the Riparian Woodlands component landscape for what would be typical of this area).

[1]Thomas G. Keohan, *Cultural Landscape Inventory and Analysis, Grant-Kohrs Ranch National Historic Site* (Denver: Division of Cultural Resources, Rocky Mountain Regional Office, National Park Service, 1991), 6.

The vegetation that does exist consists mostly of willows and cottonwoods (see Photo 3-1-2). This vegetation is primarily found within Johnson Creek field, to the south of the ranch house, and the Johnson Creek feedlot, south of the Stallion Barn (HS-30). Several large cottonwoods are also found along the southern edge of the demonstration field where Johnson Creek bends far to the east. Pasture grasses comprise the majority of vegetative cover within the Home Ranch complex corrals and feedlots, providing food for the livestock contained within. Because these areas have been so heavily impacted by livestock, the species composition is a mix of native and non-native grasses and forbs. A detailed breakdown of vegetation species is not available for this area.

Spatial Organization
[see Map EC-2 at the end of this section]

As mentioned earlier, the home ranch, built for John Grant in 1862, was sited on the edge of the river terrace, or benchland, with its back overlooking the river and mountains beyond. Located on well-drained soils and close to Johnson Creek, the structure faced the historic transportation corridor that eventually became Business Loop 90, approximately 900 feet to the east.

The cluster of outbuildings that were built to support the domestic activities and ranch operations were sited to the north of the ranch house, along the bench, and were oriented essentially parallel, and/or perpendicular to the home. The spatial relationships among these outbuildings and the ranch home, as well as among the buildings themselves were derived from a combination of the topography (which slopes down to the northwest), the internal function of the structures, and the working relationship of shared open space between the structures. As is typical of 19th century landscapes in America, the domestic outbuildings that supported daily family life were generally closest to the house, while the structures that supported the activities of the working cattle ranch, such as the livestock barns and corrals), were further away.

The presence of Johnson Creek and its wet floodplain deterred growth of ranch structures to the south (at least initially). This land however, did provide fertile soils for cultivation, and with good southern exposure, became an ideal location for the domestic garden of the ranch home. Circulation patterns internal and external to the ranch also played a role in its physical evolution and organization.

The growth of Deer Lodge in the 1860s and the development of the Utah Northern Railroad circa 1879 initially deterred ranch expansion to the east. Buildings added to the ranch by Kohrs and Bielenberg after 1880 were generally constructed below the bench to the west and southwest of the ranch home, such as the thoroughbred barn (HS-15), stallion barns (HS-14, 16, 19, and 30), and the granary (HS-18). Several other non-extant structures (a cow shed, four feed racks, and two other structures whose use has not been identified) were once located near Johnson Creek. Although their date of construction is not known, they were torn down or removed in the early 1930s. Their location within the Johnson Creek floodplain likely made upkeep too difficult.

The size of the Grant-Kohrs Ranch complex grew substantially in the early 1930s after Con Warren took over operations. Initially expanding west, Warren developed additional corrals and feedlots containing several stock shelters and feed bunks on both the north and south sides of Johnson Creek. Several other buildings, such as the granary (HS-6) and dairy (HS-9), were added to the already existing cluster of outbuildings to the north of the ranch home, replacing older ones that had been removed.

All the fields contained within the Home Ranch complex are enclosed by fences and are generally framed by ranch structures on at least one side (see Photo 3-1-3). These structures define the use of the field, whether they be feed lots, corrals, and yards. Together these fences and structures, along with the natural features, constructed water features, circulation features, and vegetation, organize the spaces within the Home Ranch landscape.

The *Lower House Yards* are located directly to the south of the Grant-Kohrs Residence (HS-1). This one acre area is defined on the east side by the back of this structure and the bench along which it is located, as well as the Ice House (HS-5), and the Blacksmith Shop/Garage (HS-3). The northern boundary of this area is defined by the Buggy Shed (HS-17), Stallion Barn (HS-19), Chicken House (HS-22) and Brooder House (HS-21). Both the Brooder House and Chicken House are enclosed by a fence that separates this area from the larger yard. The southern and eastern boundaries are defined by Johnson Creek, a row of cottonwoods, Stallion Barn (HS-16), and the Thoroughbred Barn (HS-15). Together these structures, as well as a variety of fencing types (jack-leg, five rail stacked end fence, chicken wire fence, and vertical board fence), provide a sense of enclosure to the yards and the activities that take place there.

Johnson Creek Field is approximately 2.5 acres. It is located directly to the south of the Grant-Korhs Residence and contains the floodplain of the north fork of Johnson Creek. It is defined by the railroad corridor to the east, the Johnson Creek riparian woodland to the south, the lower garden of the Grant-Kohrs residence to the north, and Johnson Creek Road to the west. Jack-leg fencing surrounds this field on all sides. Wet soils dominate this field which houses one of the four stallion barns (HS-14).

The *Lower Yards* are located northwest of the Grant-Kohrs Residence. Approximately 12 acres in size, this wide open area is bounded by the railroad corridor on the east, the Kohrs-Manning Ditch and Kohrs-Manning Ditch Road along the west, and the Lower House Yards on the south. Seven smaller yards are contained within this area, each contained by fences (jack leg and 5-rail stacked end fence). The Draft Horse Barn (HS-7), Oxen Barn (HS-10), and Granary (HS-6) back up to the Lower Yards on the eastern side—taking advantage of the benchland's change in elevation.

The *Bunkhouse Yards* are located directly to the north of the bunkhouse (HS-2). These yards are comprised of smaller spaces, each defined by the surrounding buildings and fencing (vertical board fence, 5-rail stacked end fence, and stacked log fence).

The *L-Barn South* field is located directly to the north of the Lower Yards, and comprises the northern-most boundary of the Home Ranch Complex. Approximately seven acres in size, this field is defined by the railroad corridor and Warren Pumphouse Road on the east, the Kohrs-Manning Ditch Road on the south, and fencing on the northern and western sides. Jack-leg fencing surrounds the entire perimeter, while stacked-log fencing and 7-rail stacked end fencing contains the smaller yards near the L-Barn. The Kohrs-Manning Ditch runs directly through this field, just south of the bench. The NPS "boneyard," a collection of lumber and fencing materials, is located on the north side of the L-Barn and is contained by jack leg fencing on three sides.

The *West Corrals* are located south of the Lower Yards and Lower Yard Fields. This five acre area is defined by jack leg on the west side, whereas 5-rail stacked end fence and vertical board fence frame its northern and southern edges. The Clark Fork River Bridge Road also organizes the southern edge. Jack leg fencing dominates the eastern side. Johnson Creek dominates this area as it meanders south to join the Clark Fork River. Several smaller corrals are contained within this area—each generally organized around barns and feed bunks.

As its name suggests, the *West Feedlot* is located on the western edge of the Home Ranch Complex. Approximately 2.5 acres in size, it is bounded on the south by the Clark Fork River Bridge Road, and on the east by the Kohrs-Manning Ditch and Road. Jack leg fencing encloses its northern side along Johnson Creek, while 5-rail stacked end fence forms the eastern and western boundaries. Vertical board fence frames its southern side, along with the large feed bunk located there.

Land Uses
[see Map EC-3 at the end of this section]

The Home Ranch complex currently supports both working ranch operations as well as visitor interpretation. Generally, the stock shelters, feed bunks, and barns contained within the complex are used to support the livestock. All five of the horses maintained on the ranch are currently boarded within the Home Ranch Complex. During the time of the site visit, the West Corrals and the Lower Yards were being grazed by horses.

Several structures within the home ranch complex contain interpretive exhibits that are open to the public (see Photo 3-1-4). These include the ranch house (HS-1), bunkhouse (HS-2), thoroughbred barn (HS-15), blacksmith shop (HS-3), ice house (HS-5), privy (HS-20), buggy shed (HS-17), and draft horse barn (HS-7). The blacksmith shop also currently houses a photo exhibit room and visitor restrooms.

While other buildings within the complex do not necessarily contain interpretive exhibits, they provide context to the historic ranch operations and daily life. The chicken coop (HS-22), brooding house (HS-21), granaries (HS-6, 18, and 23), coal shed (HS-4), oxen barn (HS-10), and dairy (HS-9), provide visitors with an understanding of the activities that took place on the ranch, and the physical spaces within which they were carried out.

The small open field directly behind the ranch house (to the south of the buggy shed) is currently being used for demonstration and education (see Photo 3-1-5). It contains several pieces of old farm equipment, an informal log seating area, and chuck wagon.

The Lower Yard Garden, a small cultivated area that was used to grow plants for interpretation, is being removed and reseeded. One trailer house was located to the west of the thoroughbred barn (HS-15), and was used as a residence by park employees (see Photo 3-1-6). This trailer was also removed in 2003.

Constructed Water Features
[see Map EC-1 at the end of this section]

There is one active constructed water feature that traverses through the Home Ranch complex. The Kohrs-Manning Ditch, which begins just south of the park boundary, is sourced by the Clark Fork River. This ditch is approximately ten feet wide, and provides irrigation to the lower fields to its eastern side (see Photo 3-1-7).

The Kohrs-Manning Ditch crosses Johnson Creek via a wooden flume (HS-50) that was constructed in 1974 to replace an earlier, non-extant flume (HS-51). The flume is essentially a long, wood-sided ditch covered with evenly-spaced, narrow, wooden, square posts set perpendicular to the plank siding. The flume is approximately ten feet wide and three feet in depth (see Photo 3-1-8).

Circulation
[see Map EC-2 at the end of this section]

There are several roads that traverse through the Home Ranch Complex. These include several roads that service the bunkhouse yards located north of the Grant-Kohrs Residence. The *Dairy Loop Road* is accessed by the Main Entry Road after crossing the railroad corridor (see Photo 3-1-9). It is an unpaved gravel road approximately 10 feet in width, and surrounds the Dairy (HS-9). It accesses this structure, as well as the Bielenberg Barn (HS- 11), the Oxen Barn (HS-10), Draft Horse Barn (HS-7), Granary (HS-6), as well as the rear of the Bunkhouse, before turning south behind the Ice House and Coal Shed.

Bunkhouse Road is also accessed by the Main Entry Road after crossing the railroad corridor (see Photo 3-1-10). It too is an unpaved gravel road approximately 10 feet in width that passes in-between the Bunkhouse (HS-2) and Grant-Kohrs Residence (HS-1). It continues past the front of the Ice House and Coals Shed before terminating at the rear of the residence, near the Blacksmith Shop/Garage (HS-3).

The *Lower House Yard Road* is a short gravel spur that provides access from Bunkhouse Road to the Lower House Yard. An undefined gravel parking area is also located in front of the Buggy Shed. Starting at the Blacksmith Shop, *Johnson Creek Road* picks up where Bunkhouse Road leaves off (see Photo 3-1-11). This road extends approximately 300 feet south, crossing Johnson Creek just south of the Stallion Barn (HS-14). Like the others, this road is also unpaved and is approximately 10 feet wide.

The *Clark Fork River Bridge Road* was constructed in the 1930s after Con Warren took over ranch operations. This road extends from Johnson Creek Road, over the Slough Bridge, Kohrs-Manning Ditch Bridge, and the Clark Fork River Bridge before extending further west (see Photo 3-1-12). It too is an approximately 10 foot wide gravel road.

As its name suggests, the *Kohrs-Manning Ditch Road* follows the Kohrs Manning Ditch through the Home Ranch Complex, crossing it twice via culverts. Constructed ca. 1973, it begins at the Clark Fork River Bridge Road and extends along the southern edges of the Johnson Creek Corrals and Lower Yards before turning north towards the Warren Pumphouse Road (see Photo 3-1-13).

The *Warren Pumphouse Road* is an approximately 10 foot wide gravel road that links the Dairy Loop Road with the Warren Pumphouse (HS-86) and North Fields (see Photo 3-1-14). Although the southern portion of this road dates to the Kohrs period, it was likely lengthened c. 1960 during construction of the pumphouse.

Views and Vistas
[see Map EC-5 at the end of this section]

Views within the Home Ranch Complex are defined by the buildings, structures, and fences within it, which provide textual contrast to the surrounding softness of pastures and riparian vegetation. These buildings and fences contain the views and vistas, making the spaces within the complex appear much more humanly scaled than the contrasting expansive landscape of pastures and hills beyond (see Photo 3-1-15). Likewise, the western hills and Flint Creek Mountain Range beyond, provide constant context to the longer vistas that dominate the viewshed beyond the developed area (see Photo 3-16).

The red and white paint covering all the structures in the Home Ranch complex also serves to unify the ranch, and create visual harmony within it. These colors also provide rich contrast to the greens, yellows, weathered grays and browns of the surrounding vegetation and wooden fences.

Buildings and Structures
[see Map EC-3 and Map EC-4 at the end of this section]

The following buildings and structures information has been derived from the "National Register of Historic Places Registration Form," the "National Historic Landmark Nomination Form," the Grant-Kohrs Ranch NHS *Historic Structures Report*, and supplemented by field observations during the 2002 site visit (see bibliography for full citations).

Bunkhouse Row (HS-2), (see Photo 3-1-4) is located north of the Grant-Kohrs Ranch House which will be described in detail in the Grant-Kohrs Residence section. The buildings that comprise the Bunkhouse Row have whitewashed siding, both horizontal and vertical indirection. Window and door trim is painted red. It is oriented east-west. Presently, from east to west, the bunkhouse includes a buggy shed, chore-boy room, stable, ranch office, bunkroom, sitting room, dining room, kitchen, shower/washroom, and woodshed. Throughout the building, corrugated galvanized metal panels cover the roof. The buggy shed has a shed roof. Immediately west of the buggy shed is the gabled, one-and-a-half story stable. The remaining building sections have one story and gabled roofs. The entire building sits on a stone and mortar foundation. Two brick chimneys rise from the roof of the lower building section. Hand-hewn logs are part of Grant's original structure.

The ***Ice House*** (HS-5), (see Photo 3-1-17) was built circa 1880 and is located near the southwestern corner of Bunkhouse Row. The ice house is a one-story, square, log building with frame additions on the west and south sides. The original log building sits on a stone, full basement foundation. Walls are constructed with V-notched, white-washed logs and lime-mortar daubing. The gable roof runs east-west and is covered with wood shingles over tongue-and-groove sheathing. The east side of the log component contains two nine-light windows that flank a central wooden door.

The white-washed south shed addition has vertical board siding and wood-shingle roofing. One door is located on the east elevation and a window is located on the south elevation. The west elevation of the basement is above ground and has an attached addition covered with horizontal siding. The shed roof slopes to the west, is covered with wood shingles, and has exposed rafter ends on its west sides. One window is centered on both the west and south elevations and a wood door is centered on the north elevation. Windows are covered with bars to prevent theft of food products kept cold by the ice.

Built in 1915, the ***Coal Shed*** (HS-4), (see Photo 3-1-18) is located directly west of the ranch house.[2] The shed is a one-story, rectangular, wood-frame structure constructed on a concrete pad. Wood shingles cover the shed roof and white-painted horizontal siding covers the exterior walls. Door and window trim and corner boards are painted red. Features on the east elevation include a door opening to the south and an access hatch for coal delivery on the north side.

[2] Ann Hubber, *National Register of Historic Places Registration Form, Grant-Kohrs Ranch/Warren Ranch* (Denver: National Park Service, Intermountain Support Office, January 4, 2002), Section No. 7, 3.

The ***Blacksmith Shop/Garage*** (HS-3), (see Photo 3-1-19) was built in 1935 and is located southwest of the ranch house. The building has been renovated twice by the NPS; in 1975 to add insulated and heated fire truck storage and in 1981 to add men's and women's restrooms. The wood-frame building rests on a concrete pad and concrete foundation wall. Horizontal, white-painted siding covers the exterior walls while red hexagonal shingles sheath the gabled roof. Two brick chimneys sit on the east slope of the roof. Three red-painted wooden, multi-panel, multi-light, overhead rolling doors are located on the north elevation of the building. A pair of red-painted wooden sliding doors are located on the west elevation. Three nine-light hopper windows are located on the south elevation. The fire truck bay and supply area were renovated in 1992 for use as an auditorium.

Built in 1935, the ***Granary/Roller Mill*** (HS-6), (see Photo 3-1-20) is located north of Bunkhouse Row and is part of a complex of agricultural buildings and structures. The building is a one-story, rectangular, wood-frame building with an offset gable roof. Built on a poured concrete foundation, the building is sided with horizontal siding. The west elevation contains an open shed-roofed loading dock with two support columns and wood-plank flooring. Red hexagonal asphalt shingles cover all roof surfaces and rafter ends are exposed. Large wooden sliding doors provide access to the granary from the loading deck on the west elevation. The south elevation has a Dutch door constructed of vertical boards. The granary/roller mill has three nine-light windows, two on the west elevation and one on the north side. Four evenly-spaced hatch openings are located on the east slope of the roof that provide truck access to the grain storage bins.

North of, and adjacent to, the Granary/Roller Mill lies the circa 1870 ***Draft Horse Barn*** (HS-7), (see Photo 3-1-21). Virtually unaltered since the 1870s, the two-story barn is rectangular in shape with a gabled roof with vertical wood planks filling the gable ends. A shed addition is attached to the northern elevation. Built on a stone foundation, the walls of the original building are V-notched logs. The addition is also constructed on a stone foundation. Board-and-batten siding covers the exterior walls. The east and west walls each have a board-and-batten double-leaf Dutch door. Four six-light windows are located about the barn. Both the shed addition and main gable roofs are covered with corrugated metal.

The ***Privy*** (HS-8), (see Photo 3-1-22) is one of two outhouses on the ranch and is located near the southeast corner of the Draft Horse Barn. Built in 1934 by the Works Progress Administration (WPA), the privy is a small, one-story, square building with a shed roof. Vertical siding covers the walls while cedar shingles cover the roof. The door is located on the east elevation.

Built in 1932, the ***Dairy*** (HS-9), (see Photo 3-1-23) is located east of the Draft Horse Barn. The building interior was modified in 1975 for use as an NPS park maintenance building. The dairy is a one-and-a-half story, rectangular, wood-frame building with gable roof. The barn sits on a concrete foundation with an interior concrete pad. The exterior walls are covered with horizontal wood siding. Red hexagonal asphalt shingles cover the roof. Two doors are located on the south elevation; a pedestrian door and sliding door. A four-light hopper window is centered on the south gable end. The east elevation has eight evenly spaced four-light hopper windows. On the north elevation, there is a wood double-leaf Dutch door and three four-light hopper windows. The west elevation has one wood double-leaf Dutch door. There are two hopper windows on the west elevation and one gable dormer with white horizontal siding and red asphalt shingles.

Built circa 1870, the ***Oxen Barn*** (HS-10), (see Photo 3-1-24) is located north of the Draft Horse Barn. It is a one-and-a-half story, rectangular log building with a gabled roof oriented north-south. The logs are joined with V-notching and are daubed with lime-based mortar. Vertical wood

siding fills the gable ends. A central, double-leaf Dutch door and multi-light window are located on the west elevation. On the east elevation, there is a half-door for access to the loft. The roof is covered with random-width wood sheathing and wood shingles.

The ***Bielenberg Barn*** (HS-11), (see Photo 3-1-25) was built circa 1880 and is located northeast of the Draft Horse Barn. The one-story rectangular barn has a west-sloping shed roof. The frame walls are sided with white-painted vertical board-and-batten siding with red-painted skirt board. On the east elevation, there are eight vertical board-and-batten stall doors. A fixed multi-light window is located above each stall door while an additional window is located at the northeast end of the building. The north elevation contains one window set off-center to the east.

The ***Cattle Scale*** (HS-35), (see Photo 3-1-26) was built in 1935 and is located north of Bunkhouse Row and between the Granary/Roller Mill and a feed rack. The cattle scale is a large wood-framed structure constructed on an 8-inch-deep concrete tub foundation. The north and south elevations feature milled lumber posts and spaced horizontal planks, creating fence-like walls that are bolted to the foundation. Gates form the east and west sides. The scale mechanism was removed in 1952 and moved to the scale house (HS-66).

Three ***Feed Racks*** (HS- 36, 37, and 38), (see Photo 3-1-27) are located to the east of the Bielenberg Barn and Dairy Barn and north of Bunkhouse Row. The feed racks are similar in construction, having angled wood posts supported by a wood frame. One of the smaller feed racks (HS- 36) has two rows of narrow wood posts angled in opposite directions to form a V-pattern. A wood plank is placed in the crux of the V to support the fodder. This rack is set into an open, rectangular wood frame with a wood base and surrounding posts and rails. A second smaller feed rack (HS-37) and large feed rack (HS-38) have only one set of posts set diagonally against a wood rail and resting on a wood base. The structures are attached to a fence, running parallel to the railroad tracks, to hold hay.

Located west of the Bielenberg Barn and north of the Oxen Barn, the ***Manure Pit*** (HS-39), (see Photo 3-1-28) was built in 1932 and consists of a 6-feet-deep, poured-in-place concrete pit.

A ***Beef Hoist*** (HS-40), (see Photo 3-1-29) is located along the access road between the Bielenberg Barn and the Machine Shed. It can be found near the northwest corner of the Bielenberg Barn. The hoist consists of two tall posts supporting a horizontal round post, like an inverted U shape. A pulley system is located on the north edge of the upper horizontal post that, along with a chain, was used to hoist slaughtered cattle.

Built circa 1890, the ***Machine Shed*** (HS-12), (see Photo 3-1-30) was moved approximately 90 feet west of its original location in 1907 or 1908 to make room for the railroad alignment. The one-story, pole-frame, rectangular machine shed has a gable roof covered with corrugated metal. Vertical board-and-batten siding stained red, covers the exterior walls. Five large, side-hinged, board-and-batten doors dominate the east elevation.

The circa 1890 ***Cow Shed*** (HS-13), (see Photo 3-1-31) is located north of the Machine Shed. The Cow Shed is an L-shaped, pole-frame building with vertical, red-stained, board-and-batten siding. Corrugated metal covers the intersecting gabled roof. The west and south elevations are partially open. Wooden poles define the bays in these open sections. A pair of swinging board-and-batten doors is located on the east end of the north elevation. Two windows are also located in the north elevation. Five windows are evenly spaced along the north half of the east elevation. An enclosed room on the south end with the door was used as a calving area.

West of the Cow Shed lies a ***Squeeze Chute*** (HS-41), (see Photo 3-1-32). Built in 1984, the chute is a reconstruction of squeeze chutes typical of the Grant-Kohrs ranch era. Painted red, the wood-frame squeeze chute consists of a narrow passageway, constructed of horizontal wood planks supported by round wood posts, which allowed ranch hands to move and treat one animal at a time. At the end of the passageway was a gated section that held one animal. A two-part estanchion, apparently missing on this chute, held the animal's head still. The estanchion also acted as a gate, being hinged on one side, to release the animal. The chute also features evenly-spaced wood boards covering the top of the chute.

To the southwest of the main ranch house lies a complex of buildings and structures that once support, and now interpret, the ranch's horse and thoroughbred breeding operations.
The central building in this complex is the ***Thoroughbred Barn*** (HS-15), (see Photo 3-1-33). Built circa 1883, modified in 1941, and restored by the NPS in 1981, the barn is a long, one-story, rectangular post-and-beam/wood-stud building constructed on a concrete foundation faced with stones salvaged from the original stone wall foundation. Red-painted board-and-batten siding covers the exterior walls and gabled roof. A small wood plank leads to large, centered, wooden double doors on the north elevation; a pedestrian door is cut into the west door. The west elevation contains a pedestrian door and nine evenly spaced windows. Large wooden double-doors are centered on the south elevation. The right door is a Dutch door. Eight windows line the east elevation.

Four ***Stallion Barns*** (HS-14, 16, 19, and 30) are located west and southwest of the main ranch house. Stallion Barn HS-14, (see Photo 3-1-34) is located southeast of the Thoroughbred Barn. Stallion Barn HS-16 is located northwest of the Thoroughbred Barn. Both are one-and-a-half story, rectangular, log buildings. The logs are joined with V-notching and daubed with a lime-based mortar. Wood shingles cover the gabled roofs. Stallion Barn HS-14 has new sill logs on a concrete foundation with stone veneer.

Stallion Barn HS-16, (see Photo 3-1-35) has new sill logs but rests on a loose stone foundation. Vertical planks fill the gable ends of both buildings. Features include vertical plank doors, multi-light wood windows, and hay doors accessing the loft spaces.

Stallion Barn HS-19, (see Photo 3-1-36) is located west of the main ranch house and is also a one-and-a-half story, rectangular, log building. The logs are joined with square notching, daubed with lime-based mortar, and chinked with split, quarter-round poles. Wood shingles cover the gable roof. Vertical planks fill the gable ends. A shed roof lean-to addition is attached to the north elevation. Two large, four-panel double doors are centered beneath the east gable. There are windows on the south, and also a door on the west elevation of the lean-to. Additional features include a four-panel pedestrian door on the addition's eastern elevation, hay doors, and multi-light sliding-sash windows.

Stallion Barn HS-30, (see Photo 3-1-37) is located southwest of the Thoroughbred Barn. It is a two-story, rectangular, shed-roof building of post-and-beam construction. Red-painted vertical board-and-batten siding covers the exterior walls. The barn sits on a replacement concrete and stone foundation. Corrugated metal covers the roof. Features include two board-and-batten doors and fixed-sash, four-light wood-frame windows resulting from its later use as a garage.

Feed Racks (HS-42, 43, and 44), (see Photo 3-1-38) surround the Thoroughbred Barn, servicing various corrals. Feed racks HS-43 and 44 are located to the west of the barn while feed rack HS-42 is located east of the barn.

Two ***Feed Bunks*** (HS-s 45 and 46), (see Photo 3-1-39) are located southwest of the horse complex and were built in 1932. They are attached to the south fence of the western corrals. The bunks are long, rectangular bins for storing feed. One end contains a door; access for placing fodder. Corral fencing comprises the back and other end wall. The front wall consists of evenly-spaced metal pipes sitting on a low wood plank wall. Horse and cattle reach the feed from between these pipes. The total height of the front wall is between 4 and 4.5 feet.

A ***Feed Storage House*** (HS-31), (see Photo 3-1-40) is located between the two feed bunks and was built in 1932. The feed storage house is a one-story, wood-frame, rectangular building built on a concrete foundation wall. The tongue-and-groove sheathing of the gable roof is covered with cedar shingles. The roof has exposed rafter ends and a wood ridge cap. The exterior walls are covered with white-painted horizontal lapped siding and red-painted corner boards. Both the east and west elevations feature a Dutch door and one six-light, fixed sash, wood-frame window.

The ***West Corrals Squeeze Chute*** (HS-47), (see Photo 3-1-41) is located just north of the Feed Storage House (HS-31). The red-painted, wood-frame chute consists of a narrow passageway between two corrals through which one animal would be moved at a time. At the end of the passageway is a small holding pen large enough for one animal. One side of the pen appears to have been a wood-plank wall while the other had metal bars through which wranglers could reach the animal. The front of the pen consists of a two-part estanchion with which to secure the animal's head. The top half of the estanchion could be lowered, using a pulley mechanism, until the animal's head was secured. This structure was reconstructed in 1984.

A collection of agricultural buildings and structures lies directly to the west of the main ranch house. These features include poultry facilities, cattle feeding structures, and water conveying systems for Kohrs-Manning Ditch and Johnson Creek.

The ***Buggy Shed*** (HS-17), (see Photo 3-1-42) is located directly west of the main ranch house. It was moved from its original location as part of the bunkhouse when the railroad came through in 1907. The shed is a one-story, rectangular, post-and-beam building with a shed roof. Building poles are set directly into the grounds; there is no foundation. Whitewashed board-and-batten siding covers the exterior walls. Sheets of corrugated metal cover the roof and fascia boards cover the rafter ends on all sides. Five sets of Z-braced, board-and-batten double doors dominate the south elevation. The east, west, and north elevations have no features.

West of the Buggy Shed lies a circa 1890 ***Privy*** (HS-20), (see Photo 3-1-43). The small, square privy is a one-story, wood-frame structure with a cedar-shingled gable roof. The structure has a creosote railroad tie foundation covered with vertical half-logs. Horizontal, wood, dropped-cove siding covers the exterior walls. The east elevation contains a four-panel wood door placed off center. A small window opening, boarded-up from the interior, is found high up on the western elevation. The north and south elevations have no features. Cedar shingles cover the roof.

The ***Granary*** (HS-18), (see Photo 3-1-44) was built circa 1890 and is a one-story, rectangular, wood-frame and tie-rod building with a gable roof. External studs and smooth interior walls, typical with granary design, provided greater efficiency in grain storage. Designed to be moveable, six hewn sill logs stabilize the base of the building. Single, centered, 4-feet-wide plank doors offer access on the east and west elevations. The roof is covered with unpainted cedar shingles and rafter ends are exposed on all sides. Vertical board-and-batten siding fills the gable ends.

The ***Brooding House*** (HS-21), (see Photo 3-1-45) was built in1935 and originally used to incubate eggs for hatching. The house is a one-story, rectangular, wood-frame building with a gable roof. Built on a concrete foundation, the exterior walls are covered with horizontal siding. Red hexagonal asphalt shingles cover the roof. The west elevation contains a two-panel wood door accessed via a small concrete and wood stoop. Two nine-light, wood-frame hopper windows are located on the south elevation. Centered on the east elevation is one nine-light hopper window. A chicken hatch/opening is at ground-level on the east elevation.

Also built in 1935, the ***Chicken Coop*** (HS-22), (see Photo 3-1-46) is a white-painted, one-story, rectangular, wood-frame building with a concrete foundation. White horizontal siding covers the exterior walls. The saltbox roof is covered in red hexagonal shingles. Doors, trim, and corner boards are painted red. A six-panel door is located on the east elevation. An attached ramp, made of plywood and battens, provides access for fowl into the building. A group of six multi-light windows, with wooden louvered vents in the transom space, runs the length of the south elevation. A chicken hatch/opening is centered below the windows.

The ***Metal Granary*** (HS-23), (see Photo 3-1-47) was purchased and installed at the ranch around 1910. It is a round, pre-manufactured structure with a metal turret roof. The granary was designed to be assembled on-site by the buyer.

Within the western corrals, there are four ***Stock Shelters*** (HS 24, 25, 27, and 29), (see representative Photo 3-1-48), originally built between 1933 and 1934. Shelters HS-24, 27, and 29 are located north of Johnson Creek and south of feed bunk HS-48. Shelter HS-24 is of post-and-pole construction, painted red on the exterior walls. The shed roof is covered with board-and-batten roofing. The east side is open while the remaining sides are closed for shelter from inclement weather. Shelters HS-25, 27, and 29 are similar to Shelter HS-24 in construction, also being open on the east elevation yet varying in length.

The ***West Corrals Stock Shelter*** (HS-25), (see Photo 3-1-49), is located opposite of the other three shelters and south of Johnson Creek. Rebuilt in 2000, this shelter replaced an older structure. This shelter is a large, rectangular frame, open to the south, with a board-and-batten-covered gable roof. The roof has exposed rafter ends. The walls are constructed of vertical board-and-batten siding. A thick, round, post supports the roof on the south elevation. Wood on the entire shelter remains unpainted and unfinished.

The ***West Corrals Storage Structure*** (HS-26), (see Photo 3-1-50), is located in the same area as the historic Hay Roof Barn (HS-25). The Hay Roof Barn, originally constructed in 1933, was deteriorated and replaced by the new structure in 2000.

A ***Feed Storage House*** (HS-28), (see Photo 3-1-51) is located between two feed bunks north of Johnson Creek and east of Kohrs-Manning Ditch. The house is a one-and-a-half story, rectangular, wood frame structure with a gable roof. The house sits on a concrete foundation. The roof is covered with cedar shingles and has a wooden hatch low on the northern roof slope, a metal ridge cap, and exposed rafter ends. White-painted horizontal siding covers the exterior walls. Both the east and west sides features a cross-braced Dutch door and a four-light, wood-frame, fixed-sash window centered in the gable end.

Feed Bunks (HS-48 and 49), (see Photo 3-1-52) are located on either side of the feed storage house and are similar in construction to other feed bunks within the CLR study boundary. The 4 to 4.5-feet high wood bunks are two-sided structures attached to a vertical board fence, which becomes the third and fourth walls. One end has a gate that provides access to unload fodder

while the other end abuts the fence. The top half of the front wall has evenly-spaced metal bars while the bottom half is constructed of horizontal wood planking. The bunks are painted red.

The ***Kohrs-Manning Ditch Bridge*** (HS-55), (see Photo 3-1-53) is located on the roadway that runs along the southern fenceline of the western corrals and western feed lots. The bridge allows the road to cross Kohrs-Manning Ditch. The bridge is approximately 15-feet wide and constructed of square, wood beams which are set perpendicular to the roadway on timber abutments set into the shorelines. It has a wood plank surface. This structure was built in 1982; it replaced an earlier structure that was built in the late 1930s. Jack leg fencing is located on the south side.

The ***West Feedlot Stock Shelters*** (HS-32 and 33), (see Photo 3-1-54) are located south of Johnson Creek and west of Kohrs-Manning Ditch. The shelters are one-story, rectangular, red-painted, pole structures with shed roofs. Each structure measures five bays wide by two bays deep. The board-and-batten roofs are supported by pole rafters and pole purlins. The east side of each shelter is open.

Built circa 1930, the ***West Feedlot Storage Shed*** (HS-34), (see Photo 3-1-55) is located south of the stock shelters and was constructed for use as a portable sheep wagon and tack room; the structure was loaded on the back of a flat-bed truck for tack and a cot by Warren when he was showing Belgains. The shed is a small, rectangular, one room structure with a gently-pitched barrel roof. The shed currently rests on treated wood skids, added in1991. White-painted, horizontal, tongue-and-groove siding covers the exterior walls while aluminum strips protect the corners and frames the entrance door. The barrel roof has 2-inch wood sheathing covered with galvanized metal. The door also has a ghost mark of “Conrad Kohrs Co.”

The ***West Feedlot Squeeze Chute*** (HS-53), (see Photo 3-1-56) built in 1934, is structurally similar to all other chutes within the CLR study boundary. Painted red, the wood-frame squeeze chute consists of a narrow passageway, constructed of horizontal wood planks supported by round wood posts, that allowed ranch hands to move and treat one animal at a time. At the end of the passageway was a gated section that held one animal. A two-part estanchion, apparently missing on this chute, held the animal’s head still. The estanchion also acted as a gate, being hinged on one side, to release the animal. The chute also features evenly-spaced wood boards covering the top of the chute.

The ***West Feedlot Feed Bunk*** (HS-52), (see Photo 3-1-57) was reconstructed in 1987 and is similar in construction to all other feed bunks within the CLR study boundary. The feed bunk is essentially a two-sided structure built against two fence walls; the back and one end being the fence. The long bunker is located between the Kohrs-Manning Ditch and Slough Bridge and south of the West Feedlots Storage Shed. The front wall of the bunker has two parts; the top half consists of evenly-spaced metal bars while the bottom half consists of horizontal wood planks supporting the bars.

A Feed House (S-29) is located in the West Corrals and dates to the Warren era. It was probably used as a creep feed for calves. The corresponding historic structure number is unknown.

Objects and Small-scale Features
[see Map EC-6 at the end of this section]

The Home Ranch Complex has the greatest diversity of fences and gates of any component landscape within the CLR study boundary. This is likely due to the intensity of development and multiple uses interpreted on the home ranch. Fences and gates around the home ranch consist almost completely of wood members; chicken wire fence around the poultry facilities is the sole exception.

The most predominant fence type in the complex is **Jack-Leg fence** (see Photo 3-1-58). This fence encloses the larger corrals and many of the smaller, interior corrals. Two wood posts are crossed at the top to form an X-shape. One horizontal rail rests in the crux of the X while 3 more rails are attached to the exterior of one post to form an angled fence. A fifth rail is attached to the lower side of the opposite pole for added strength and security. All wood members of the fence are un-milled and unfinished. While most all of the fencing found within the Home Ranch Complex is in good condition, a few sections of jack-leg fencing were in need of repair during the time of the field visit. These sections were located in the West Corrals near the riparian corridor and near the Kohrs-Manning Ditch Bridge.

Several types of **Vertical Board fence,** (see Photo 3-1-59) are found throughout the complex. This fence type partially encloses the poultry buildings, and can be found east of the Bielenberg Barn as well as other locations. Although some variations occur, the typical vertical board fence consists of round, upright posts supporting horizontal boards. A flat, wooden cap board is attached to the top of the posts. The vertical boards are then nailed to this frame. Typically, the frame forms the back side of the fence while the vertical boards form the front. This type of fence was observed with white and red paint as well as unfinished. While most all of the fencing found within the Home Ranch Complex is in good condition, a small segment of vertical board fence near HS-24 was observed to be in need of repair. Although there the vertical board fence forms the back of feed bunks, these fences are actually part of the feed bunk and are treated as one structure.

Several variations of post and rail fence are also within the complex. The most common type is the **5-rail Stacked-end fence,** (see Photo 3-1-60). It is the second-most observed corral enclosure after Jack-Leg fence. Five round rails extend between log posts on one side of the fence while two more rails are placed on the lower half of the fence on the other side. At each post, the rails for one section are placed alternately with the rails for the next section, creating a stacked appearance. On these fences, the rail on the opposite side is known as a rub rail. This fence can also be found with 4 or 6 rails and varying rail and post size. Yet another version of this fence is located near the L-Shaped Cow Barn north of the main ranch house. This fence has seven unpeeled, un-milled log rails, stacked at the ends, attached to vertical milled posts. A small segment of fence type was observed to be missing in the West Feedlot during the field visit.

A similar fence type is the **Simple Post and Rail fence,** (see Photo 3-1-29) which consists of horizontal wood rails attached to upright round posts. The ends are stacked as with the 5-rail fences yet there are no additional rails on the opposite side of the fence. This fence was observed with 4, 5, and 7 rails. A red-painted version provides a small enclosure around the beef hoist. **Chicken Wire fence,** (see Photo 3-1-61) partially encloses the Chicken and Brooder Houses. This fence consists of thick, white-painted, wood posts supporting a flat, board cap and horizontal plank. The plank is located either half-way down or at the bottom of the post. Chicken wire mesh is stretched across this frame and attached to the cap and plank. Two **Chicken Wire gates** (see Photo 3-1-62), are located on the southern edge of the fence line. They consist of rectangular,

white-painted, wood frames with chicken wire mesh stretched across the interior of the frame. Each door is attached to a hinge-post and has a simple bolting device to latch the door.

Located near the L-shaped Cow Barn is a **Stacked log fence,** (see Photo 3-1-63). This fence consists of ten unpeeled, un-milled logs stacked atop each other between tall, vertical milled wood posts. Two posts are set opposite each other along each section of fence and stabilized with wire and metal hooks just above the log stack.

Around the Home Ranch Complex, gates are used to control access; mainly to keep animals separated and out of certain areas. Many variations of the **Overhead Gate,** (see Photo 3-1-64) exist. This gate is found in the single, double, and square form. Single overhead gates consist of two tall, vertical posts supporting a top-mounted horizontal crossbar. The double overhead gate has three posts supporting a single crossbar, creating two entrances. The square overhead gate has two single gates placed next to each other and connected by perpendicular crossbars, as well as the typical parallel crossbars, to form a square. Overhead gates usually support lower, swinging gates that are attached to the vertical posts.

The predominant type of gate found in the home ranch complex is the **Red Wood Gate,** (see Photo 3-1-65). This red-painted gate consists of five milled boards attached horizontally to support posts at either end. The gate is braced on each side with a central vertical board and two diagonal boards. This gate was also observed unpainted. Typically, the red wood gate is attached to a fence, using the last vertical posts as a hinge-post. Often, though, the gate can be found attached to an overhead gate. This type of gate are Warren-era resources.

Several **5-rail Braced Gates,** (see Photo 3-1-66) were observed during fieldwork. This gate has a hinge-post almost twice the height of the gate and has a long, diagonal brace leading from the top of the hinge-post to the opposite corner of the gate. This brace prevents and corrects sagging. These gates are also often found attached to an overhead gate.

Two types of **Vertical Board Gate,** (see Photo 3-1-67) are found within the complex. They consist of red-painted vertical wood boards supported by a frame and attached to a hinge-post. Although similar in construction, the two gates vary in width. The pedestrian gate is wide enough for a person to pass through and has a Z-brace frame. The second gate allows a vehicle to pass through and is located near the Bielenberg Barn.

Several **fire hydrants** and **fire boxes** are also found throughout the home ranch complex.

Missing & Archeological Resources
[see Map EC-7 at the end of this section]

The Home Ranch complex contains old underground and surface irrigation and drainage systems that used to provide water to the home ranch. One **irrigation system** began near the North Fork of Johnson Creek, just south of the ranch house and west of the railroad tracks. Here a diversion dam would send water in a surface ditch to an open ditch that ran along the edge of the garden. This ditch turned where the garden edge turned north, and then turned quickly again in the vicinity of the Blacksmith Shop (HS-3), and went south toward the Thoroughbred Barn (HS-15)

and Stallion Barn (HS-16), and the buildings west of it. This water provided water for stock and for the garden.[3]

Other irrigation systems were constructed to provide the house with water, irrigate the front lawn of the ranch home and flush the privies. In the 1907 map, a **ditch** appears to the south of the residence, connecting with Johnson Creek to the south. This ditch is likely the drainage ditch that drained the house. These systems are described in more detail in the Grant-Kohrs Residence component landscape section of this chapter.

According to the *Historic Resource Study*, there were numerous attempts to drain off excess groundwater from the lower elevations of the ranch during the active years of its operations. Remnants of these attempts remain in the form of buried wooden pipes, or boxes, roughly square, with access points spaced along them. In addition, pipes fed water to various barns and to the ranch and bunkhouses.[4] The exact location of much of this system is unknown.

A sunken **hydraulic ram**, located near the spring west of the Machine Shed (HS 12), used to pump water from the Kohrs-Manning Ditch as well as the nearby spring. This hydraulic ram was used to provide water to the ranch home and landscape via a wooden underground pipe system. Once in the house, cast iron pipes carried the water to the attic of the west addition where it was stored in a rectangular, lead-lined wooden storage tank, and from there, delivered throughout the residence via water heaters and spigots.[5] An overflow pipe carried excess water to the basement and out to a drainage system out to Johnson Creek.[6] This system dates to the 1890 addition, and the drainage ditch appears to be represented on the 1907 map.

In addition to the complex irrigation system contained within the Home Ranch Complex, several structures that were once part of the landscape are no longer extant. Most missing structures were removed as new structures were built to replace them, or as their functions became outdated. Most of these features are documented within the 1974 Historic Resource Study as Non-Extant Structures (NES).[7] Missing features are as follows:

- **Kohrs-Manning Flume** (HS-51): This flume was built in 1947 to carry the Kohrs-Manning Ditch over Johnson Creek. Located approximately eight feet west of the current flume, it was removed in 1974. The current flume is HS-50.

- **Bridge** (HS-54): This bridge carried a roadway connecting some of the lots in the Johnson Creek (West) Corrals over Johnson Creek. Constructed c. 1930, it consisted of wooden timbers and heavy wood planking. This bridge was removed sometime after 1987.

- **Machine Shed** (NES-B): This structure appears on the 1907 maps at an odd, diagonal angle, approximately 50 feet by 20 feet. It was removed around 1908.

- **Open Cow-Shed** (NES-C): This structure measured approximately 20 feet by 63 feet. It was located near NES-B, and was also removed by 1908.

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[3] John Albright, *Historic Resources Study and Historic Structure Report Historical Data, Kohrs and Bielenberg Home Ranch, Grant-Kohrs Ranch National Historic Site, Montana* (Denver: Denver Service Center, National Park Service, 1977), 215-216.
[4] Albright, 216.
[5] Albright, 193.
[6] Albright, 194, 216.
[7] Albright, 209-211.

- **Cow Stable** (NES-D): This structure measured approximately 193 feet by 20 feet, and is believed to be the long shed shown in the 1884 Leeson drawing. Like NES A and C, it was likely torn down in 1908 to make way for the Milwaukee Railroad.

- **Cow Barn** (NES-E): This structure stood between today's HS-7 and HS-9. It shared a common wall with HS-7 and blew down in 1931.

- **Chicken House** (NES-F): Now covered by HS-6, this was the site of a log and frame Chicken House. It was likely torn down in 1933 or 1934.

- **Turkey House**: This structure was located directly to the west of the Chicken House. It too was likely torn down in 1933 or 1934.

- **Cow Shed** (NES-L): This was an open-sided shed to the south, with a thatched roof, measuring approximately 50 feet by 16 feet. It fell into disrepair by about 1930 and was torn down at that time.

- **Feed Racks** (NES-H, I, J, K): These four wooden feed racks, possibly twenty feet by four feet and standing in pairs, held feed for the cattle in the southern-most portion of the Johnson Creek (West) Corrals. They were removed in the early 1930s.

- **Wooden box or flume** (NES-M): While remnants of this structure, believed to be a wooden box siphon, were found in the early 1970s near the Kohrs-Manning Ditch, the original location of this structure is unknown. It is possible that this feature carried water over or under the Kohrs-Manning Ditch.

- **Foundations**, unknown (NES-N): The concrete foundation of this structure appears to relate to veterinary or grooming work on animals, although its actual function is unknown. This feature was destroyed around 1930.

- **Watering Trough** (NES-O): This wooden watering trough was connected to a water supply system west of HS-7. Its date of removal is unknown.

- **Log Retaining Wall** (NES-P): The L-shaped wall was once about four feet high, and was attached to HS-7. The date of its destruction is not known, but it had rotted away by 1935.

- **NPS Trailers**: After the NPS took over management of the ranch, several trailers were added to the Lower House Yard in the 1970's for administrative and housing purposes. One was located near the Blacksmith Shop/Garage, another in the Lower House Yard, and another near the Buggy Shed (which was later moved to the side of the Thoroughbred Barn). All of these trailers have since been removed.

- **Slaughter House**: This small structure appears north of and adjacent to the Ice House (HS-5) in Gerhmann's drawing of the ca. 1904 home ranch complex, drawn from memory in 1974. This structure does not appear in the ca. 1900 photograph of the Lower Ranch Yard (GRKO 11400L), and may have post-dated the photo. It does not appear in the 1907 map of the Deer Lodge Townsite.

- **Unknown Structure**: This structure appears in ca. 1935 photos of Conrad Warren with a Belgian horse, and appears as a backdrop for the photo (GRKO 15884.12; GRKO 15884.14). It was located south of the Coal Shed (HS-4).



JMA, October 2002

Photo 3-1-1 : (T-10) Johnson Creek has been and continues to be the most culturally significant creek within the Grant-Kohrs Ranch.



JMA, October 2002

Photo 3-1-2 : (W-01) Willows and cottonwooods can be found along the Johnson Creek riparian zone.



JMA, October 2002

Photo 3-1-3 : (X-13) Fences and structures, along with the natural features, constructed water features, circulation features, and vegetation, organize the spaces within the Home Ranch landscape.



JMA, October 2002

Photo 3-1-4 : (AC-07) Several structures within the home ranch complex, such as the bunkhouse, contain interpretive exhibits that are open to the public.



JMA, October 2002

Photo 3-1-5 : (Y-04) The Lower House Yard south of the buggy shed is currently being used for demonstration and education.



JMA, October 2002

Photo 3-1-6 : (X-18) A trailer located to the west of the thoroughbred barn (HS-15), was used as a residence by park employees. This structure was removed in 2003.



JMA, October 2002

Photo 3-1-7 : (AB-10) The Kohrs-Manning Ditch, which begins just south of the park boundary, is sourced by the Clark Fork River. This ditch is approximately ten feet wide, and provides irrigation to the lower fields to its eastern side.



JMA, October 2002

Photo 3-1-8 : (S-22) The Kohrs-Manning Ditch crosses Johnson Creek via a wooden flume (HS-50).



JMA, October 2002

Photo 3-1-9 : (AD-15) Dairy Loop Road.



JMA, October 2002

Photo 3-1-10 : (AC-8) Bunkhouse Road.



JMA, October 2002

Photo 3-1-11 : (AB-22) Johnson Creek Road.



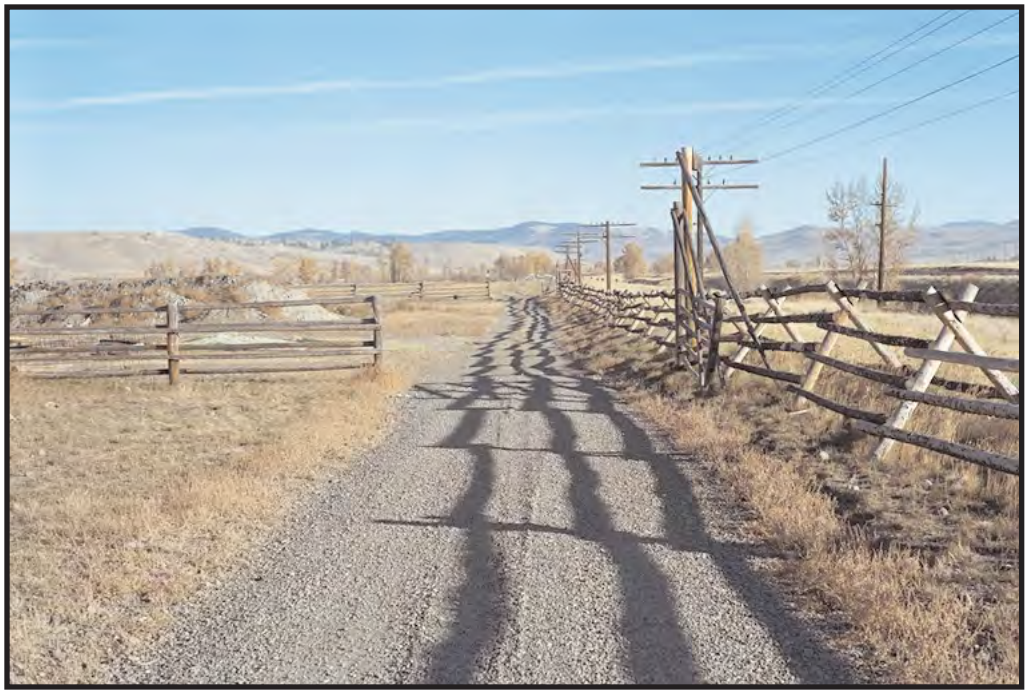
JMA, October 2002

Photo 3-1-12 : (S-11) Clark Fork River Bridge Road.



JMA, October 2002

Photo 3-1-13 : (AA-25) Kohrs-Manning Ditch Road.



JMA, October 2002

Photo 3-1-14 : (G-20) Warren Pumphouse Road.



JMA, October 2002

Photo 3-1-15 : (U-16) Buildings and fences within the Home Ranch area contain views and vistas, making the spaces within the complex appear much more humanly scaled than the contrasting expansive landscape of pastures and hills beyond.



JMA, October 2002

Photo 3-1-16 : (V-19) Western foothills and the Flint Creek Mountain Range beyond provide constant context to the longer vistas that dominate the viewshed beyond the developed area.



JMA, October 2002

Photo 3-1-17 : (AC-01) Ice House/Tack Room (HS-5).



JMA, October 2002

Photo 3-1-18 : (AB-24) Coal shed (HS-4).



JMA, October 2002

Photo 3-1-19 : (AB-16) Blacksmith Shop/Garage (HS-3).



JMA, October 2002

Photo 3-1-20 : (AC-11) Granary/Roller Mill (HS-6).



JMA, October 2002

Photo 3-1-21 : (AC-13) Draft Horse Barn (HS-7). Granary/Roller Mill can be seen on the left with the grain auger.



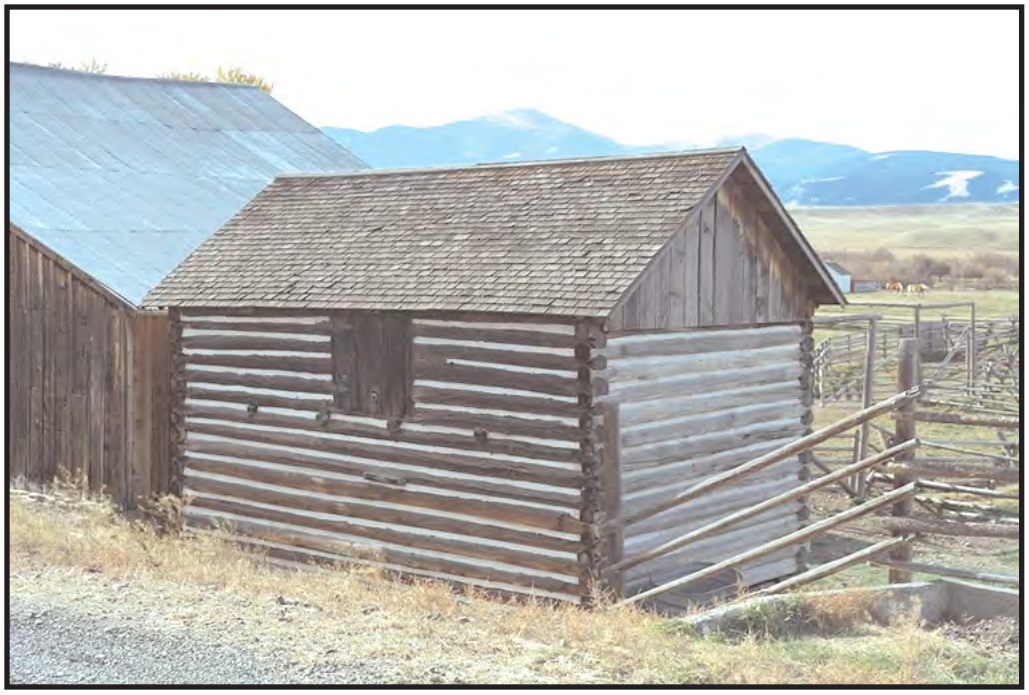
JMA, October 2002

Photo 3-1-22 : (AC-20) Privy (HS-8).



JMA, October 2002

Photo 3-1-23 : (AD-10) Dairy (HS-9).



JMA, October 2002

Photo 3-1-24 : (AC-21) Oxen Barn (HS-10).



JMA, October 2002

Photo 3-1-25 : (AD-08) Bielenberg Barn (HS-11).



JMA, October 2002

Photo 3-1-26 : (AC-15) Cattle Scale (HS-35).



JMA, October 2002

Photo 3-1-27 : (AD-12) Feed Rack (HS-37).



JMA, October 2002

Photo 3-1-28 : (AC-22) Manure Pit (HS-39).



JMA, October 2002

Photo 3-1-29 : (AC-24) Beef Hoist (HS-40) and Simple Rail and Post Fence.



JMA, October 2002

Photo 3-1-30 : (AB-06) Machine Shed (HS-12).



JMA, October 2002

Photo 3-1-31 : (AA-22) Cow Shed in distance (HS-13).



JMA, October 2002

Photo 3-1-32 : (Z-19) Squeeze Chute (HS-41).



JMA, October 2002

Photo 3-1-33 : (X-16) Thoroughbred Barn (HS-15).



JMA, October 2002

Photo 3-1-34 : (X-14) Stallion Barn (HS-14).



JMA, October 2002

Photo 3-1-35 : (X-22) Stallion Barn (HS-16).



JMA, October 2002

Photo 3-1-36 : (Y-09) Stallion Barn/Garage (HS-19).



JMA, October 2002

Photo 3-1-37 : (X-02) Stallion Barn (HS-30).



JMA, October 2002

Photo 3-1-38 : (X-25) Feed Rack (HS-43).



JMA, October 2002

Photo 3-1-39 : (W-17) Feed Bunk (HS-46).



JMA, October 2002

Photo 3-1-40 : (W-13) Feed Storage House (HS-31).



JMA, October 2002

Photo 3-1-41 : (W-16) Squeeze Chute (HS-47).



JMA, October 2002

Photo 3-1-42 : (Y-12) Lower Buggy Shed (HS-17).



JMA, October 2002

Photo 3-1-43 : (U-22) Privy (HS-20).



JMA, October 2002

Photo 3-1-44: (U-06) Granary (HS-18).



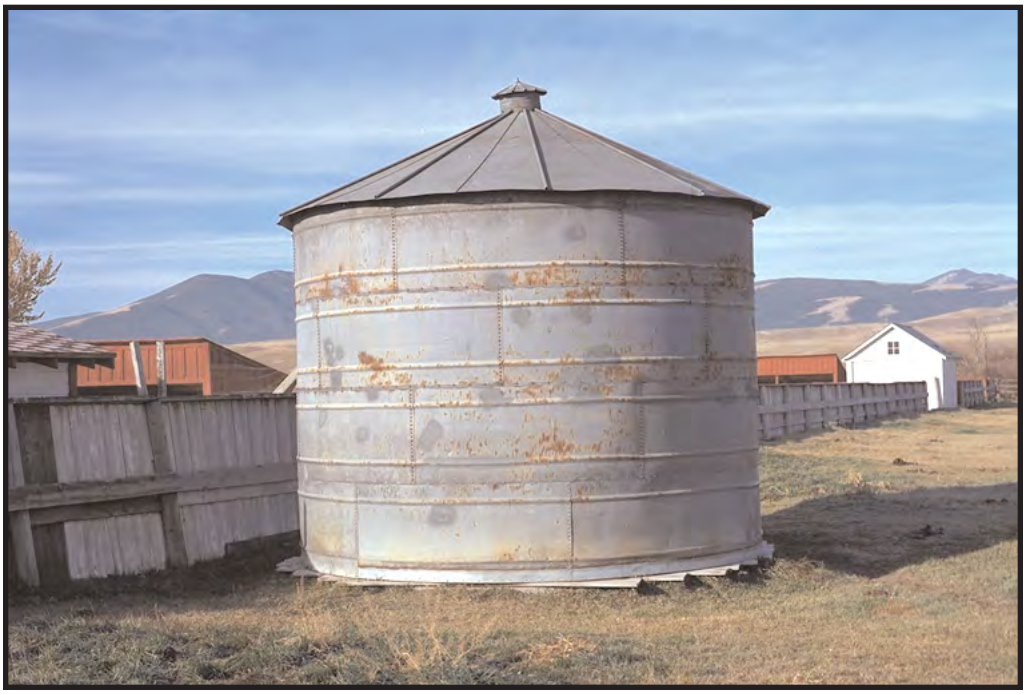
JMA, October 2002

Photo 3-1-45 : (U-12) Brooding House (HS-21).



JMA, October 2002

Photo 3-1-46 : (U-14) Chicken Coop (HS-22).



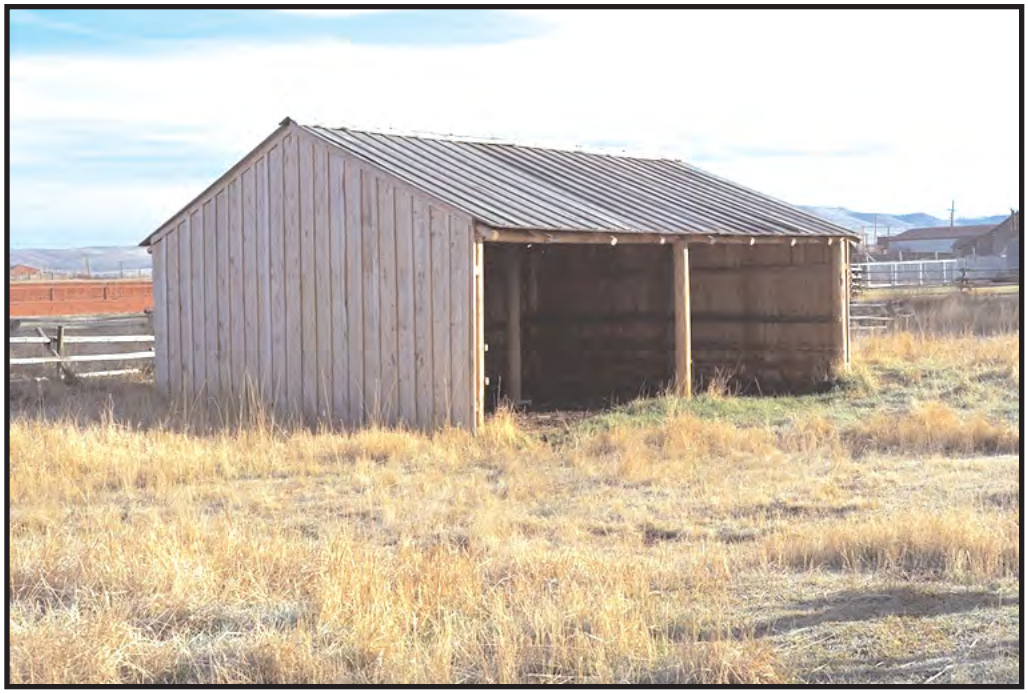
JMA, October 2002

Photo 3-1-47 : (U-05) Metal Granary (HS-23).



JMA, October 2002

Photo 3-1-48 : (T-16) Stock Shelter (HS-29).



JMA, October 2002

Photo 3-1-49 : (T-12) West Corrals Stock Shelter (HS-25).



JMA, October 2002

Photo 3-1-50 : (T-11) West Corrals Hay Storage Structure (HS-26).



JMA, October 2002

Photo 3-1-51 : (T-18) Feed Storage House (HS-28).



JMA, October 2002

Photo 3-1-52 : (U-25) Feed bunk (HS-48).



JMA, October 2002

Photo 3-1-53 : (S-14) Kohrs-Manning Ditch Bridge (HS-55).



JMA, October 2002

Photo 3-1-54 : (S-05) West Feedlot Stock Shelter (HS-32).



JMA, October 2002

Photo 3-1-55 : (S-03) West Feedlot Storage Shed (HS-34).



JMA, October 2002

Photo 3-1-56 : (S-04) West Feedlot Squeeze Chute (HS-53).



JMA, October 2002

Photo 3-1-57 : (S-10) West Feedlot Feed Bunk (HS-52).



JMA, October 2002

Photo 3-1-58 : (T-22) Jack-leg fence.



JMA, October 2002

Photo 3-1-59 : (W-14) Vertical Board Fence behind feed bunk.



JMA, October 2002

Photo 3-1-60 : (V-18) 5-rail stacked end fence.



JMA, October 2002

Photo 3-1-61 : (U-11) Chicken wire fence.



JMA, October 2002

Photo 3-1-62 : (U-10) Chicken wire gates.



JMA, October 2002

Photo 3-1-63 : (Z-13) Stacked Log Fence.



JMA, October 2002

Photo 3-1-64 : (W-09) Typical Overhead Gate.



JMA, October 2002

Photo 3-1-65 : (Z-10) Typical Red Wood Gate.



JMA, October 2002

Photo 3-1-66 : (Z-12) Typical 5-Rail Braced Gate.



JMA, October 2002

Photo 3-1-67 : (V-08) Vertical Board Gate (added by the NPS in the 1970s) with Jack-Leg Fence (right) and Vertical Board Fence (left).

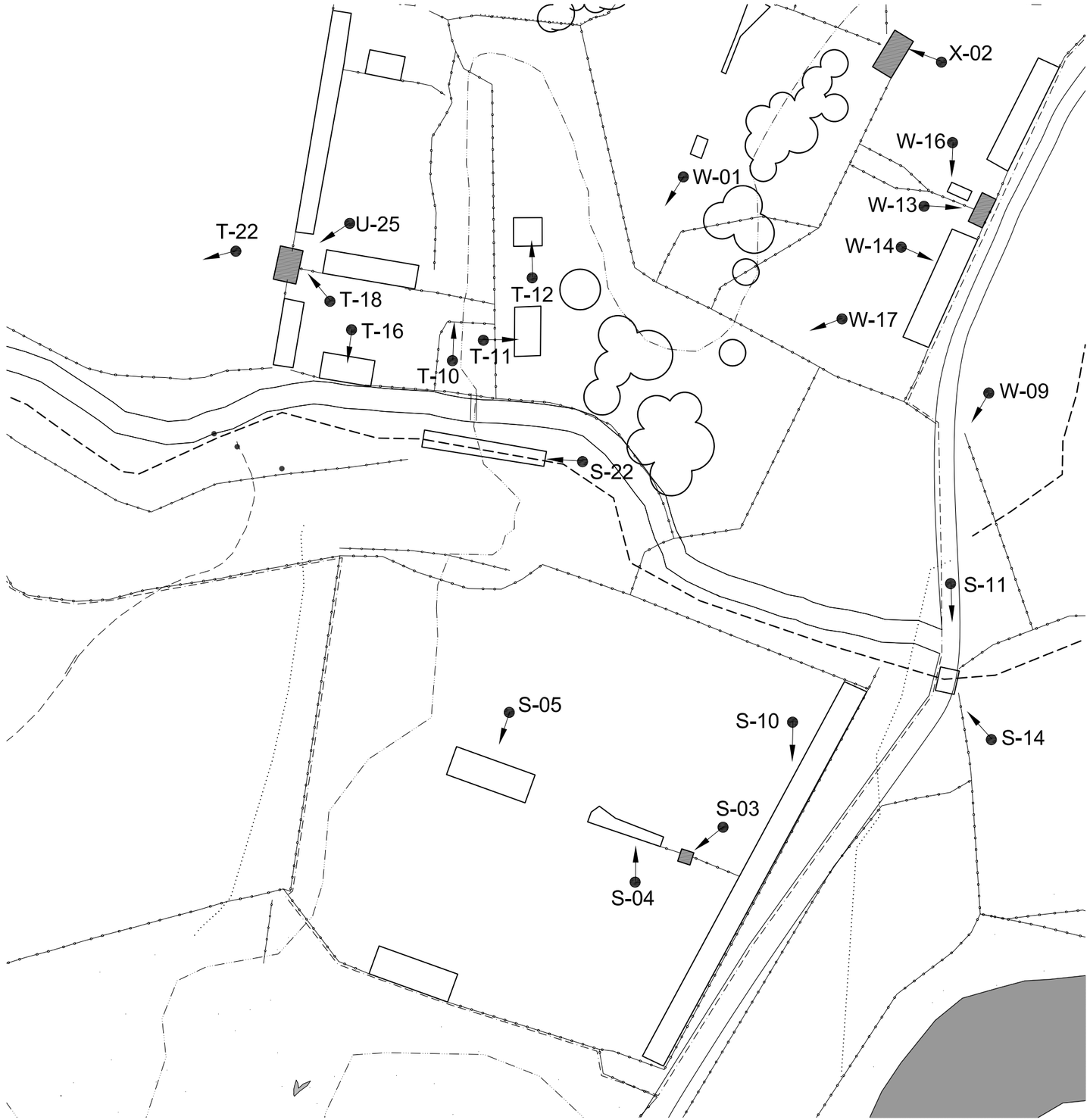


Not to Scale

Map Sources: Albright, John. *Historic Resources Study and Historic Structure Report Historical Data, Kohrs and Bielenberg Home Ranch, Grant-Kohrs Ranch National Historic Site, Montana*. Denver: Denver Service Center, National Park Service, 1977. Base mapping referenced to Grant-Kohrs Ranch National Historic Site 1994 aerial photographs and Montana 1:24,000 scale State Plane DRG quadrangles. GIS data was exported into Autocad format for production of base maps and further further detailed with additional data collected in the field.

The following data was provided by the National Park Service, Grant-Kohrs Ranch National Historic Site GIS Program (shapefile format), which was compiled 1998 and updated/field-checked by OCULUS/JMA during the October 2002 site visit: fences and gates; boundary lines; utility lines; fire hydrants; irrigation ditches, headgates, pipes, and risers; culverts; river boundaries; roads; railroad tracks; unvegetated slickens and tailings; fields; trails; cottonwood trees; beaver lodges and dams; hydrology; and groundwater monitoring wells. Metadata for this data is avaliable from World Wide Web: [http://www.nps.gov/gis/metadata/grko/]. Wetlands, hypsography (topography), and Montana 1:24,000 scale State Plane DRG quadrangles were derived from Montana State Library Natural Resource Information System, metadata available from: [http://nris.state.mt.us/gis/datalist.html].

A/E FIRM PRIME NAME: Susan Maxman Architects CITY, STATE: Philadelphia, PA SUBCONTRACTOR NAME: John Milner Associates, Inc. CITY, STATE: Charlottesville, VA	DESIGNED: DRAWN: ADF TECH. REVIEW: KLS, RMM DATE: JULY 2004	SUB SHEET NO. P-1	EXISTING CONDITIONS INVENTORY HOME RANCH **PHOTO STATION POINT MAP (1 OF 3)** GRANT-KOHRS RANCH NATIONAL HISTORIC SITE	DRAWING NO. PKG. NO. SHEET OF



Legend:

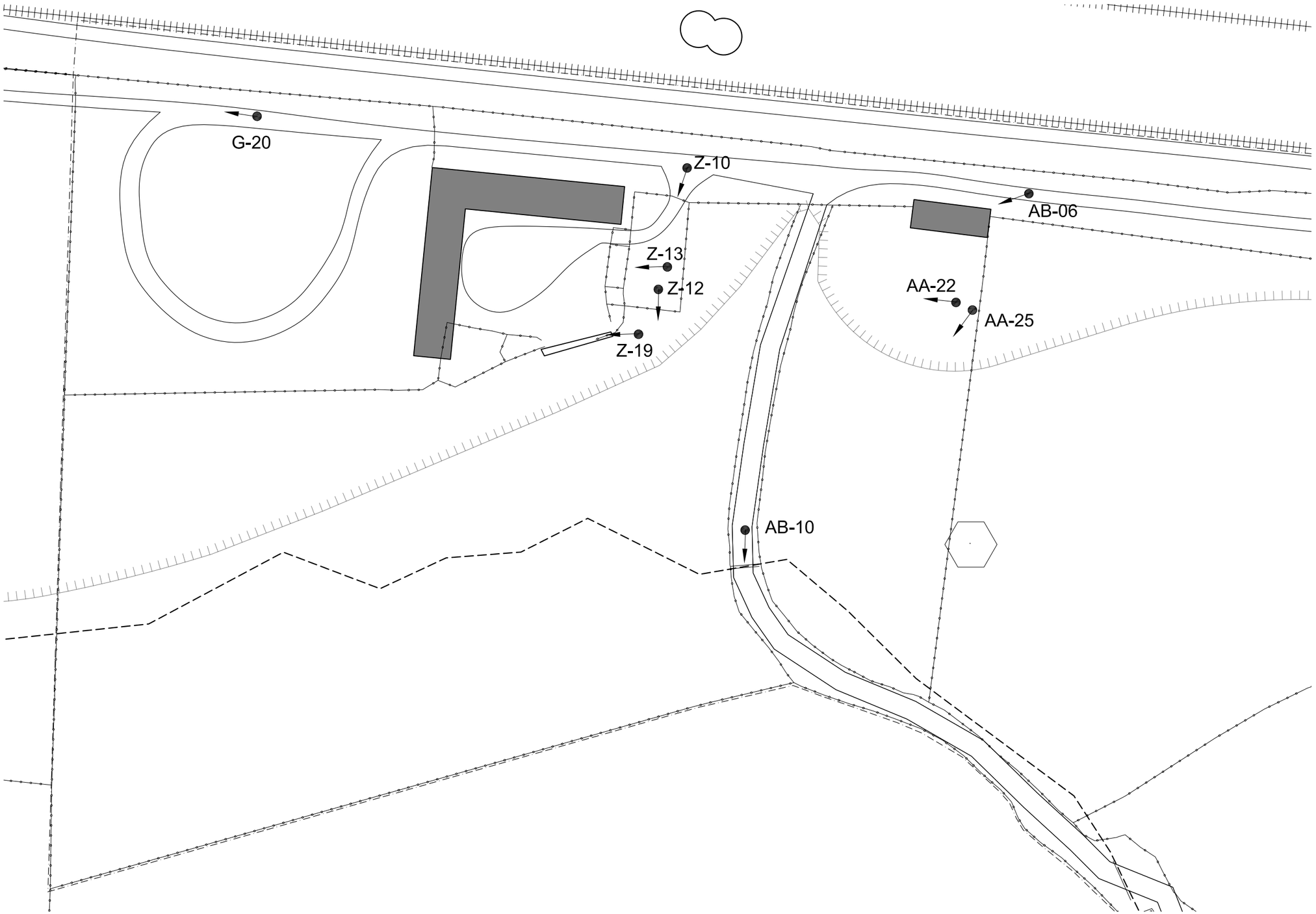
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- Railroad
- Lateral Ditches
- Vegetation
- Buildings/ Structures
- Component Landscape Boundary Line
- Bench
- Springs
- GRKO Boundary Line
- Fences
- Old Ditches
- Beaver Lodges
- Streams/Sloughs
- Main Ditches

Not to Scale

Map Sources: Albright, John. *Historic Resources Study and Historic Structure Report Historical Data, Kohrs and Bielenberg Home Ranch, Grant-Kohrs Ranch National Historic Site, Montana*. Denver: Denver Service Center, National Park Service, 1977. Base mapping referenced to Grant-Kohrs Ranch National Historic Site 1994 aerial photographs and Montana 1:24,000 scale State Plane DRG quadrangles. GIS data was exported into Autocad format for production of base maps and further further detailed with additional data collected in the field.

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A/E FIRM PRIME NAME: Susan Maxman Architects CITY, STATE: Philadelphia, PA SUBCONTRACTOR NAME: John Milner Associates, Inc. CITY, STATE: Charlottesville, VA	DESIGNED: DRAWN: ADF TECH. REVIEW: KLS, RMM DATE: JULY 2004	SUB SHEET NO. P-2	EXISTING CONDITIONS INVENTORY HOME RANCH **PHOTO STATION POINT MAP (2 OF 3)** GRANT-KOHRS RANCH NATIONAL HISTORIC SITE	DRAWING NO. PKG. NO. SHEET OF



Not to Scale

Map Sources: Albright, John. *Historic Resources Study and Historic Structure Report Historical Data, Kohrs and Bielenberg Home Ranch, Grant-Kohrs Ranch National Historic Site, Montana* . Denver: Denver Service Center, National Park Service, 1977. Base mapping referenced to Grant-Kohrs Ranch National Historic Site 1994 aerial photographs and Montana 1:24,000 scale State Plane DRG quadrangles. GIS data was exported into Autocad format for production of base maps and further further detailed with additional data collected in the field.

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DESIGNED:

DRAWN: ADF

TECH. REVIEW: KLS, RMM

DATE: JULY 2004

SUB SHEET NO. P-3

EXISTING CONDITIONS INVENTORY

HOME RANCH

PHOTO STATION POINT MAP (3 OF 3)

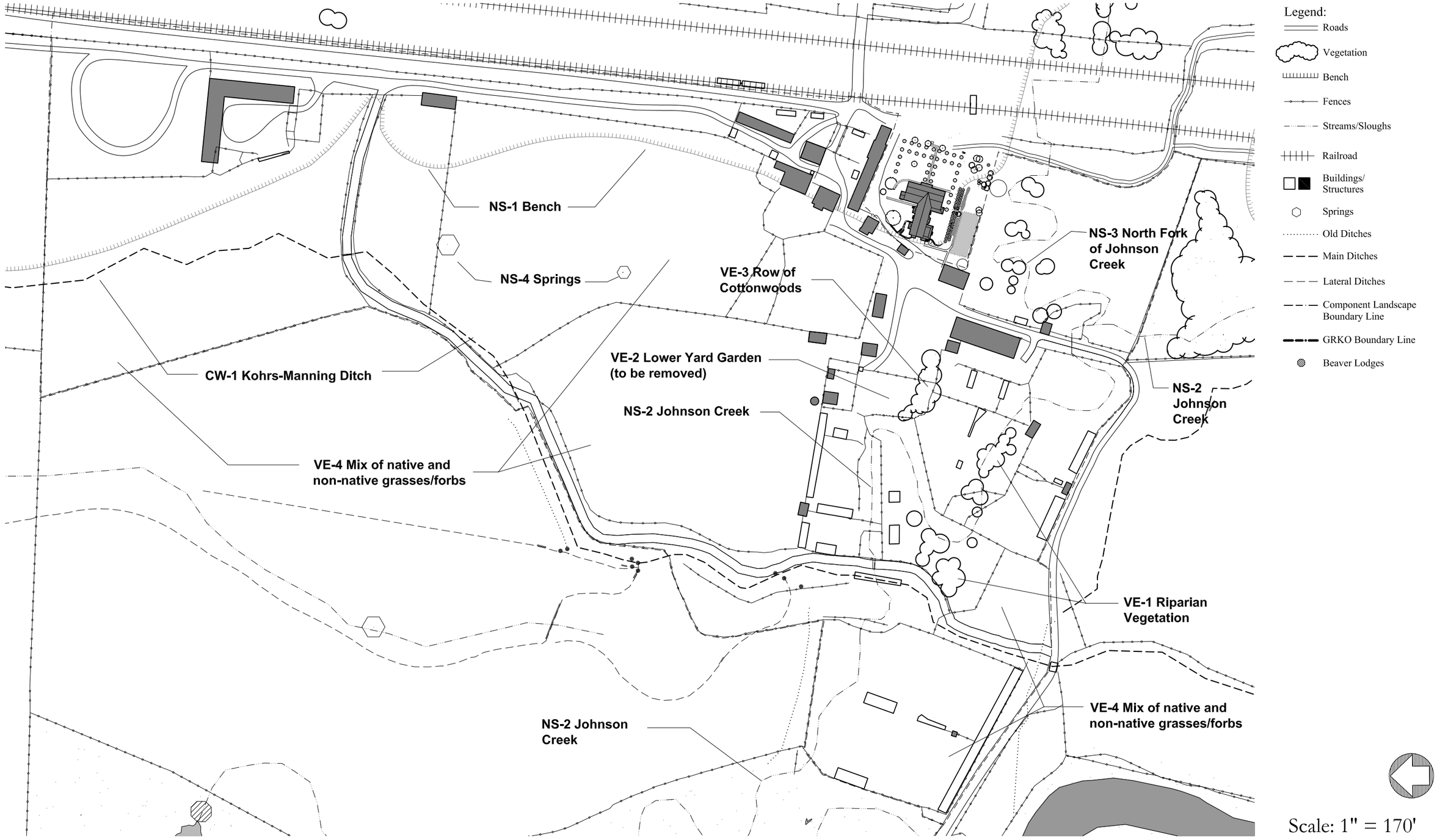
GRANT-KOHRS RANCH NATIONAL HISTORIC SITE

DRAWING NO.

PKG. NO.

SHEET

OF



Map Sources: Albright, John. *Historic Resources Study and Historic Structure Report Historical Data, Kohrs and Bielenberg Home Ranch, Grant-Kohrs Ranch National Historic Site, Montana*. Denver: Denver Service Center, National Park Service, 1977. Base mapping referenced to Grant-Kohrs Ranch National Historic Site 1994 aerial photographs and Montana 1:24,000 scale State Plane DRG quadrangles. GIS data was exported into Autocad format for production of base maps and further further detailed with additional data collected in the field.

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A/E FIRM PRIME NAME: Susan Maxman Architects CITY, STATE: Philadelphia, PA SUBCONTRACTOR NAME: John Milner Assodates, Inc. CITY, STATE: Charlottesville, VA	DESIGNED: DRAWN: JLB, WMW TECH. REVIEW: KLS, RMM DATE: JULY 2004	SUB SHEET NO. EC-1	EXISTING CONDITIONS INVENTORY HOME RANCH **NATURAL SYSTEMS, VEGETATION AND CONSTRUCTED WATER FEATURES** GRANT-KOHRS RANCH NATIONAL HISTORIC SITE	DRAWING NO. PKG. NO. SHEET OF

C-5 Warren Pumphouse Road

SO-3 Bunkhouse Yards

C-6 Lower House Yard Road

C-4 Dairy Loop Road

C-3 Bunkhouse Road

SO-6/L-3 Johnson Creek Field

SO-4/L-3 L-Barn South

SO-1/L-3 Lower Yards

C-7 Johnson Creek Road

SO-2 Lower House Yards

SO-5/L-3 West Corrals

C-2/SO-9 Kohrs-Manning Ditch Road

SO-7/L-3 West Feedlot

C-1/SO-8 Clark Fork River Bridge Road

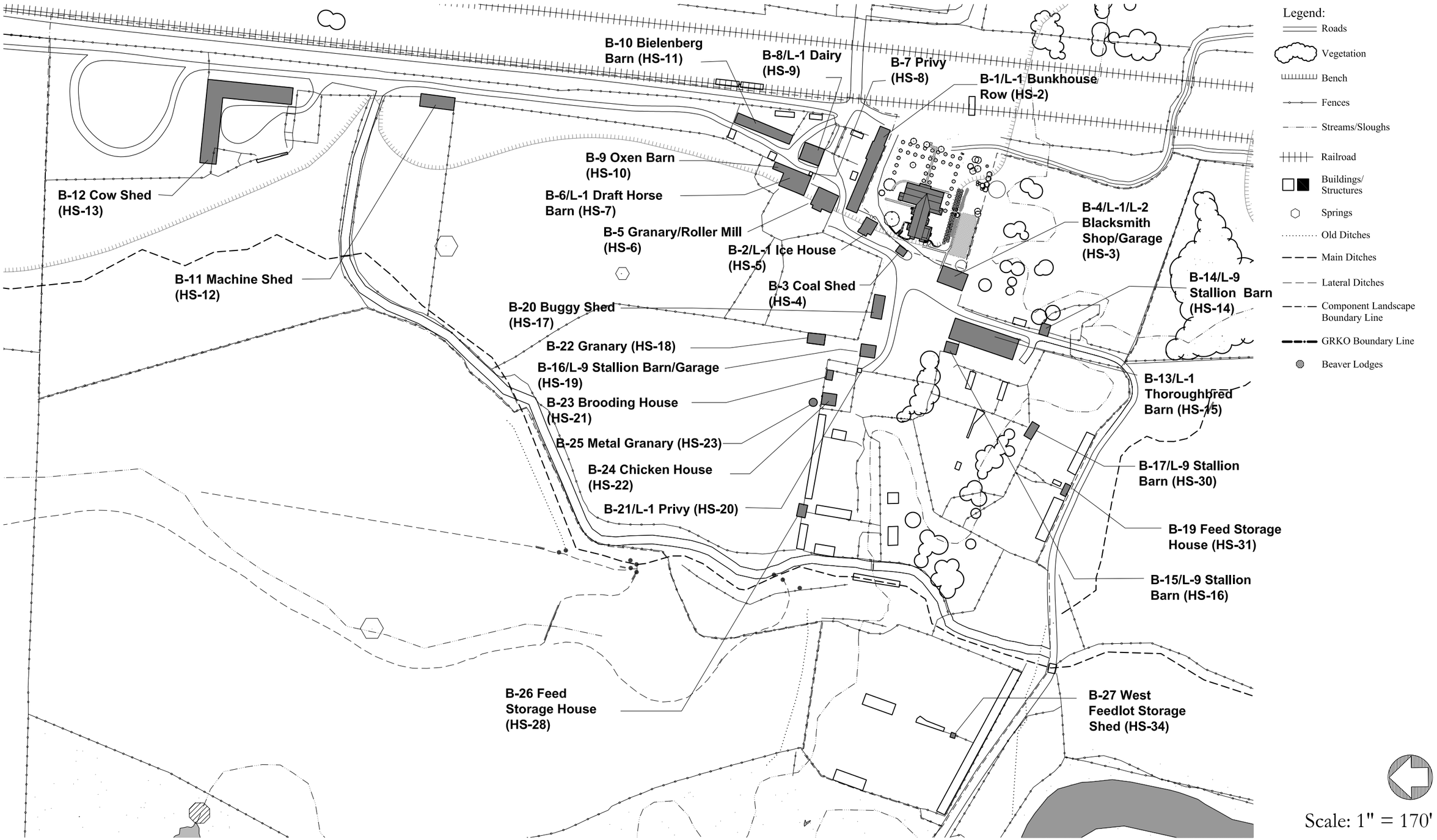
Legend:
- Roads
- Vegetation
- Bench
- Fences
- Streams/Sloughs
- Railroad
- Buildings/ Structures
- Springs
- Old Ditches
- Main Ditches
- Lateral Ditches
- Component Landscape Boundary Line
- GRKO Boundary Line
- Beaver Lodges

Scale: 1" = 170'

Map Sources: Albright, John. *Historic Resources Study and Historic Structure Report Historical Data, Kohrs and Bielenberg Home Ranch, Grant-Kohrs Ranch National Historic Site, Montana*. Denver: Denver Service Center, National Park Service, 1977. Base mapping referenced to Grant-Kohrs Ranch National Historic Site 1994 aerial photographs and Montana 1:24,000 scale State Plane DRG quadrangles. GIS data was exported into Autocad format for production of base maps and further further detailed with additional data collected in the field.

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A/E FIRM PRIME NAME: Susan Maxman Architects CITY, STATE: Philadelphia, PA SUBCONTRACTOR NAME: John Milner Assodates, Inc. CITY, STATE: Charlottesville, VA	DESIGNED: DRAWN: JLB, WMW TECH. REVIEW: KLS, RMM DATE: JULY 2004	SUB SHEET NO. EC-2	EXISTING CONDITIONS INVENTORY HOME RANCH **CIRCULATION AND SPATIAL ORGANIZATION** GRANT-KOHRS RANCH NATIONAL HISTORIC SITE	DRAWING NO. PKG. NO. SHEET OF



Map Sources: Albright, John. *Historic Resources Study and Historic Structure Report Historical Data, Kohrs and Bielenberg Home Ranch, Grant-Kohrs Ranch National Historic Site, Montana*. Denver: Denver Service Center, National Park Service, 1977. Base mapping referenced to Grant-Kohrs Ranch National Historic Site 1994 aerial photographs and Montana 1:24,000 scale State Plane DRG quadrangles. GIS data was exported into Autocad format for production of base maps and further further detailed with additional data collected in the field.

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DRAWN: JLB, WMW

TECH. REVIEW: KLS, RMM

DATE: JULY 2004

SUB SHEET NO. EC-3

EXISTING CONDITIONS INVENTORY

HOME RANCH

BUILDINGS & LAND USE

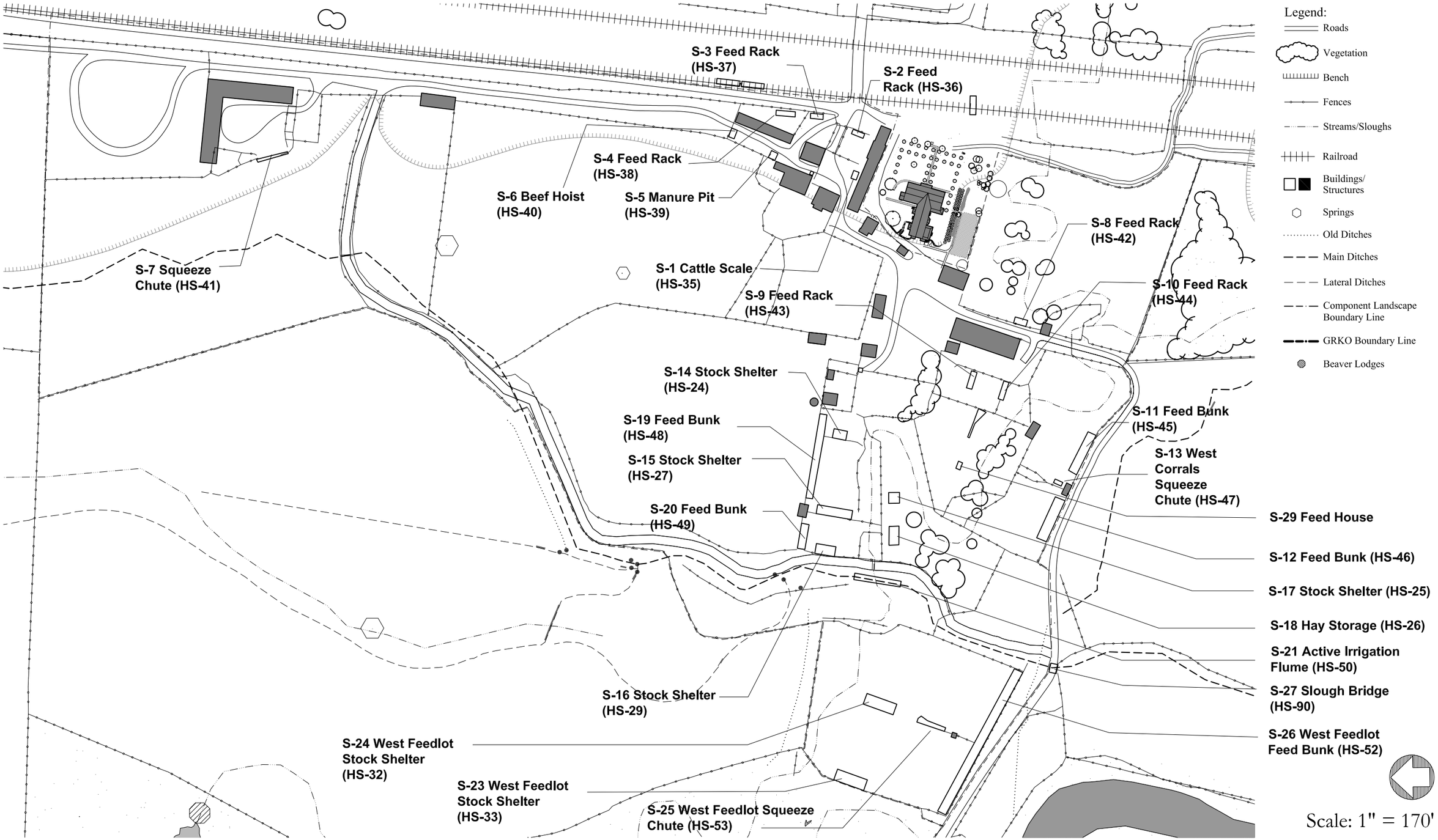
GRANT-KOHRS RANCH NATIONAL HISTORIC SITE

DRAWING NO.

PKG. NO.

SHEET

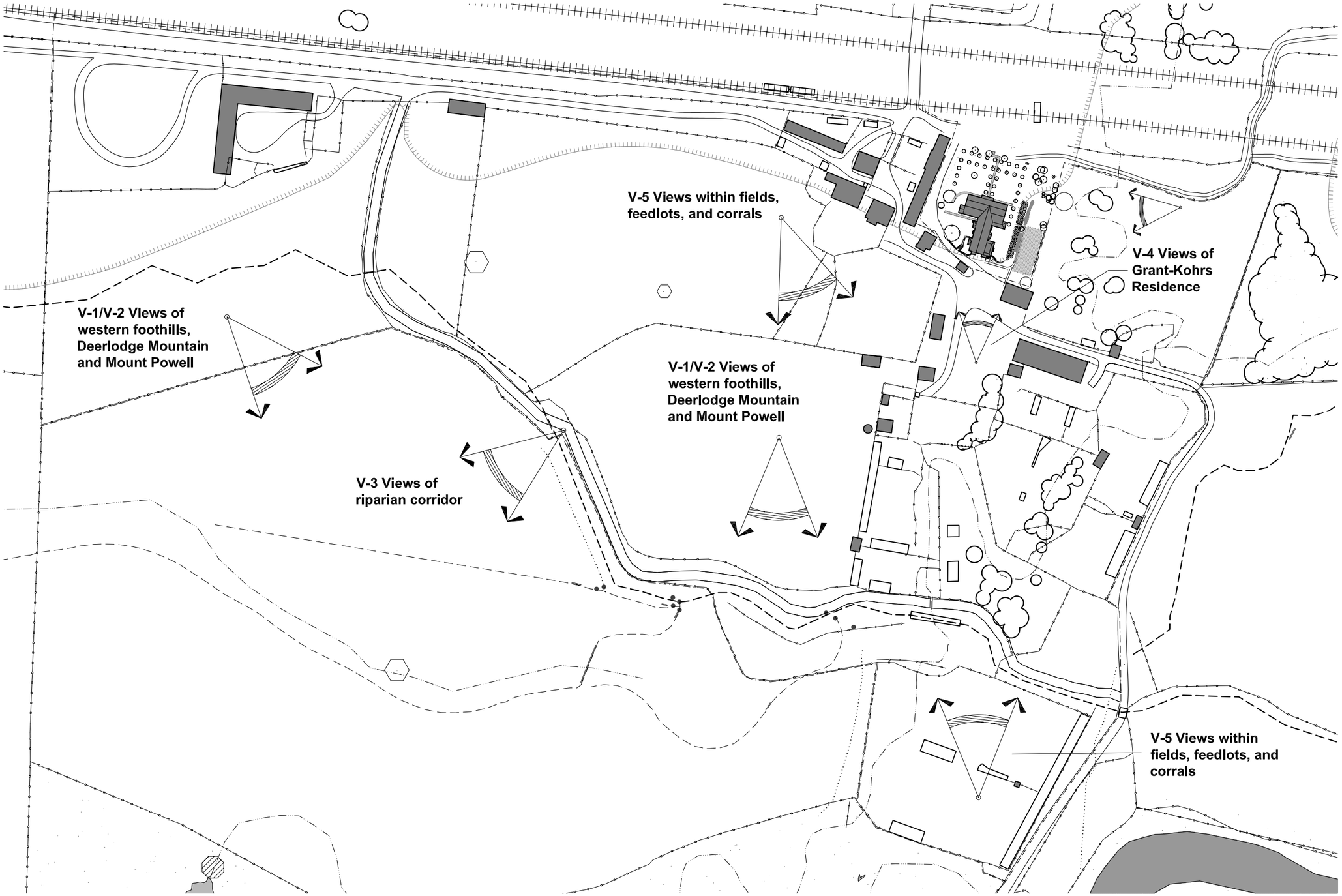
OF



Map Sources: Albright, John. *Historic Resources Study and Historic Structure Report Historical Data, Kohrs and Bielenberg Home Ranch, Grant-Kohrs Ranch National Historic Site, Montana*. Denver: Denver Service Center, National Park Service, 1977. Base mapping referenced to Grant-Kohrs Ranch National Historic Site 1994 aerial photographs and Montana 1:24,000 scale State Plane DRG quadrangles. GIS data was exported into Autocad format for production of base maps and further further detailed with additional data collected in the field.

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A/E FIRM	DESIGNED:	SUB SHEET NO.	EXISTING CONDITIONS INVENTORY	DRAWING NO.
PRIME NAME: Susan Maxman Architects CITY, STATE: Philadelphia, PA SUBCONTRACTOR NAME: John Milner Associates, Inc. CITY, STATE: Charlottesville, VA	DRAWN: JLB, WMW TECH. REVIEW: KLS, RMM DATE: JULY 2004	EC-4	HOME RANCH **STRUCTURES** GRANT-KOHRS RANCH NATIONAL HISTORIC SITE	PKG. NO. ____ SHEET ____ OF____



Scale: 1" = 170'

Map Sources: Albright, John. *Historic Resources Study and Historic Structure Report Historical Data, Kohrs and Bielenberg Home Ranch, Grant-Kohrs Ranch National Historic Site, Montana*. Denver: Denver Service Center, National Park Service, 1977. Base mapping referenced to Grant-Kohrs Ranch National Historic Site 1994 aerial photographs and Montana 1:24,000 scale State Plane DRG quadrangles. GIS data was exported into Autocad format for production of base maps and further further detailed with additional data collected in the field.

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DRAWN: JLB, WMW

TECH. REVIEW: KLS, RMM

DATE: JULY 2004

SUB SHEET NO.

EC-5

EXISTING CONDITIONS INVENTORY

HOME RANCH

VIEWS

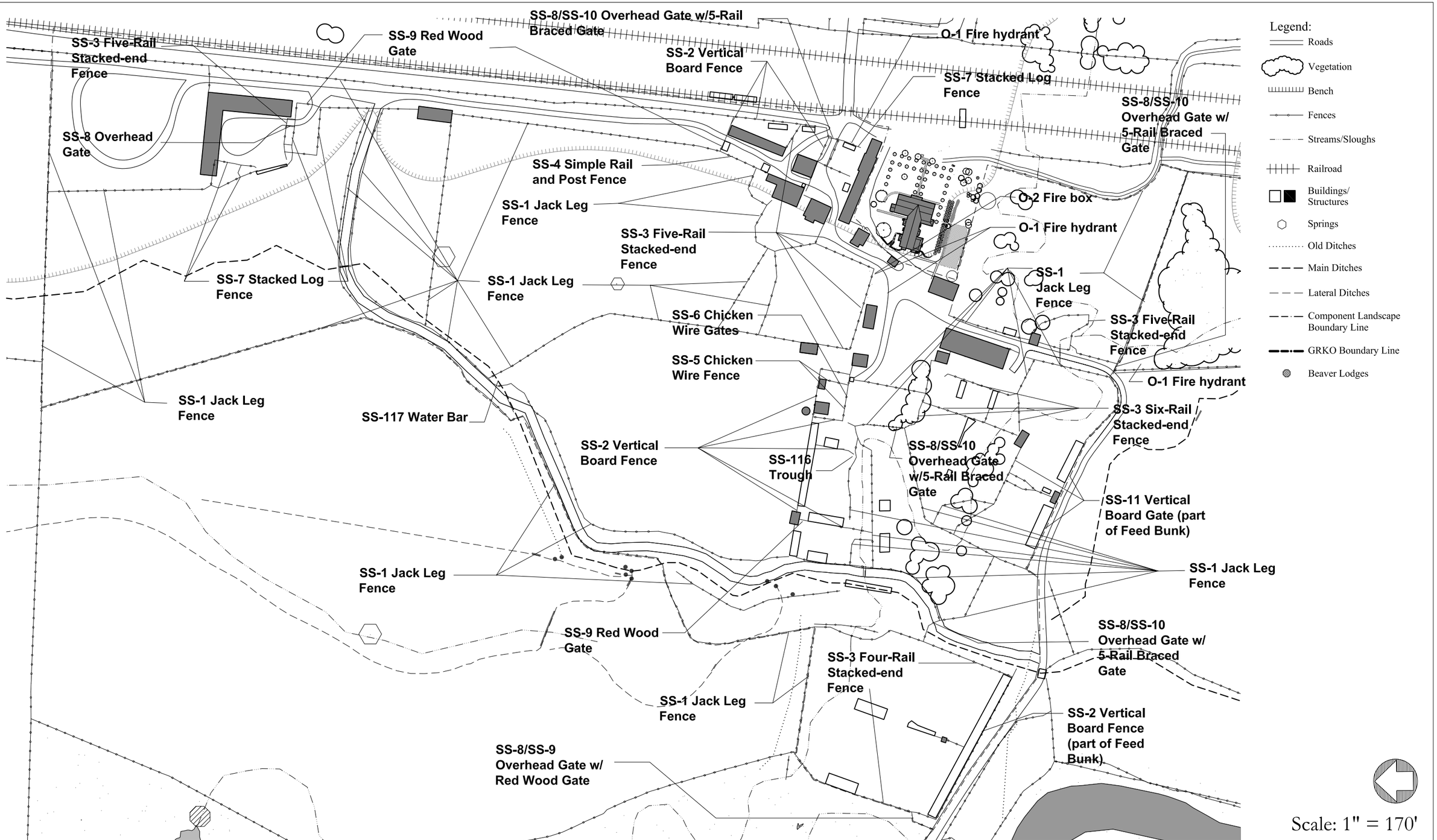
GRANT-KOHRS RANCH NATIONAL HISTORIC SITE

DRAWING NO.

PKG. NO.

SHEET

OF

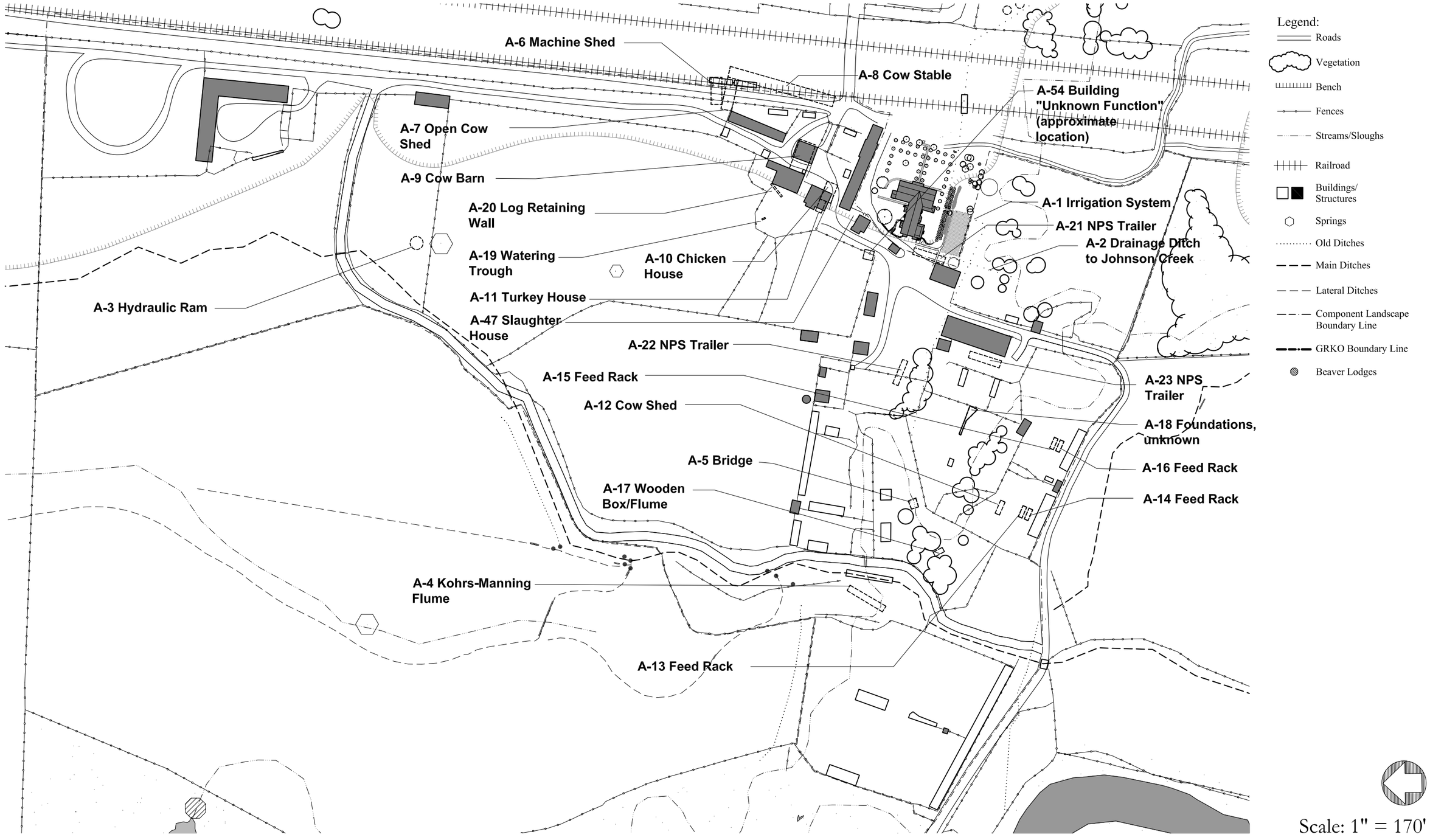


Scale: 1" = 170'

Map Sources: Albright, John. *Historic Resources Study and Historic Structure Report Historical Data, Kohrs and Bielenberg Home Ranch, Grant-Kohrs Ranch National Historic Site, Montana*. Denver: Denver Service Center, National Park Service, 1977. Base mapping referenced to Grant-Kohrs Ranch National Historic Site 1994 aerial photographs and Montana 1:24,000 scale State Plane DRG quadrangles. GIS data was exported into Autocad format for production of base maps and further further detailed with additional data collected in the field.

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A/E FIRM PRIME NAME: Susan Maxman Architects CITY, STATE: Philadelphia, PA SUBCONTRACTOR NAME: John Milner Associates, Inc. CITY, STATE: Charlottesville, VA	DESIGNED: DRAWN: JLB, WMW TECH. REVIEW: KLS, RMM DATE: JULY 2004	SUB SHEET NO. EC-6	EXISTING CONDITIONS INVENTORY HOME RANCH **SMALL-SCALE FEATURES** GRANT-KOHRS RANCH NATIONAL HISTORIC SITE	DRAWING NO. PKG. NO. SHEET OF



Scale: 1" = 170'

Map Sources: Albright, John. *Historic Resources Study and Historic Structure Report Historical Data, Kohrs and Bielenberg Home Ranch, Grant-Kohrs Ranch National Historic Site, Montana*. Denver: Denver Service Center, National Park Service, 1977; Library of Congress, Prints and Photographs Division, Historic American Building Survey, HABS, MT-39, 1974; McChristian, Douglas C. *Ranchers to Rangers: An Administrative History of Grant-Kohrs Ranch National Historic Site.* National Park Service, Rocky Mountain Cluster, 1977; historic aerial photographs (various), on file at Grant-Kohrs Ranch National Historic Site archives. Base mapping referenced to Grant-Kohrs Ranch National Historic Site 1994 aerial photographs and Montana 1:24,000 scale State Plane DRG quadrangles. GIS data was exported into Autocad format for production of base maps and further further detailed with additional data collected in the field.

The following data was provided by the National Park Service, Grant-Kohrs Ranch National Historic Site GIS Program (shapefile format), which was compiled 1998 and updated/field-checked by OCULUS/JMA during the October 2002 site visit: fences and gates; boundary lines; utility lines; fire hydrants; irrigation ditches, headgates, pipes, and risers; culverts; river boundaries; roads; railroad tracks; unvegetated slickens and tailings; fields; trails; cottonwood trees; beaver lodges and dams; hydrology; and groundwater monitoring wells. Metadata for this data is avaliable from World Wide Web: [http://www.nps.gov/gis/metadata/grko/]. Wetlands, hypsography (topography), and Montana 1:24,000 scale State Plane DRG quadrangles were derived from Montana State Library Natural Resource Information System, metadata available from: [http://nris.state.mt.us/gis/datalist.html].

A/E FIRM	DESIGNED:	SUB SHEET NO.	EXISTING CONDITIONS INVENTORY	DRAWING NO.
PRIME NAME: Susan Maxman Architects CITY, STATE: Philadelphia, PA SUBCONTRACTOR NAME: John Milner Associates, Inc. CITY, STATE: Charlottesville, VA	DRAWN: JLB, WMW TECH. REVIEW: KLS, RMM DATE: JULY 2004	EC-7	HOME RANCH **MISSING FEATURES** GRANT-KOHRS RANCH NATIONAL HISTORIC SITE	PKG. NO. ____ SHEET ____ OF____

East Feed Lot/Warren Hereford Ranch

East Feed Lot/Warren Hereford Ranch

[Existing conditions inventory maps and photographs are found at the end of this section]

Introduction

The Warren Hereford Ranch rests on the narrow strip of land that is contained by the railroad corridor to the west, Business Loop 90 to the east, Front Field to the north, and the Con Warren residence to the south. It is approximately 35 acres in size. The East Feed Lot, along with the Warren Barn, was constructed in the early 1950s.

The East Feed Lot was the center of much activity on the ranch as highly productive breeds of cattle were bred and sold. The ranch became well known throughout the western U.S. as the show place for champion Herefords. During the 1940s, hundreds of people often congregated at the ranch during stock sales. The entire operation was active until the early 1980s when the last remaining stock was sold.

Natural Systems and Features

[see Map EC-8 at the end of this section]

The East Feed Lot of the Warren Hereford Ranch is situated on a generally flat area of land, consisting of deep and well-drained Beaverell Loams that define the upper benchland area. A slight grade change occurs to the west of the corrals, where a drainage swale is located along the railroad corridor (see Photo 3-2-1). As a result, the area drains to the south and west. This complex is relatively devoid of natural water features.

Vegetation

[see Map EC-8 at the end of this section]

Pasture grasses comprise all the vegetation within this complex (see Photo 3-2-2), and provide food for the grazing livestock contained there. Because these corrals have been so heavily impacted by livestock, the species composition is a mix of native and non-native grasses and forbs. A detailed breakdown of vegetation species is not available for this area.

Spatial Organization

[see Map EC-8 at the end of this section]

Due to the muddy conditions of the poorly drained soils along the riparian corridor, Warren expanded his Hereford operations eastward across the railroad corridor in the early 1950s. The organization of these feedlots was determined by the function of Warren's ranching operations. The layout is defined by a central north-south axis that responds to the narrow strip of land located between the railroad lines and Business Loop 90.

Eleven corrals, each approximately 60 feet by 60 feet, are located to the north of the NPS Service Entry Road that links Business Loop 90 with the rest of the ranch. This bi-latterly symmetrical corral complex is connected by two alleys, one located along the central axis (see Photo 3-2-3), and the other located along the west edge.

Most of these corrals contain one cow loafing shed which is located on the northern side of the corral. The open side of these sheds faces south, responding to southern exposure and northern

winds. Each corral contains a feed house located on the inside of the north-south axis, providing ranchers with easy vehicular access for restocking feed.

One corral is occupied by buildings, including the Sales Barn (now NPS Maintenance Shop) (HS-65), which is located in the corral directly north of the Warren Barn, a new NPS Resource Building/Office (Bldg. 0003) that was constructed adjacent to this garage in 2000, and a Scale House (HS-66). The Warren Barn (HS-64) and Loading Chute (HS-69), which are located along the entry road, anchor the southeast corner of the north corral complex.

Two other pastures are found to the west of the primary feedlots. One of these west pastures contain a squeeze chute and feed rack, and serves as a staging area for moving cattle from the feedlots onto trucks or trailers, and vice versa (see Photo 3-2-4). The northwest pasture is the largest, measuring a little more than four acres in size, (see Photo 3-2-5).

Several other corrals are located to the south of the entry road, and are bounded on the north and south by the east-west entry roads that link the ranch with Business Loop 90. Four small corrals, each measuring 40' x 15', share access to two bull barns located along the road (see Photo 3-2-6). One large corral is located to their east (see Photo 3-2-7). This large corral (referred to as the "Whiskey" pasture), which was named after Con Warren's last horse, sits slightly above the surrounding grade. It consists of compacted rocky soil, which was the result of vehicular parking during cattle sales during the Warren era.[1] This pasture is now used for NPS parking; in 2003 the west end was filled with gravel.

Land Uses
[see Map EC-9 at the end of this section]

The East Feed Lots were originally established in the early 1950s for Warren's purebred Hereford operation. The complex of chutes, gates, and fences were constructed to support the purpose of holding cattle or moving them from one location to the other. The corrals were historically used to provide feeding areas for cattle, and areas for controlled breeding. Today these feed lots are used for calving in the early spring, temporary containment before sale, and some feed storage; a few are also used for calving and containment of the USFS horses. All breed and breed mixes occupy this area. Some of the feed lots are also used for storage of NPS materials and equipment.

The Warren Barn (HS-64) was once the center of Warren's breeding operations. Currently used for storage, this structure once housed Warren's best bull calves which were nursed by Holstein milk cows. The remaining calf crop was held and fed in the lots behind the Sales Barn (HS-65). The use of the bull barns (HS 62 and 63) has been continuous, alternating between bulls and horses; these structures are also used for storage.

The Sales Barn (HS-65) is currently used by the National Park Service to support the logistical and maintenance needs of the working ranch. These include a woodworking shop, metal working shop, storage areas, and restrooms. The chutes and animal access/egress fences are no longer used for their original sales purposes.

One new building, the Resource Building/Office (003)**,** built in 2000, currently contains NPS offices and restrooms. The area immediately surrounding the Warren Barn, Sales Barn and Resource Building/Office also contains a variety of farm and earthmoving equipment and materials, such as a horse trailer, tractor, backhoes, trucks, a frost-free hydrant on the southwest

[1] Keohan, 12.

corner of the Sales Barn, wood posts and planks for fencing, and several other pieces of machinery associated with NPS working ranch operations (see Photo 3-2-8).
One corral, located in the northwest section of the complex, known as the "boneyard," currently serves as a storage area for surplus materials, such as old wood palates, wood and metal fencing materials, a dolly, a chassis, and metal watering troughs (see Photo 3-2-9). It also contains the hand-irrigation pipes that are assembled to irrigate the fields with water from the effluent ponds, and some historic materials such as the manure spreader and the water truck.

Constructed Water Features
[see Map EC-9 at the end of this section].

Heated water troughs are located in each of the corrals (see Photo 3-2-10). These "Ritchie Fountains" can be found along shared fence lines between corrals, the shared fence lines of the two bull barns, and in the northeast corner of the west corral. These fountains are approximately 18 inches wide, four feet long, and three feet deep, and each derives its energy source from an underground electrical line. They were added sometime before 1956. In some corrals, the NPS has added a second fountain ca. 1999. Fire hydrants were added ca. 1999, around the same time as the city water connections. There is also enough hand line to irrigate the West Corral with water from the effluent ponds, if necessary. This system was installed by the NPS in 1999 and is described in more detail in the Pasture/Hay Fields section.

Circulation
[see Map EC-8 at the end of this section]

As mentioned earlier, the NPS Service Entry Road links Business Loop 90 with the rest of the ranch. This road divides the north corral complex from the south (bull) corrals, and continues over the railroad corridor to the west (see Photo 3-2-11). It was built in 1973 by the NPS and expanded upon the Bull Barn Road built by Warren.

Another road, Kohrs-Warren Lane, bounds the Warren Hereford Complex on the south, dividing it from the Warren Residence. Historically the main approach to the ranch from the highway, this road eventually links to the main entry road before passing over the railroad tracks (see Photo 3-2-12).

One gravel driveway provides access from the NPS Service Entrance to the parking area serving the Sales Barn and NPS offices located to the north of the Warren Barn (see Photo 3-2-13). This gravel parking area is located to the south and west of these structures and dates to the Warren period.

Unpaved grass/dirt roads provide north-south vehicular access along the alleys. The central alley connects the north corral complex with the Front Field.

Views and Vistas
[see Map EC-8 at the end of this section]

Views within the Warren Hereford Ranch Complex are generally focused inward, as the feedlots and alleys divide the spaces into several contained areas. As the elevation of the Warren Ranch sits above the elevation of the Home Ranch Complex, views to the majority of Home Ranch complex are generally obstructed. Views of the western foothills and Flint Creek Mountain range, however, figure prominently in the western viewshed and are important features in the landscape.

Views to the east, particularly the Continental Divide, are equally important, as are views of the Warren Residence. Views of the Warren Hereford Ranch complex, particularly the bull barns, are also easily seen from the Warren House. Views of newer development along Business Loop 90 generally occurred after 1982 (particularly commercial development north of the Fairgrounds). However, the Fairgrounds grandstands date to before the 1930s and were part of Warren's view to the east.

Buildings and Structures
[see Map EC-9 at the end of this section]

The following buildings and structures information has been derived from the "National Register of Historic Places Registration Form," the draft *Warren Hereford Ranch Historic Structures Report* and survey forms, and supplemented by field observations during the 2002 site visit (see bibliography for full citations).

Buildings and structures within this zone interpret Conrad Warren's breeding operations. Features include barns, chutes, sheds, and other equipment used for handling the animals.
The functional center of Warren's purebred breeding operation lay within the **Warren Barn** (HS-64), (see Photo 3-2-14). This large, two and one-half story, post-and-beam, rectangular barn has a barrel-vault roof formed by large, glue-laminated beams. The roof features 1" by 10" sheathing, corrugated metal roofing, and three metal ventilators. The building is constructed on a concrete slab foundation. In 1972, the original white-painted shiplap siding was covered with red, vertical, anodized, corrugated steel siding. Four multi-light, multi-panel overhead garage doors, three added in 1972, dominate the lower level of the south elevation. At the loft level, the south elevation contains one set of centered, cross-braced, wood-frame double doors. Three hopper windows surround the double-doors: one on either side and one centered above. The north side of the west elevation has two wooden cross-braced sliding doors suspended from a metal rail. Eight multi-light hopper windows are spaced evenly across the west elevation. A multi-light, multi-panel overhead garage door, on the north elevation, is off-center to the east. A pair of wood-frame, cross-braced double doors are off-center to the east at the loft level. Multi-light hopper windows surround the hay doors. Ten multi-light hopper windows are spaced across the east elevation. A centered, wood-frame, side-hinged, cross-braced door provides access to the stall area.

Two identical **Bull Barns** (HS-62 and 63), (see Photo 3-2-6) are located directly east of the railroad grade and northwest of the Warren home. The barns used to house Warren's prize Hereford bulls. They are two-story, rectangular, wood-frame structures constructed on poured concrete foundations, each approximately 32 feet long, 16 feet wide and 20 feet high. Corrugated metal panels cover the gable roofs and rafter ends are exposed. Red, originally white, 5 ¼" horizontal wood siding sheaths the walls. Each gable-end contains a square, side-hinged hay door with cross bracing and painted metal hardware. A four-light window is centered above each hay door. A central, side-hinged door, flanked by two small windows, is on the north elevation of each barn.

A **Squeeze Chute** (HS-67), (see Photo 3-2-15) and **Feed Rack** (HS-68), (see Photo 3-2-16) are located in the corral north of the Bull Barns and west of the Warren Barn. The squeeze chute is approximately 110' long and is constructed of wood. It was rehabilitated in the 1990s. The feed rack consists of several narrow wood beams crossed close to the bottom of the beams to form a large V pattern at the top while the rack rests on the smaller V. A long wood plank rests in the crux of the larger V to support fodder. As this structure was completely deteriorated, it was reconstructed in 1998.

A **Portable Chute System** (see Photo 3-2-17), constructed of sheet metal, square tubing, and round pipe was added by the NPS in 2000 to more safely and efficiently control the movements of animals. It is dark brown in color and is a completely portable structure. The chute ends consist of sliding metal doors. Each side consists of a row of vertical metal posts resting on a metal wall. The animals enter one end from a corral and are released through the other into a narrow passageway leading to a second corral. This portable chute is used instead of the existing historic squeeze chute (HS-67) for animal and staff safety.[2]

Directly north of the Warren Barn lies the **Sales Barn** (HS-65) now the NPS Garage/Shop, (see Photo 3-2-18). Built in 1954, the metal barn is a square, pre-fabricated , steel-frame building with a gabled roof that rests on a concrete pad. Corrugated metal covers the exterior walls and roof. A set of massive corrugated metal and steel-framed, sliding, double-doors dominate the south elevation. The doors open to expose a four-light, multi-panel overhead garage door installed by NPS circa 1992. Sized to hold many of the buyers it has large open spaces measuring overall to be 50 feet long, 50 feet wide, by 20 feet high. The east elevation contains three steel-frame, shed-roof, enclosed additions that once housed restrooms and concessions. The additions are sided and roofed with corrugated metal. Solid metal-frame pedestrian doors flank the central addition. The recessed area leading to these doors is covered by an extension of north and south addition shed roofs. Wooden, cross-braced, side-hinged doors are set on either side of the south elevation of the central addition. The south and north elevations of the central addition feature a four-light, wood-frame, fixed-sash window centered above the shed roof extensions.

The **Resource Building/Office** (003), (see Photo 3-2-19) contains NPS offices and is located north of the Sales Barn. Built in 2000, the office is a one-story building with corrugated metal siding and gabled roof, designed to blend in with the utilitarian buildings on the ranch.

A **Hazmat Storage Building** was added in the Summer of 2003. It is a Bally building on a concrete slab.

The **Scale House** (HS-66), (see Photo 3-2-20) is located west of the Sales Barn. The structure is a square, wooden, post-and-frame building with 2-feet-wide corrugated metal siding and roofing. The building poles are 6 inches in diameter and set 6 feet apart on center. Both the north and south elevations of the scale house contain a large, sliding, corrugated metal door.

A **Loading Chute** (HS-69), (see Photo 3-2-21) is located west of the Warren Barn. The red-painted chute consists of a wood-frame ramp with fence side-rails. The ramp is made of six 8-inch-diamter wood posts, 2-inch by 6-inch floor joists, and three 2-inch by 12-inch wood boards laid lengthwise. The ramp angle is adjustable.

Several **Cow Sheds** (HS 70-77), (see Photo 3-2-22) are located in the zone. The cow sheds are nearly identical and are located north and east of the Sales Barn; one shed is located in each of a series of eight separate corrals. Built in 1952, each shed is a one-story pole structure with board-and-batten siding and a gabled roof. The roofs are finished with corrugated metal sheets and have exposed rafter ends. Each shed is open to the south exposing a four-bay wide by two-bay deep structural system.

Within seven of the eight separate corrals, in conjunction with the Cow Sheds, are seven **Feed Houses** (HS 78-84), (see Photo 3-2-23). The feed houses are rectangular, shed-roofed, wood-

[2] Grant-Kohrs Ranch National Historic Site, "Compliance Review Form, Portable Chute System," Compliance No. GRKO -005 (On file at Grant-Kohrs NHS archives, October 16, 2000).

frame structures with horizontal shiplap siding. The roof is covered with rolled red mineral roofing.

Objects and Small-scale Features
[see Map EC-10 at the end of this section]

Within the Warren Hereford Ranch landscape, there are several types of fencing and gates. Fences and gates are constructed of various combinations of wood, metal posts, wire mesh, and metal pipe. Although definite fence types occur, many variations exist within each type; a testament to ranch living where any available and useable materials were used. Some features are of obviously new construction while others appear to be reconstructions of historic fence or gate types once present on the ranch. While most of the fencing found within the Warren Hereford Ranch Complex is in good or fair condition, a few segments were observed to be missing or falling down at the time of the field visit.

The most prevalent type of fence within this component landscape is the **5-rail locked-end fence,** (see Photo 3-2-24). This fence type comprises most of the corrals in the landscape. Five split-log rails extend between log posts on one side of the fence while two more split-log rails (or "rub rails") are placed on the lower half of the fence on the other side. At each post, the rails for one section are stacked alternately with the rails for the next section, creating a stacked, or locked, appearance. This creates a stronger intersection at the posts, and prevents ends from splitting from nails being too close to butt ends, rather than abutting each rail end. Variations of this fence include 4 or 6 rails instead of five and 3 opposite logs instead of 2. In some instances, no rub rails are present.

Along the interior corridor, between the two rows of corrals, is the **Plank and Post fence,** (see Photo 3-2-25). This fence consists of flat wooden planks attached to round wooden posts with small, rectangular, wood battens. One or two sets of planks are attached at ground level to create a feeding area while another is attached just over half-way up the post (cattle can reach through for hay and the planks hold the hay back to keep it from being stepped on). A variation on this fence has two upper planks; one attached to each side of the post.

Contemporary, in-kind replacements of the deteriorated historic fencing is located around the Bull Barns and part of the Squeeze Chute/Feed Rack corral. The **Flat Rail and Post fence,** (see Photo 3-2-26) has 5 flat, milled boards attached to thick, round posts.

Woven Wire fence, (see Photo 3-2-27) is located along the perimeter of many of the corrals, especially the eastern edge of the corrals located along the road. In general, the fence consists of un-milled wood posts or peeled logs supporting a wire mesh component. Variations of this fence type include metal posts or a combination of wood and metal posts supporting wire mesh. Sheep Wire fence is commonly referred to as woven wire fence. This fence is common throughout the ranch. It is bundled in a large roll and when stretched, it has a strong wire top and bottom. Wire squares are larger on top and smaller on the bottom.

While Hog Wire fence is also made of woven wire, it is never referred to as such. Hog wire fencing is comprised of individual "panels" and is occasionally used as a quick fix around the ranch. All the wire is of the same size and stands up by itself with the help of a few wire ties to hold the posts in place.

Within the corrals located around the Warren Barn and in the southwestern corner of the component landscape is a new **squeeze chute system** consisting of a squeeze chute, alley way,

drum, and holding pen. It is constructed of metal pipe fences and gates (Photo 3-2-28), which are round, painted, pipe rails and posts welded together. All of these pipe fences and gates were added by the NPS.

East of the Sales Barn is a complex **system of wood chutes and gates** that were used during the auctions (see Photos 3-2-29 and 3-2-30). This system contains a wide variety of different fence types, to include plank and post fence, 5-rail locked end fence, 5-rail stacked end fence, and a unique chute structure that consists of flat rails stacked horizontally to the inside of a pair of round wood posts. In some areas, the sides of this structure are braced by a wooden plank that spans the approximate three foot space in between the rails. These chutes and gates were observed to be in poor condition at the time of the field visit.

The primary type of gate witnessed in the landscape is the **Red Wood Gate,** (see Photo 3-2-31). This red-painted gate consists of five milled boards attached horizontally to support posts at either end. The gate is braced on each side with a central vertical board and two diagonal boards. Other gates, similar in construction yet not painted, are located throughout the component landscape. A variation of the red gate is the double red gate which has two red gates that swing open from the center instead of from one side.

The second most prevalent type of gate is the **Overhead Bar gate,** (see Photo 3-2-32) consisting of two tall, vertical posts supporting a horizontal crossbar. A red gate is attached to one of the posts and meets the opposite post after swinging closed.

At the entrance to the Warren Hereford Ranch, west of the Bull Barns, is an overhead bar gate with a **5-rail Braced Gate,** (see Photo 3-2-32). This gate has a hinge-post almost twice the height of the gate and has a long, diagonal brace leading from the top of the hinge-post to the opposite corner of the gate. This brace prevents and corrects sagging. This gate type is also located at the eastern end of this same entrance road.

There are three **fire hydrants** located within the Warren Hereford Ranch complex. These were added in 1999, with the phase two extension of the city water line by the NPS. A **hitching post** is located just south of the sales barn. This feature, added by the NPS ca. 1991, is constructed of two log posts that support a horizontal log beam. It is approximately four feet high (see Photo 3-2-33).
A large **lumber stack** is located southeast of the Sales Barn. The wood is being salvaged for fire wood. Large **material piles** are also located in the northwest feedlot, north of the cow shed (HS-72) and in an area termed the "boneyard." These materials consist of old wood pallets, wood and metal fencing materials, a dolly, a chassis, and metal watering troughs (see Photo 3-2-9). It also contains the hand-line irrigation pipes that are assembled to irrigate the fields with water from the effluent ponds. The material pile located in the northwest section of this corral dates to the Warren period (ca. 1970s), while the other dates to NPS management of the ranch (ca. 1988-present).

A **wooden trough** is located in one of the feed lots, south of B-75 (see Photo 3-2-34). This small structure is constructed of wood planks on three sides (with some metal components), and is open on one end. Approximately six inches deep, it is supported by four wooden posts, braced on the bottom with a horizontal plank. A small piece of wood appears to divide the trough in half. This trough is typical of those built and used by Warren in the feed lot area. There used to be one in each corral.[3]

[3] NPS comment, 75% draft CLR review.

A **stop sign** and **railroad crossing sign** are located along the Main Entry Road near the railroad crossing. Installed by the NPS, these are metal signs mounted on a round wooden post. Three **concrete blocks with metal rings** are located at the north end of the feed lots. They are arranged like they were possibly tie-downs for a small airplane.

Missing & Archeological Resources
[see Map EC-10 at the end of this section]

A pump house (HS-85) was constructed in the 1950s by Con Warren to irrigate fields for the production of grain for the Warren Hereford Ranch. Located to the east side of the corrals, between cow sheds HS-75 and HS-76, this pump house was moved from its original location (approximately ten feet east of its current location) sometime before 1990 by Con Warren to retrieve the pump motor and remove the steel well casing. This structure was in poor condition and removed in 2002.[4]

[4] Personal correspondence with Mike McWright, Facility Manager, Grant-Kohrs Ranch NHS June 2003.



JMA, October 2002

Photo 3-2-1 : (RQ-23) The topography within the Warren-Hereford Ranch is generally flat. The dominant grade changes occur to the west of the corrals, where a drainage swale occurs along the railroad corridor.



JMA, October 2002

Photo 3-2-2 : (RQ-22) Pasture grasses comprise all the vegetation within this complex, and provide food for grazing livestock.



JMA, October 2002

Photo 3-2-3 : (RL-07) The feed lot corral complex is organized by two alleys; the one shown here is located along the central axis.



JMA, October 2002

Photo 3-2-4 : (RR-22) One corral contains a squeeze chute and feed rack, and serves as staging area for moving cattle from the feedlots onto trucks or trailers, and vice versa.



JMA, October 2002

Photo 3-2-5 : (RQ-19) Northwest corral in feed lot complex.



JMA, October 2002

Photo 3-2-6 : (RT-19) Four smaller corrals, each measuring 40' x 15', share access to two bull barns located along the road.



JMA, October 2002

Photo 3-2-7 : (RS-07) The "Whiskey" pasture, named after Con Warren's last horse, is now used for NPS parking, with the west end filled with gravel.



JMA, October 2002

Photo 3-2-8 : (RP-19) The area immediately surrounding the Sales Barn and resource building/office also contains a variety of NPS farm and earthmoving equipment and materials, such as a horse trailer, tractor, backhoes, trucks, wood posts and planks for fencing, and several other pieces of machinery associated with working ranch operations.



JMA, October 2002

Photo 3-2-9 : (RN-24) The "boneyard," currently serves as a storage area for surplus materials, such as old wood palates, wood and metal fencing materials, a dolly, a chassis, and metal watering troughs. It also contains the hand-irrigation pipes that are assembled to irrigate the fields with water from the effluent ponds.



JMA, October 2002

Photo 3-2-10 : (RM-15) Heated water troughs, "Ritchie Fountains," are located in each of the corrals.



JMA, October 2002

Photo 3-2-11 : (RS-18) Main Entry Road/Cattle Drive.



JMA, October 2002

Photo 3-2-12 : (RT-02) Warren Lane.



JMA, October 2002

Photo 3-2-13 : (RR-13) Gravel parking area.



JMA, October 2002

Photo 3-2-14 : (RR-14) Warren Barn (HS-64).



JMA, October 2002

Photo 3-2-15 : (RQ-01) Squeeze chute behind double gates (HS-67).



JMA, October 2002

Photo 3-2-16 : (RP-02) Feed Rack (HS-68).



JMA, October 2002

Photo 3-2-17 : (RP-03) Metal squeeze chute.



JMA, October 2002

Photo 3-2-18 : (RO-15) Sales Barn (HS-65).



JMA, October 2002

Photo 3-2-19 : (RO-14) Resource Building/Office (BLDG 003).



JMA, October 2002

Photo 3-2-20 : (RO-10) Scale House (HS-66).



JMA, October 2002

Photo 3-2-21 : (RP-01) Loading Chute (HS-69).



JMA, October 2002

Photo 3-2-22 : (RL-02) Typical Cow Shed (HS-76).



JMA, October 2002

Photo 3-2-23 : (RL-01) Typical Feed House (HS-83).



JMA, October 2002

Photo 3-2-24 : (RL-25) 5-Rail Locked-End Fence.



JMA, October 2002

Photo 3-2-25 : (RL-11) Plank and Post Fence.



JMA, October 2002

Photo 3-2-26 : (RQ-03) Flat Rail and Post Fence.



JMA, October 2002

Photo 3-2-27 : (RL-9) Hogwire panel (NPS quick fencing fix).



JMA, October 2002

Photo 3-2-28 : (RP-05) Metal Pipe Fence and Gates (elements of squeeze chute).



JMA, October 2002

Photo 3-2-29 : (RO-4) Complex system of fences and gates once used for auction.



JMA, October 2002

Photo 3-2-30 : (RO-3) Complex system of fences and gates once used for auction.



JMA, October 2002

Photo 3-2-31 : (RM-23) Typical Overhead Bar Gate with Red Wood Gate.



JMA, October 2002

Photo 3-2-32 : (RQ-09) Overhead Bar Gate with 5-Rail Braced Gate.



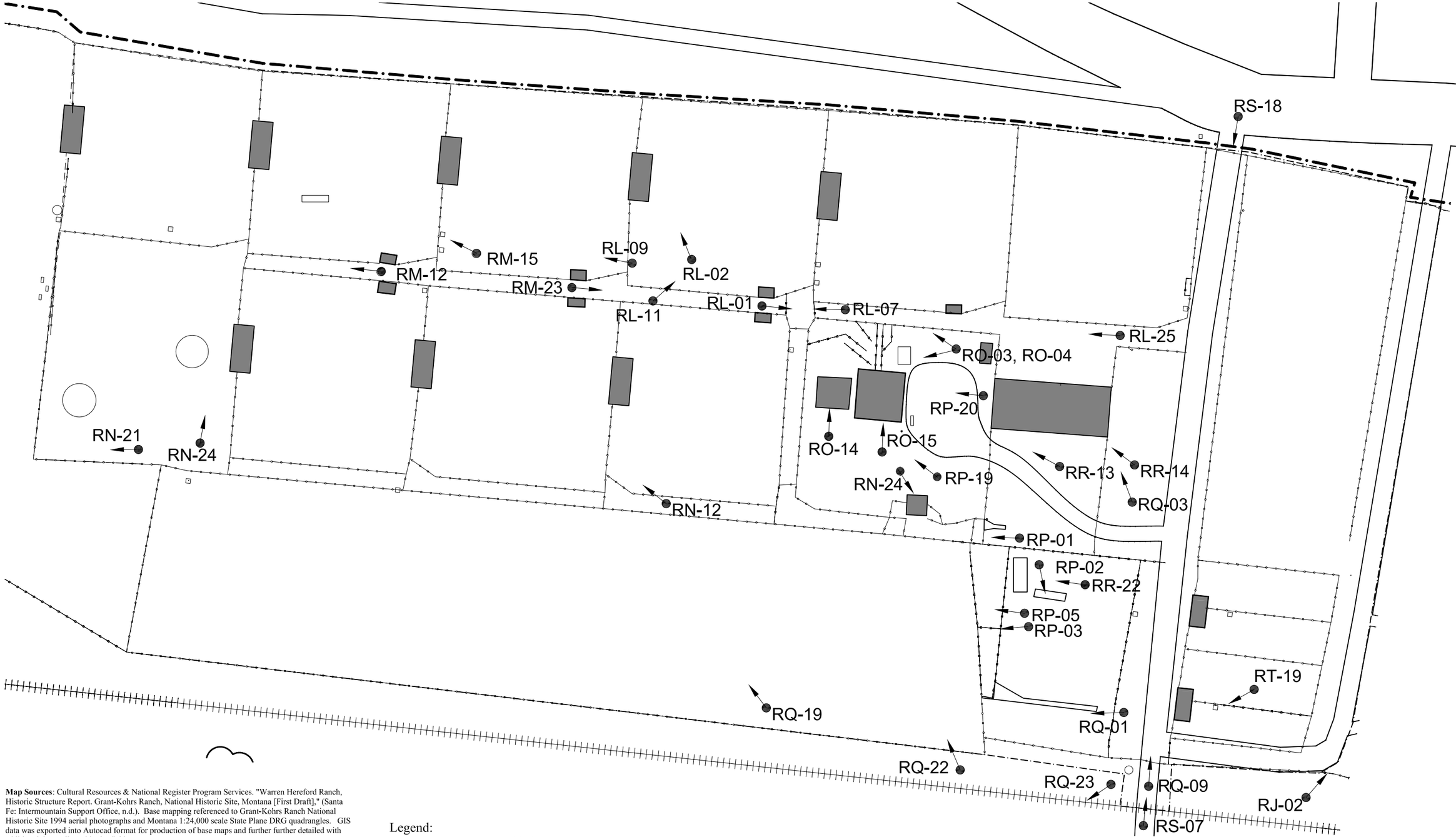
JMA, October 2002

Photo 3-2-33 : (RP-20) Hitching Post.



JMA, October 2002

Photo 3-2-34 : (RN-12) Wooden Trough.



Map Sources: Cultural Resources & National Register Program Services. "Warren Hereford Ranch, Historic Structure Report. Grant-Kohrs Ranch, National Historic Site, Montana [First Draft]," (Santa Fe: Intermountain Support Office, n.d.). Base mapping referenced to Grant-Kohrs Ranch National Historic Site 1994 aerial photographs and Montana 1:24,000 scale State Plane DRG quadrangles. GIS data was exported into Autocad format for production of base maps and further further detailed with additional data collected in the field.

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Legend:

- Roads
- Vegetation
- Bench
- Fences
- Streams/Sloughs
- Railroad
- Buildings/ Structures
- Springs
- Old Ditches
- Main Ditches
- Lateral Ditches
- Component Landscape Boundary Line
- GRKO Boundary Line
- Beaver Lodges

Scale: 1" = 100'

A/E FIRM

PRIME
NAME: Susan Maxman Architects
CITY, STATE: Philadelphia, PA

SUBCONTRACTOR
NAME: John Milner Assodates, Inc.
CITY, STATE: Charlottesville, VA

DESIGNED:
DRAWN: ADF
TECH. REVIEW: KLS, RMM
DATE: JULY 2004

SUB SHEET NO. P-4

EXISTING CONDITIONS INVENTORY

WARREN HEREFORD RANCH

PHOTO STATION POINT MAP

GRANT-KOHRS RANCH NATIONAL HISTORIC SITE

DRAWING NO.

PKG. NO.

SHEET

OF

C-8/SO-18 Bull Barn Rd./NPS Service Entrance

C-12 Business Loop 90

SO-11/L-3//L-9 Square Corrals

V-6 Views to fairgrounds and other development outside ranch

SO-11/L-3//L-9 Square Corrals

VE-5 Mix of native/non-native pasture grasses

C-10/L-9 Gravel Parking Areas

C-10/SO-16/L-4 Whiskey Pasture

C-11/SO-10 Alleys

C-9/SO-17 Kohrs-Warren Lane

SO-13/L-9 Shop/Barn Areas

V-8 Views to Warren Residence

VE-5 Mix of native/non-native pasture grasses

V-7 Views of Railroad Corridor

SO-12/L-9 Chute Area

NS-5 Drainage Swale

SO-14/L-3/L-10 / L-9 West Pasture

SO-15/L-3/L-9 Bull Barn Corrals

V-9 Views to Home Ranch Complex

Map Sources: Cultural Resources & National Register Program Services. "Warren Hereford Ranch, Historic Structure Report. Grant-Kohrs Ranch, National Historic Site, Montana [First Draft]," (Santa Fe: Intermountain Support Office, n.d.). Base mapping referenced to Grant-Kohrs Ranch National Historic Site 1994 aerial photographs and Montana 1:24,000 scale State Plane DRG quadrangles. GIS data was exported into Autocad format for production of base maps and further further detailed with additional data collected in the field.

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- GRKO Boundary Line
- Beaver Lodges

Scale: 1" = 100'

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CITY, STATE: Charlottesville, VA

DESIGNED:

DRAWN: JLB, WMW

TECH. REVIEW: KLS, RMM

DATE: JULY 2004

SUB SHEET NO. EC-8

EXISTING CONDITIONS INVENTORY

WARREN HEREFORD RANCH

NATURAL SYSTEMS, VEGETATION, CIRCULATION, SPATIAL ORGANIZATION, AND VIEWS

GRANT-KOHRS RANCH NATIONAL HISTORIC SITE

DRAWING NO.

PKG. NO.

SHEET

OF

B-39/L-9 Cow Shed (HS-73)

B-40/L-9 Cow Shed (HS-74)

B-41/L-9 Cow Shed (HS-75)

B-42/L-9 Cow Shed (HS-76)

B-43/L-9 Cow Shed (HS-77)

CW-2 Heated Water Troughs

CW-2 Heated Water Troughs

CW-2 Heated Water Troughs

S-35 Feed House (HS-80)

S-34 Feed House (HS-79)

S-33 Feed House (HS-78)

S-39 Feed House (HS-84)

L-4/B-30 Warren Barn (HS-64)

CW-2 Heated Water Troughs

S-36 Feed House (HS-81)

S-37 Feed House (HS-82)

S-38 Feed House (HS-83)

CW-2 Heated Water Troughs

B-55 Hazmat Building

B-38/L-9 Cow Shed (HS-72)

B-37//L-9 Cow Shed (HS-71)

B-36/L-9 Cow Shed (HS-70)

S-69 Loading Chute (HS-69)

L-4/L-9/B-34 Resource Building/Office (003)

CW-2 Heated Water Troughs

B-32/L-9 Bull Barn (HS-63)

S-51/L-9 Portable Chute System

S-32 Feed Rack (HS-68)

L-4/L-9/B-33 Sales Barn (HS-65)

B-35/L-9 Scale House (HS-66)

S-31 Chute (HS-67)

B-31/L-9 Bull Barn (HS-62)

CW-2 Heated Water Troughs

Map Sources: Cultural Resources & National Register Program Services. "Warren Hereford Ranch, Historic Structure Report. Grant-Kohrs Ranch, National Historic Site, Montana [First Draft]," (Santa Fe: Intermountain Support Office, n.d.). Base mapping referenced to Grant-Kohrs Ranch National Historic Site 1994 aerial photographs and Montana 1:24,000 scale State Plane DRG quadrangles. GIS data was exported into Autocad format for production of base maps and further further detailed with additional data collected in the field.

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DESIGNED:

DRAWN: JLB, WMW

TECH. REVIEW: KLS, RMM

DATE: JULY 2004

SUB SHEET NO. EC-9

EXISTING CONDITIONS INVENTORY

WARREN HEREFORD RANCH

BUILDINGS & STRUCTURES, CONSTRUCTED WATER FEATURES, AND LAND USE

GRANT-KOHRS RANCH NATIONAL HISTORIC SITE

DRAWING NO.

PKG. NO.

SHEET

OF

SS-16 Sheep Wire Fence

A-24 Pump House (HS-85)

A-55 Entry Sign

SS-22 Wood Feed Trough

SS-3 5-Rail Stacked-End Fence

SS-3 5-Rail Stacked-End Fence

SS-8/SS-9 Overhead Gate w/Red Wood Gate

SS-14 Plank and Post Fence

SS-9 Red Wood Gate

SS-14 Plank and Post Fence

SS-24 Wood Chutes and Gates

O-1 Fire Hydrant

SS-9 Red Wood Gate

O-1 Fire Hydrant

SS-16 Sheep Wire Fence

SS-13 Concrete slabs/ blocks

SS-23 Material Piles

SS-19 Lumber Stack

SS-20 Hitching Post

SS-3 5-Rail Stacked-End Fence

SS-3 5-Rail Stacked-End Fence

SS-8 Overhead Gate

SS-8 Overhead Gate

O-1 Fire Hydrants

SS-15 Flat Rail and Post Fence

SS-9 Red Wood Gate

SS-3 5-Rail Stacked-End Fence

SS-18 Metal Pipe Gate

SS-8 Overhead Gate

SS-17 Metal Pipe Fence

SS-16 Sheep Wire Fence

SS-21 Stop Sign/RR Crossing Sign

SS-3 5-Rail Stacked-End Fence

SS-8/SS-10 Overhead Gate w/5-Rail Braced Gate

Map Sources: Cultural Resources & National Register Program Services. "Warren Hereford Ranch, Historic Structure Report. Grant-Kohrs Ranch, National Historic Site, Montana [First Draft]," (Santa Fe: Intermountain Support Office, n.d.); 1960 aerial photograph. Base mapping referenced to Grant-Kohrs Ranch National Historic Site 1994 aerial photographs and Montana 1:24,000 scale State Plane DRG quadrangles. GIS data was exported into Autocad format for production of base maps and further further detailed with additional data collected in the field.

The following data was provided by the National Park Service, Grant-Kohrs Ranch National Historic Site GIS Program (shapefile format), which was compiled 1998 and updated/field-checked by OCULUS/JMA during the October 2002 site visit: fences and gates; boundary lines; utility lines; fire hydrants; irrigation ditches, headgates, pipes, and risers; culverts; river boundaries; roads; railroad tracks; unvegetated slickens and tailings; fields; trails; cottonwood trees; beaver lodges and dams; hydrology; and groundwater monitoring wells. Metadata for this data is avaliable from World Wide Web: [http://www.nps.gov/gis/metadata/grko/]. Wetlands, hypsography (topography), and Montana 1:24,000 scale State Plane DRG quadrangles were derived from Montana State Library Natural Resource Information System, metadata available from: [http://nris.state.mt.us/gis/datalist.html].

Legend:

- Roads
- Vegetation
- Bench
- Fences
- Streams/Sloughs
- Railroad
- Buildings/ Structures
- Springs
- Old Ditches
- Main Ditches
- Lateral Ditches
- Component Landscape Boundary Line
- GRKO Boundary Line
- Beaver Lodges

Scale: 1" = 100'

A/E FIRM

PRIME
NAME: Susan Maxman Architects
CITY, STATE: Philadelphia, PA

SUBCONTRACTOR
NAME: John Milner Associates, Inc.
CITY, STATE: Charlottesville, VA

DESIGNED:

DRAWN: JLB, WMW

TECH. REVIEW: KLS, RMM

DATE: JULY 2004

SUB SHEET NO. EC-10

EXISTING CONDITIONS INVENTORY

WARREN HEREFORD RANCH

OBJECTS, SMALL-SCALE & MISSING FEATURES

GRANT-KOHRS RANCH NATIONAL HISTORIC SITE

DRAWING NO.

PKG. NO.

SHEET

OF

Grant-Kohrs Residence

Grant-Kohrs Residence

[Existing conditions inventory maps and photographs follow this section]

Introduction

The Grant-Kohrs Residence was originally built by John Grant in 1862. It was later improved and expanded by Conrad Kohrs throughout the latter part of the 19th century and maintained by his grandchildren Conrad and Nellie Warren. It was the centerpiece of domestic life on the ranch for 60 years. Today the home continues to be the focal point of NPS preservation and interpretation.

Natural Systems and Features

[see Map EC-11 at the end of this section]

Surrounded by nearby creeks and springs, as well as graceful views to the river and mountains beyond, the location of the home ranch takes advantage of the unique combination of topography, hydrology, and soils, and symbolizes a synergistic relationship between the natural environment and cultural preferences of its original owner.

The transition between poor and well drained soils on the Ranch is clearly evident on the ground. Referred to as the "bench," this demarcation in soil type and quality is defined both by changes in elevation and land use (see Photo 3-3-1). The historic ranch home built by Grant in 1862, as well as many of the oldest outbuildings (such as the bunkhouses, ice house, poultry houses, and livestock barns and stables), are located on this upland terrace consisting of very deep and well drained Beaverell loams.

While the land immediately surrounding the original house slopes gently down to the west, it drops off more quickly along the back side of the Kohrs addition and along the edge of the south lawn. This approximate six foot drop in elevation is made up with steps and terraces that further define the house and its domestic environs.

Vegetation

[see Map EC-11 at the end of this section]

The vegetation that currently surrounds the ranch home reflects both the historic cultural preferences and tastes of Augusta Kohrs, as well as interpretive goals and recent restoration efforts of the National Park Service. There are both formally and informally planted trees and shrubs, including both native and non-native species. The following information is derived from the 2002 site visit, and supplemented by the Shapins 2002 *Cultural Landscape Inventory* existing conditions map.[1]

The front lawn is dominated by a grid of newly planted black cottonwoods (*Populus trichocarpa*), (see Photo 3-3-2). A single row of these trees edge the walkway and side yards; a double row edges the front. All these trees, planted during 2002, are located 15 feet apart and are intended to restore the historic conditions dating back to the 1870s.[2] Two other mature cottonwoods are located along the east side of the fence to the south. Three green ash trees

[1] Shapins Associates, "Grant Kohrs Ranch National Historic Site Cultural Landscape Inventory, Existing Conditions Map," Autocad Basemap (January 2002).
[2] Shapins Associates, *Grant Kohrs Ranch National Historic Site Cultural Landscape Inventory, Level 0 Park Reconnaissance Survey*, Draft (June 1999), 4; and Existing Conditions Map (January 2002).

(*Fraxinus pennsylvanica*) are located on the east side of the front fence, located 30 feet apart. Another green ash tree is planted in the center of the front yard, on the north side.

The north side of the house contains three trees, including a large black willow (*Salix scoulerana*) opposite the ice house, a juniper (*Juniperus occidentalis*) along the gravel access drive near the wooden walkway, and a blue spruce (*Picea pungens*) near the brick walk extending from the front porch (see Photo 3-3-3).

The remaining trees surrounding the Grant-Kohrs residence are found in the lower garden (see Photo 3-3-4). These include a cluster of trees containing one juniper and two boxelders (*Acer negundo*) along the front fence. Five junipers and a small cluster of lilac shrubs (*Syringa vulgaris*), and one twinberry honeysuckle (*Lonicera involverata*) are located along the south edge of the fence near the eastern corner. Two large lanceleaf cottonwoods (*Populus accuminata*) are located along the south edge of the fence, just to the east of the flower garden.

The steep slope between the upper yard and lower garden on the south side of the house contains a large cottonwood tree among a double row of lilac shrubs. Four barberry shrubs (*Berberis thunbergii 'Atropurpurea'*) line the edge of the steps connecting these areas, two on either side. One juniper, two gooseberry shrubs (*Ribes sp*.) and a cotoneaster shrub (*Cotoneaster acutifolius*) are located near the bottom of the terraced garden (see Photo 3-3-5).

As the CLR site visit was conducted in October, there were few perennial plants remaining in the lower garden. The following species were recorded in the CLI and are listed here: Babies breath, bachelor buttons, columbines, crocuses, daffodils, daisies, delphiniums (blue), flox, forget-me-nots, geraniums, goldenrods, hairbells, hemerocalis, hens and chicks, hyacinths, irises (purple and yellow), dwarf irises, Asiatic lilies, monk's hood, red peonies, pink poppies, yellow raniculus, rhubarb, soapwoods, sweet peas (trellis), sweet williams, and tea roses. Orange poppies were observed in the conservatory area, and tulips were found near the east porch.[3]

Spatial Organization
[see Map EC-13 at the end of this section]

The spatial organization of the landscape containing the Grant-Kohrs residence is comprised of three yard areas, each reflecting a character associated with different domestic uses. The front lawn, with its newly planted grid of cottonwood trees, reflects a degree of formality to the entry, and presents a public face to all those who visit the house. It is defined by the front and side elevations of the historic Grant house, the new white picket fence along the yard's north and east perimeter, and the drop in grade along the southern edge which is delineated by the lilac hedge.

The side yards, located to the north and south of the Kohrs brick addition, are generally defined by the building's rear and side elevations. The yard to the north is contained by the wooden walkway leading to the bunkhouses, the new white picket fence (under construction in 2002), and the retaining wall along the western edge. The yard to the south is defined by the rear porch, the conservatory, the retaining wall along the western edge, and the lilac hedge that divides the yard from the lower garden.

The lower garden can be characterized as an outdoor room. The steep slope and stone terraces that define its northern edge, the cluster of trees to the east, and the surrounding fence that

[3] Shapins Associates, "Grant Kohrs Ranch National Historic Site Cultural Landscape Inventory, Existing Conditions Map," Autocad Basemap (January 2002).

separates the garden from the pasture to the south, all reinforce the feeling of the garden's enclosure.

Land Uses
[see Map EC-12 at the end of this section]

The Grant-Kohrs residence and its surrounding landscape have been well preserved by decades of care from both Con Warren and the National Park Service. Both the building and its grounds are being used to interpret the lives of those who once called it home, and to educated visitors about the challenges of preservation.

Constructed Water Features
The NPS installed an underground water system ca. 2000 for irrigation of the newly planted cottonwood trees. The historic trough system was not used after Warren installed a water spigot off the front of the house (ca. 1934) for Augusta's use.[4] The number, location and condition of historical underground pipes are unknown.

Circulation
[see Map EC-13 at the end of this section]

There are many circulation features found within the ranch home landscape. These include stone, brick, and wooden steps, stone patios, wooden, brick, and asphalt walkways, and flagstone paths.

Circulation around the Grant-Kohrs residence is primarily residential in nature, although vehicular access is available. Pedestrian circulation exists in the form of walks, paths, steps, and stairs located on all sides of the house and constructed of a variety of materials. The vehicular access drive is available only to NPS and authorized vehicles.

The first pathway visitors encounter as they make their way to the residence is the NPS installed **asphalt sidewalk** leading from the Visitor Center Complex to the ranch. This sidewalk is approximately six feet wide (see Photo 3-3-6).
After leaving the asphalt sidewalk, visitors encounter the **wood plank walk** that leads to the front porch of the residence (see Photo 3-3-7). This walk is a NPS reproduction (1986) of a period walk that existed during the Grant-Kohrs era.[5] The walk consists of three-feet-wide planks set flush with the ground. The walk runs down the center of the front yard, east to west, and then along the length of the building façade. A secondary wood plank walk extends from the northeast corner of the Kohrs addition at the side door, north to the gravel access drive/gate.

A short section of **brick walk** leads from the northeast corner of the Grant house, abutting the wood plank walk, and then curves westward (see Photo 3-3-8). The brick walk is approximately three feet in width and set in a running bond pattern with brick edging. It ends at a granite stone set at ground level at the gate entrance.

Flagstone walks are located on the south, east, and north sides of the house (see Photo 3-3-9). These walks, built in 1997-98 by the NPS, are between two and three feet in width and are constructed of flagstones set flush with the ground.[6] The southern walk begins at the stone steps located between the lilac bushes on the south side of the house and heads straight west until it

[4] NPS staff comments, 75% draft CLR review.
[5] Shapins Associates, "Cultural Landscape Inventory Level II: Grant-Kohrs Ranch National Historic Site, Historic Structure No. 1 (HS-1) Cultural Landscape," 70% Draft Report (National Park Service, Intermountain Region. 2003), 16.
[6] Shapins Associates (2003), 16.

meets the Blacksmith/Garage building (HS-3). The eastern walk forks northward from the southern walk at the edge of the garden plot and runs along the east edge of the property until ending at what was once a gate. The northern walk has a small section that leads north from the house then turns westward to end at a stone staircase. This walkway replaced an earlier dirt pathway that had become a safety hazard. It is slightly wider than the original.[7]

Because the topography of the land east of the residence slopes more steeply, steps and stairs are needed to facilitate movement over the grade. A **wide stone staircase,** originally built by Con Warren in 1934, leads from the flagstone path north of the residence down to the gravel access drive (see Photo 3-3-10).[8] The staircase is part of the retaining wall that curves around this side of the house. It has six thick, rectangular stone treads, each resting on a series of small, cut stone risers. The staircase sits between stacked stone cheek walls.

A **narrow stone staircase** with a wooden handrail is located on the slope north of the garden and south of the house (see Photo 3-3-11). Nine rectangular, cut stone treads rest on rectangular, cut stone, stacked risers. Built in 1934 by Con Warren, this staircase was reconstructed in 1987 by the NPS. The wooden handrail, also reconstructed by the NPS in 1987, consists of three wooden posts supporting a wood railing; thin, wood members form a decorative pattern between the posts.[9]

Wooden stairs are located on the west side of the porch (see Photo 3-3-12). The gray-painted steps lead from the porch to the flagstone path below. It consists of wood treads sitting on a wood stringer. A white-painted wood handrail is attached to the west side of the stairs. Other sets of wooden steps can be found on the east side of this porch, as well as along the enclosed porch on the north side of the house.

A set of **remnant stone steps** is located in the southeast corner of the yard and east of the garden. These steps provided the historic access to the garden before 1934 via a stone walkway.[10]

A **gravel access drive** (Bunkhouse Road) wraps around the northern and part of the western edges of the Grant-Kohrs house yard (see Photo 3-3-13). The dark-colored gravel drive is between twelve and fifteen feet in width.

Views and Vistas
[see Map EC-12 at the end of this section]

Views within the Grant-Kohrs Residence component landscape are oriented both inwards and outwards. Within the front yard, views are dominated by the ranch house itself, as well as the bunkhouse directly to the north. The railroad corridor serves as a visual divider between this landscape and the Warren Residence and Hereford Ranch located to the east.

From the rear of the house (particularly from the porch), views are directed out and over the Home Ranch Complex, as well as towards the cemetery where Kohrs' son is buried. The riparian woodland, western foothills, and Flint Creek Mountain Range also figure prominently within this viewshed. Views within the lower garden are generally contained by the topography, vegetation, and picket fencing.

[7] Grant-Kohrs Ranch National Historic Site, "Assessment of Actions Having an Effect on Cultural Resources, Modify Pathways in Kohrs' Home Area," Project No. GRKO-97-1 (On file at Grant-Kohrs NHS archives, 1997).
[8] Shapins Associates (2003), 15.
[9] Shapins Associates, 2003, 15.
[10] Shapins Associates, 2003, 38.

Buildings and Structures
[see Map EC-12 at the end of this section]

The Grant-Kohrs **Main Residence** (HS-1) was built by John Grant in 1862 and improved by Conrad Kohrs between the years of 1862 and 1907. In 2002, the house appears much as it did in 1890.

The Main Residence has a T-shaped footprint; the log Grant residence forms the cross of the T (see Photo 3-3-14), while the brick Kohrs addition forms the perpendicular post (see Photo 3-3-15). A conservatory, open porches, and vestibules slightly disrupt this shape. Viewed from the south, north, and east, the 1890 addition has two stories which become three stories on the west elevation by virtue of a full basement. The Kohrs addition has simple structure, massing, and fenestration while the Queen Anne-detailed open porch near the southwest corner is more ornate.

The original Grant building has a rubble stone foundation. The Kohrs addition is built upon roughly-cut and coursed stone. Wood shingles cover the gently-pitched saltbox roof of the Grant residence. The Kohrs addition roof is sheathed with zinc-coated stainless steel. Both units of the entire house have wide boxed eaves that return in the gable ends. The eastern gable end of the Kohrs addition intersects with and rises above the Grant roofline.

Chimneys are numerous and similar in design. Two chimneys straddle the ridgeline of the Grant building; three are located at the south eave of the Kohrs addition; a sixth chimney is located at the extreme west end of the Kohrs roof ridge; and two more are located at the north eave of the Kohrs addition.

Grant Residence
The Grant portion of the ranch house is very symmetrical in appearance. As mentioned above, two chimneys are located at either end of the building. Six multi-light windows line the second story level of the front elevation. On the main level, the main entry door is centered on the elevation and flanked by multi-light windows. Two multi-light windows are located to either side of the entry. All windows are paired with dark-green louvered shutters. An open porch (added by Kohrs) covers the entrance and consists of square wood columns supporting a flat porch roof which features a decorative balustrade.

A vestibule for access to the domestic water source was added on the northern elevation of the Grant residence. The addition is roofed in cedar shingles and walls are faced with clapboard siding.

A conservatory wraps around the southwest corner of the Grant building. Cedar shingles cover the half-hip conservatory roof. Groups of two-over-two windows, running from eave to foundation, dominate the west, south, and east sides of the conservatory.

Kohrs Residence
The south elevation of the Kohrs addition features the conservatory, a large bay that defines the dining room, and a substantial open porch, (see Photo 3-3-16). All windows of the Kohrs addition have bull-nosed trim and are paired with painted wood lintels and sills.

The three-story western elevation of the Kohrs addition is unadorned. Only the cut-and-coursed stone at basement level and a window on the first floor break the expanse of brick.

Features on the north side of the Kohrs addition are limited to multi-light windows placed symmetrically across the upper level and four windows and two vestibules along the lower level. The matching vestibules are wood frame, clad with clapboard siding that matches those found on the Grant residence. Each is topped with a hip roof and built on a brick foundation. Simple three-tread wood plank steps provide access to the doors located in the east elevation of the west vestibule. **Wood cellar covers** are located along to the north and south elevations of the residence (see Photo 3-3-25). The rectangular covers are constructed of wood boards and rest flush with the ground or on a stone foundation slightly above grade.

To address the slopes in the southwest corner of the property, stone terraces and a retaining wall were constructed as both ornamental and functional design elements. **Stone terraces** constructed of dry laid river cobbles are set into the slope on the south side of the house to form two flower beds. The existing stone terraces are replicas constructed and planted by the NPS (1983-1985) as part of their landscape restoration efforts.
A stacked **river cobble retaining wall** remains in the landscape, situated below the eastern wing of the lilac row. The wall held the southern slope and allowed for the manipulation of the grade below to create a level garden area. The wall was made with river cobbles that were dry laid into the slope forming a barrier that extended across the northern edge of the lower garden.

When the picket fence and the lawn area were extended west in 1934, two walls were built to address the property's sloping western edge. These two **cut-stone retaining walls** are simple structures, constructed of dry laid native stone, set into the slope. The stone was harvested from a nearby property. The two walls range from 2′ to 4′ in height. The northern wall accommodates a set of stairs rising from the access drive to the newly created lawn outside the back hall vestibule. The wall south of the house abuts the cellar and extends in a curvilinear fashion for approximately 25′ south before it terminates at the lilac hedge.[11]

Objects and Small-scale Features
[see Map EC-14 at the end of this section]

There are many objects and small scale features found within the ranch home landscape. These include wooden fences and gates, stone terraces and retaining walls, wooden benches, a wooden railing, utility structures, garden equipment, and wooden frames within the garden bed.

During the time of the site visit, the **white picket fence** surrounding the Kohrs residence was under construction (see Photo 3-3-18). Now complete, this fence encloses the Grant-Kohrs yard.

A portion of the **white picket fence**, located along half of the southwestern edge of the residence yard, consists of thin, square, white-painted posts set into a concrete curb and supporting two horizontal rails. White-painted pickets are attached to the horizontal rails. This fence was only partially complete during fieldwork (see Photo 3-3-19). Readers should refer to the CLI (2003) for details concerning the reconstruction of this landscape feature.

A **Wire Mesh Gate** (see Photo 3-3-20) was located along the gravel access drive between the front yard of the Grant-Kohrs residence and the Bunkhouse. This gate was replaced by a replica

[11] Shapins Associates, "Cultural Landscape Inventory Level II: Grant-Kohrs Ranch National Historic Site, Historic Structure No. 1 (HS-1) Cultural Landscape," 70% Draft Report (National Park Service, Intermountain Region, 2003), 46-47.

double hung wooden gate in 2003 (photo not available). It is intended to control vehicular and livestock access to the lower portions of the ranch.

A round, metal **manhole cover** is found along the asphalt walk that leads to the residence.

Two gray-painted **wooden benches,** (see Photo 3-3-21) are located on the east side of the residence, near an ash tree in the front yard. These moveable benches were made by the NPS for visitor use, and based upon a historic pattern. They have long, flat, plank seats and short, plank supports attached to a rectangular wooden frame located beneath the seat. The supports of decorative designs cut into their bases.

Located east of the residence and near the railroad bed, the **fire box** consists of a small, brown-painted rectangular box with a tiny gable lid. The lid is painted red and has the word "FIRE" stenciled in white paint. Immediately north of and adjacent to the fire box are a **green fire hydrant, stanchion pipe,** and **utility cover** (see Photo 3-3-21). The fire hydrant is of contemporary style and code and is painted green. The stanchion pipe is a round, metal, capped pipe rising several inches above grade and set into a concrete footing. The utility cover is a round, metal, blue-painted cap rising only one or two inches above grade. These features were added by the NPS.

Within the garden plot, **wooden raised-bed frames** help to separate plant types and also act as a design element (see Photo 3-3-22). Low, wooden, milled boards, most likely 2 inches by 4 inches in dimension, form various geometrically-shape raised beds in the eastern half of the garden. Two **wooden trellises** are located in the middle of the garden. These are used to support sweet pea vines. Each trellis consists of three vertical poles supporting an overhead crossbar. Wire mesh stretches across the trellis frame.

A historic reproduction wood and metal **wheelbarrow** is displayed near the northwest corner of the garden plot, (see Photo 3-3-23).

Utility features, in the form of **capped pipes** exist near the southeast corner of the house. These pipes rise only a few inches above ground-level. **Utility meters** and a yellow **stand-pipe** are located on the western side of the residence, between the rows of lilac shrubs (see Photo 3-3-25).

A white-painted, wooden **sign,** installed by the NPS to welcome visitors to the garden, consists of a rectangular plaque attached to a thin post and is located at the western edge of the garden.

Stone step remnants are located in the southeast corner of the garden. These served as the original entrance to the garden and predate the installation of the steps and wooden railing located on the south side of the house, along the slope.

Missing & Archeological Resources
[see Map EC-14 at the end of this section]

During the 1890s, Conrad Kohrs constructed a "water works" system to provide water to the ranch home and landscape. Water from a natural spring located approximately 400 yards northwest of the house was pumped to the residence through a wooden underground pipe system. This water, as well as water from the Kohrs-Manning Ditch, was pumped by a sunken hydraulic ram located at the site of the spring. Once in the house, cast iron pipes carried the water to the attic of the west addition where it was stored in a rectangular, lead-lined wooden storage tank,

and from there, delivered throughout the residence via water heaters and spigots.[12] An overflow pipe carried excess water to the basement and out to a drainage system to Johnson Creek.[13] This system dates to the 1890 addition, and appears to be represented on the 1907 map.

A front lawn watering system provided the front lawn with water, particularly the cottonwoods that occupied this area. This system began about eight hundred yards east of the ranch house, where a ditch tapped the north fork of Johnson Creek. This ditch flowed behind the Warren Residence, on the south edge of the backyard and crossed under the Burlington Northern line in a culvert, emerged back into the open, and then passed under the Milwaukee line through a siphon (HS-57). At the west end of the siphon the water flowed into a ditch along the south side of the house where it was intercepted by a wooden watering box where the water was diverted. The ditch then carried water to two half barrels sunk into the ground between the parallel rows of lilac bushes. Here the water was used for watering the flower garden, plants and vegetable garden.[14]

[12] Albright, 193.
[13] Albright, 194, 216.
[14] Albright, 215.



JMA, October 2002

Photo 3-3-1 : (COMP-01) The Grant-Kohrs residence is located along the "bench," a demarcation in soil type and quality that is defined both by changes in elevation and land use.



JMA, October 2002

Photo 3-3-2 : (AE-13) The front lawn is dominated by a grid of newly planted black cottonwoods.



JMA, October 2002

Photo 3-3-3 : (AG-02) A large black willow occupies the north lawn of the house.



JMA, October 2002

Photo 3-3-4 : (AE-18) A diverse cluster of trees and shrubs occupy the lower garden.



JMA, October 2002

Photo 3-3-5 : (AE-24) A large juniper tree, cottonwood tree, and lilac shrubs dominate the slope.



JMA, October 2002

Photo 3-3-6 : (AE-05) An asphalt sidewalk connects the residence with the Visitor Center.



JMA, October 2002

Photo 3-3-7 : (AE-14) A wood plank walk leads to the front porch of the residence.



JMA, October 2002

Photo 3-3-8 : (AG-12) A short section of brick walk leads from the northeast corner of the Grant house, abutting the wood plank walk, and then curves westward.



JMA, October 2002

Photo 3-3-9 : (AF-05) Flagstone walkway in the lower garden.



JMA, October 2002

Photo 3-3-10 : (AF-24) Wide stone staircase on north side of house. Wooden stairs off the kitchen can be seen in the background.



JMA, October 2002

Photo 3-3-11 : (AF-01) A narrow stone staircase with a wooden handrail is located on the slope north of the garden and south of the house.



JMA, October 2002

Photo 3-3-12 : (AF-20) Wooden stairs located on the west side of the porch.



JMA, October 2002

Photo 3-3-13 : (AG-08) Bunkhouse Road.



JMA, October 2002

Photo 3-3-14 : (COMP-07) The Main Residence has a T-shaped footprint; the white frame Grant residence forms the cross of the T.



JMA, October 2002

Photo 3-3-15 : (AF-19) The 1890 brick Kohrs addition forms the perpendicular post.



JMA, October 2002

Photo 3-3-16 : (AF-12) A large porch is located on the south elevation.



JMA, October 2002

Photo 3-3-17 : (AG-16) White picket fence under construction.



JMA, October 2002

Photo 3-3-18 : (AE-21) White picket fence along south edge of the lower garden. This fence has been replaced with a period reproduction.



JMA, October 2002

Photo 3-3-19 : (AG-10) Wire mesh gate. This gate was replaced with a regular double-hung wooden gate in 2003.



JMA, October 2002

Photo 3-3-20 : (AG-11) Wooden benches (NPS addition).



JMA, October 2002

Photo 3-3-21 : (AE-08) Fire hydrant, fire box, pipe, utility cover, and trash barrel (NPS additions).



JMA, October 2002

Photo 3-3-22 : (AF-03) Wooden raised bed frames and sweet pea trellises in the lower garden.



JMA, October 2002

Photo 3-3-23 : (AF-04) NPS replica wheelbarrow.



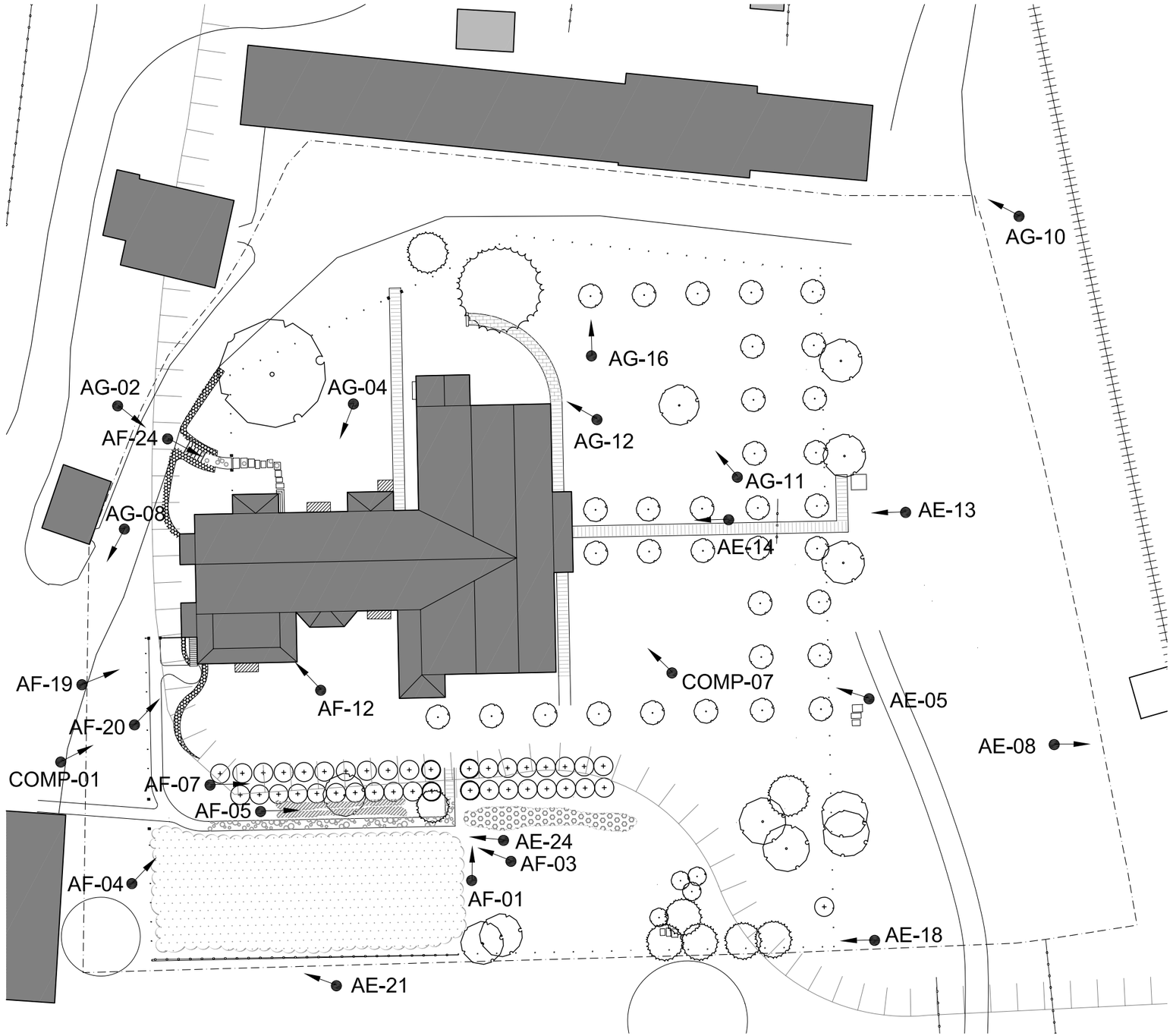
JMA, October 2002

Photo 3-3-24 : (AF-07) Utility meters and a yellow stand-pipe are located on the western side of the residence, between the rows of lilac shrubs.



JMA, October 2002

Photo 3-3-25 : (AG-04) Wood cellar covers.



Map Sources: Albright, John. *Historic Resources Study and Historic Structure Report Historical Data, Kohrs and Bielenberg Home Ranch, Grant-Kohrs Ranch National Historic Site, Montana*. Denver: Denver Service Center, National Park Service, 1977; and Shappins Associates. "Cultural Landscape Inventory: Grant-Kohrs Ranch National Historic Site, Historic Structure No. 1 (HS-1) Cultural Landscape," (Draft Report). National Park Service, Intermountain Region. 2003. Base mapping referenced to Grant-Kohrs Ranch National Historic Site 1994 aerial photographs and Montana 1:24,000 scale State Plane DRG quadrangles. GIS data was exported into Autocad format for production of base maps and further further detailed with additional data collected in the field.

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- GRKO Boundary Line
- Beaver Lodges

Scale: 1" = 30'

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DESIGNED:

DRAWN: ADF

TECH. REVIEW: KLS, RMM

DATE: JULY 2004

SUB SHEET NO. P-5

EXISTING CONDITIONS INVENTORY

GRANT-KOHRS RESIDENCE

PHOTO STATION POINT MAP

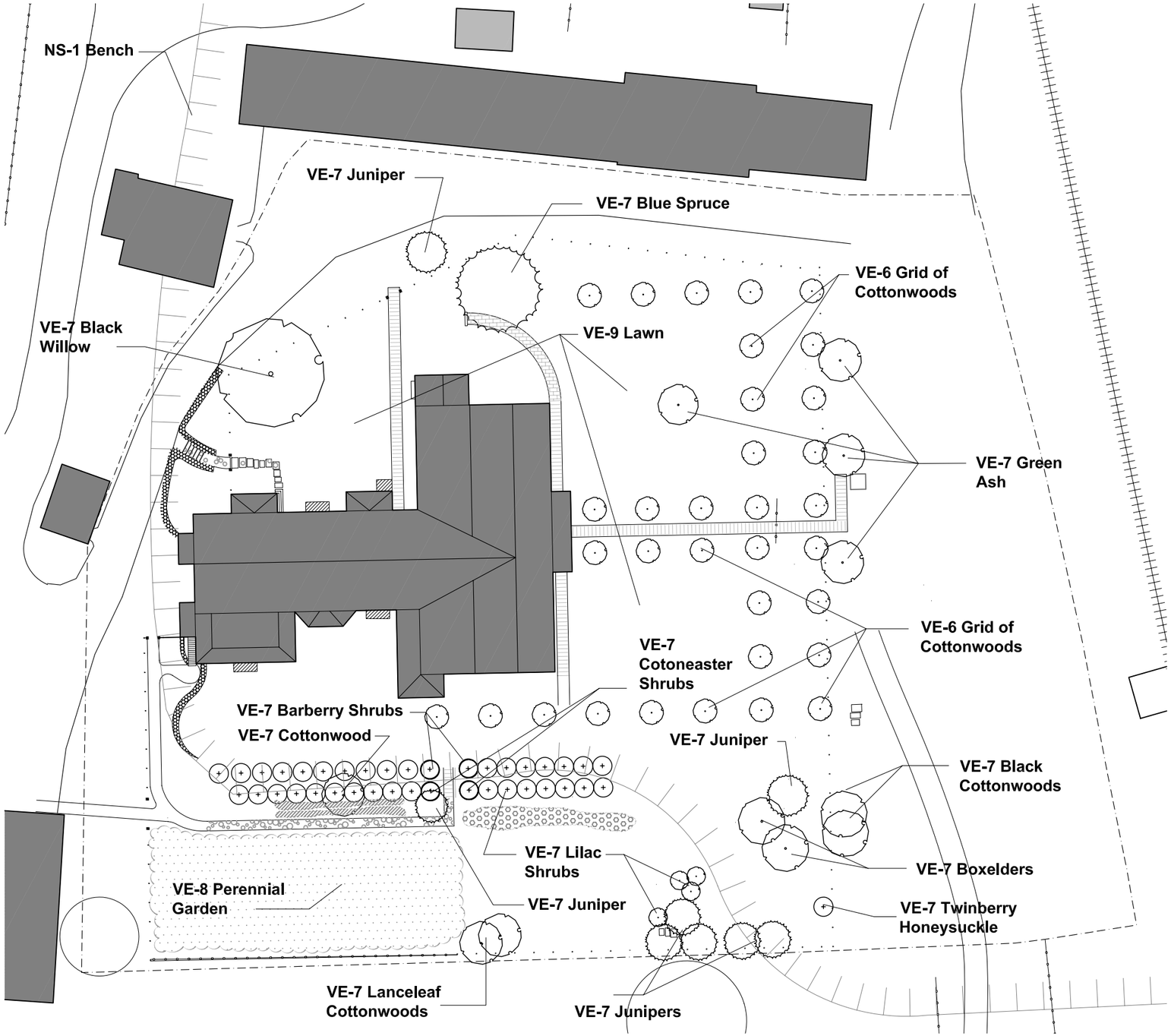
GRANT-KOHRS RANCH NATIONAL HISTORIC SITE

DRAWING NO.

PKG. NO.

SHEET

OF



Map Sources: Albright, John. *Historic Resources Study and Historic Structure Report Historical Data, Kohrs and Bielenberg Home Ranch, Grant-Kohrs Ranch National Historic Site, Montana*. Denver: Denver Service Center, National Park Service, 1977; and Shappins Associates. "Cultural Landscape Inventory: Grant-Kohrs Ranch National Historic Site, Historic Structure No. 1 (HS-1) Cultural Landscape," (Draft Report). National Park Service, Intermountain Region. 2003. Base mapping referenced to Grant-Kohrs Ranch National Historic Site 1994 aerial photographs and Montana 1:24,000 scale State Plane DRG quadrangles. GIS data was exported into Autocad format for production of base maps and further further detailed with additional data collected in the field.

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Legend:

- Roads
- Vegetation
- Bench
- Fences
- Streams/Sloughs
- Railroad
- Buildings/ Structures
- Springs
- Old Ditches
- Main Ditches
- Lateral Ditches
- Component Landscape Boundary Line
- GRKO Boundary Line
- Beaver Lodges

Scale: 1" = 30'

A/E FIRM

PRIME
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CITY,STATE: Philadelphia, PA

SUBCONTRACTOR
NAME: John Milner Associates, Inc.
CITY, STATE: Charlottesville, VA

DESIGNED:
DRAWN: JLB, WMW
TECH. REVIEW: KLS, RMM
DATE: JULY 2004

SUB SHEET NO. EC-11

EXISTING CONDITIONS INVENTORY

GRANT-KOHRS RESIDENCE

NATURAL FEATURES AND VEGETATION

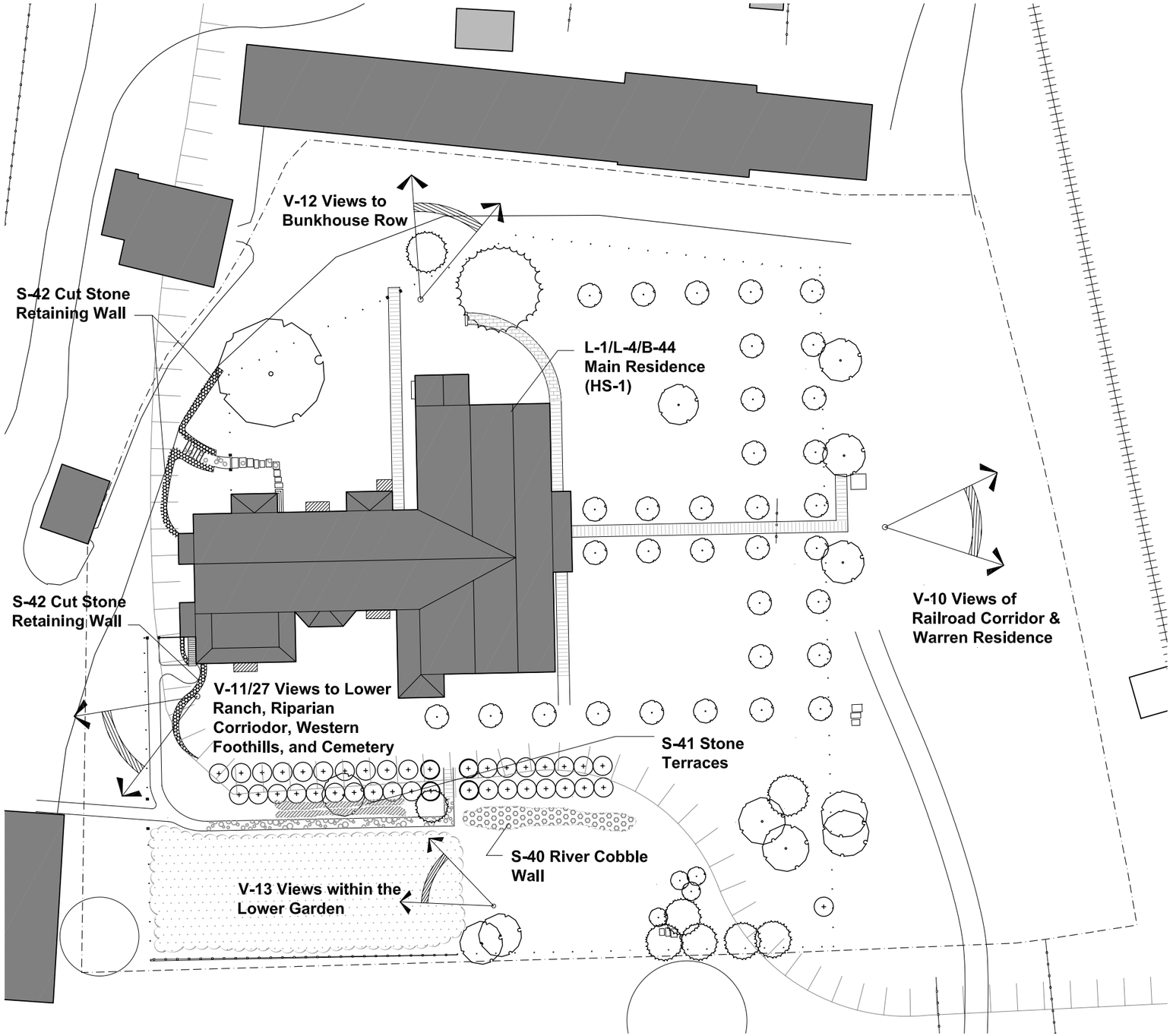
GRANT-KOHRS RANCH NATIONAL HISTORIC SITE

DRAWING NO.

PKG. NO.

SHEET

OF



Map Sources: Albright, John. *Historic Resources Study and Historic Structure Report Historical Data, Kohrs and Bielenberg Home Ranch, Grant-Kohrs Ranch National Historic Site, Montana*. Denver: Denver Service Center, National Park Service, 1977; and Shappins Associates. "Cultural Landscape Inventory: Grant-Kohrs Ranch National Historic Site, Historic Structure No. 1 (HS-1) Cultural Landscape," (Draft Report). National Park Service, Intermountain Region. 2003. Base mapping referenced to Grant-Kohrs Ranch National Historic Site 1994 aerial photographs and Montana 1:24,000 scale State Plane DRG quadrangles. GIS data was exported into Autocad format for production of base maps and further further detailed with additional data collected in the field.

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Legend:

- Roads
- Vegetation
- Bench
- Fences
- Streams/Sloughs
- Railroad
- Buildings/ Structures
- Springs
- Old Ditches
- Main Ditches
- Lateral Ditches
- Component Landscape Boundary Line
- GRKO Boundary Line
- Beaver Lodges

Scale: 1" = 30'

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DATE: JULY 2004

SUB SHEET NO. EC-12

EXISTING CONDITIONS INVENTORY

GRANT-KOHRS RESIDENCE

BUILDINGS & STRUCTURES, LAND USE, AND VIEWS

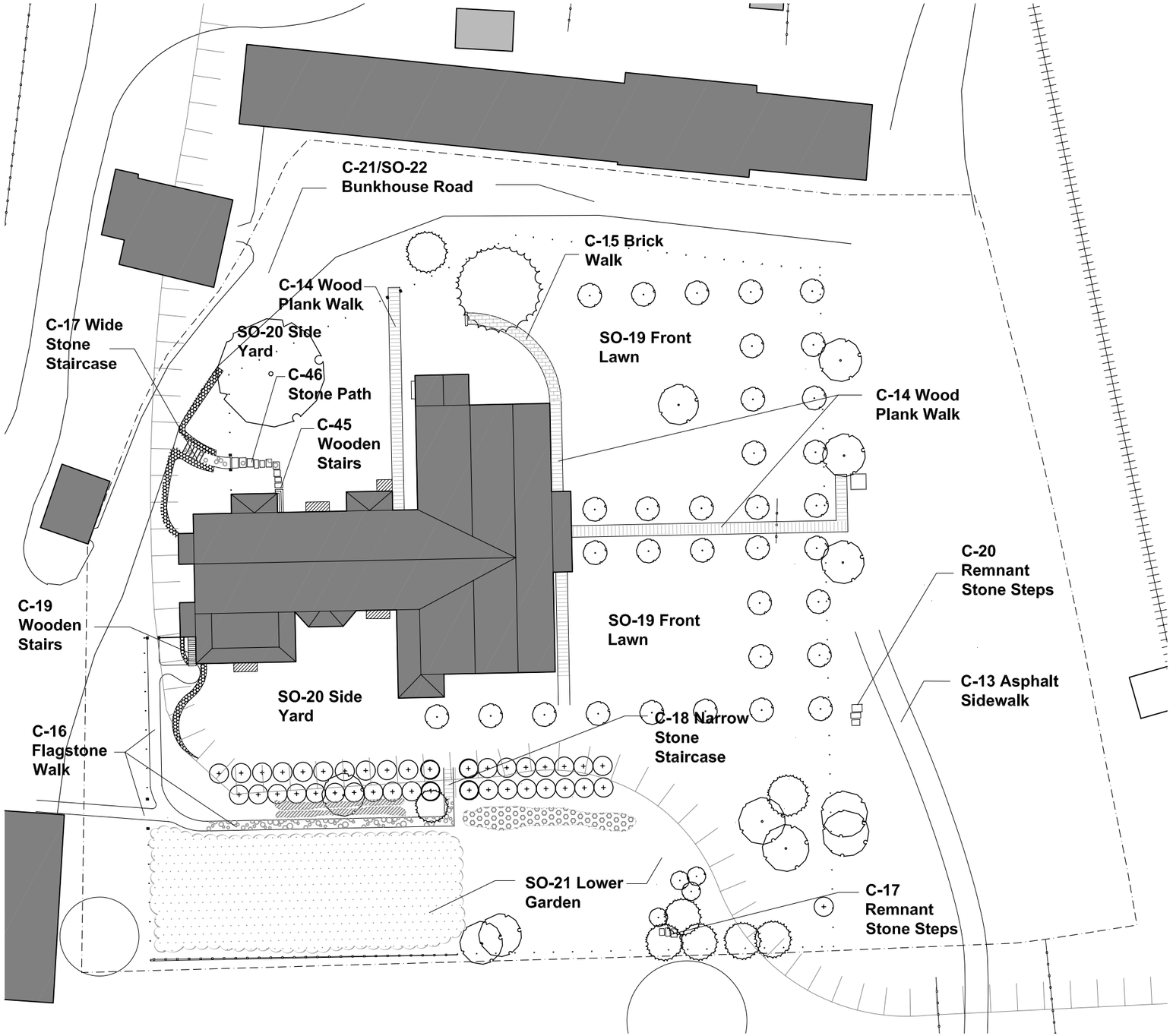
GRANT-KOHRS RANCH NATIONAL HISTORIC SITE

DRAWING NO.

PKG. NO.

SHEET

OF



Map Sources: Albright, John. *Historic Resources Study and Historic Structure Report Historical Data, Kohrs and Bielenberg Home Ranch, Grant-Kohrs Ranch National Historic Site, Montana* . Denver: Denver Service Center, National Park Service, 1977; and Shappins Associates. "Cultural Landscape Inventory: Grant-Kohrs Ranch National Historic Site, Historic Structure No. 1 (HS-1) Cultural Landscape," (Draft Report). National Park Service, Intermountain Region. 2003. Base mapping referenced to Grant-Kohrs Ranch National Historic Site 1994 aerial photographs and Montana 1:24,000 scale State Plane DRG quadrangles. GIS data was exported into Autocad format for production of base maps and further further detailed with additional data collected in the field.

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Legend:

- Roads
- Vegetation
- Bench
- Fences
- Streams/Sloughs
- Railroad
- Buildings/ Structures
- Springs
- Old Ditches
- Main Ditches
- Lateral Ditches
- Component Landscape Boundary Line
- GRKO Boundary Line
- Beaver Lodges

Scale: 1" = 30'

A/E FIRM

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TECH. REVIEW: KLS, RMM

DATE: JULY 2004

SUB SHEET NO. EC-13

EXISTING CONDITIONS INVENTORY

GRANT-KOHRS RESIDENCE

CIRCULATION AND SPATIAL ORGANIZATION

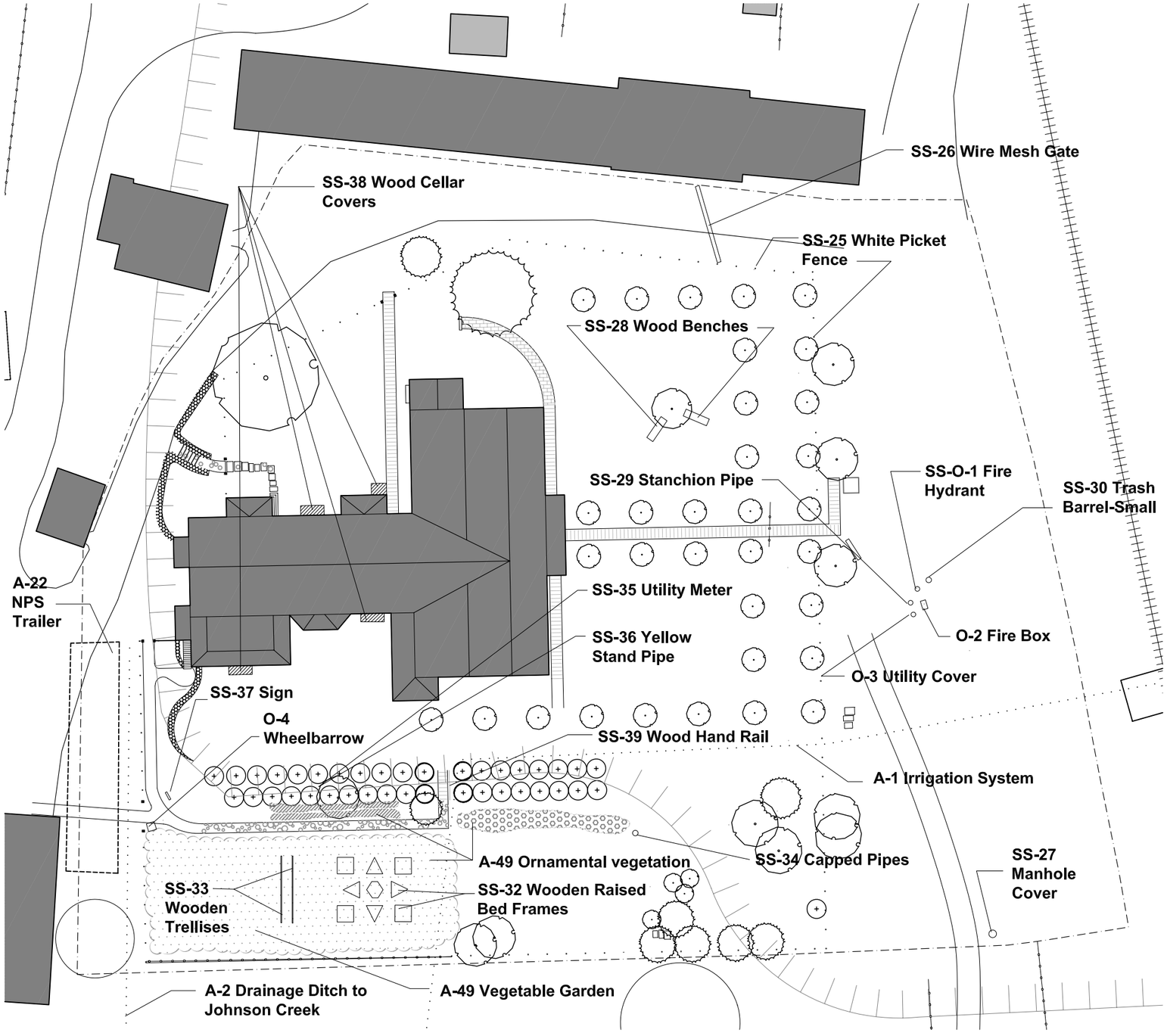
GRANT-KOHRS RANCH NATIONAL HISTORIC SITE

DRAWING NO.

PKG. NO.

SHEET

OF



Map Sources: Albright, John. *Historic Resources Study and Historic Structure Report Historical Data, Kohrs and Bielenberg Home Ranch, Grant-Kohrs Ranch National Historic Site, Montana*. Denver: Denver Service Center, National Park Service, 1977; McChristian, Douglas C. *Ranchers to Rangers: An Administrative History of Grant-Kohrs Ranch National Historic Site.* National Park Service, Rocky Mountain Cluster, 1977; and Shappins Associates. "Cultural Landscape Inventory: Grant-Kohrs Ranch National Historic Site, Historic Structure No. 1 (HS-1) Cultural Landscape," (Draft Report). National Park Service, Intermountain Region. 2003. Base mapping referenced to Grant-Kohrs Ranch National Historic Site 1994 aerial photographs and Montana 1:24,000 scale State Plane DRG quadrangles. GIS data was exported into Autocad format for production of base maps and further further detailed with additional data collected in the field.

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Legend:

- Roads
- Railroad
- Lateral Ditches
- Vegetation
- Buildings/ Structures
- Component Landscape Boundary Line
- Bench
- Springs
- GRKO Boundary Line
- Fences
- Old Ditches
- Beaver Lodges
- Streams/Sloughs
- Main Ditches

Scale: 1" = 30'

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DRAWN: JLB, WMW

TECH. REVIEW: KLS, RMM

DATE: JULY 2004

SUB SHEET NO.

EC-14

EXISTING CONDITIONS INVENTORY

GRANT-KOHRS RESIDENCE

OBJECTS, SMALL-SCALE, & MISSING FEATURES

GRANT-KOHRS RANCH NATIONAL HISTORIC SITE

DRAWING NO.

PKG. NO.

SHEET

OF

Warren Residence

Warren Residence

[Existing conditions maps and photographs follow this section]

Introduction

The Warren Residence landscape is characterized by the land and home given to Conrad and Nellie Warren as a wedding gift by Con's grandmother, Augusta Kohrs. It includes the complex of buildings associated with the domestic yard, as well as the larger landscape defined by Kohrs-Warren Lane to the north, Business Loop 90 to the east, the railroad corridor to the west, and the Development Zone to the south.

Natural Systems and Features

[see Map EC-15 at the end of this section]

The Warren Residence sits on high ground, located above the floodplain of the North Fork of Johnson Creek. The land slopes moderately south down from the residence to the creek, and then back up to a relatively flat pasture area before reaching the Development Zone. Most of the domestic area, including the surrounding land along the north and east sides, rests on very deep and well drained Beaverell loams that formed in alluvium on stream terraces. The southeast and central portions of this landscape zone consist of Tetonview loams, found elsewhere throughout the lower-lying corrals of the home ranch complex, which are very deep and poorly drained. These soils are associated with the Johnson Creek floodplain, which drains the surrounding area.

Vegetation

[see Map EC-15 at the end of this section]

Native, exotic, and ornamental plants occupy the Warren Residence landscape area. Tall native cottonwoods dominate the narrow riparian zone along the Johnson Creek floodplain, (see Photo 3-4-1). A mix of native and exotic grasses is found in the pasture area to the south, while grass is primarily found in the lawn within the domestic yard.

The domestic yard surrounding the Warren home and outbuildings has several native tree species that have been planted to reinforce the yard's spatial organization, add character, provide shade, and beautify the landscape. These plants include several spruce trees which are generally found along the inside periphery of the fence that surrounds the domestic yard, and cottonwood trees which are primarily located along the rear of the house, near the boat house, and along the periphery of the fence line (see Photo 3-4-2). The cottonwoods found along Johnson Creek to the south visually merge with those found inside the yard and tie the two areas together. Several more spruce trees were located within the domestic yard, but were removed in recent years.

Other tree species include the mountain ash, maple, green ash, and juniper. These, along with shrubs, such as the cotoneaster and juniper shrub are located to the west of the house, near the pump house and at the pedestrian entry gate. Several other shrubs and perennials that were once located along the house foundation and patio were removed in 2001 by the NPS.[1] These include a large spruce located at the rear of the house, a large juniper tree located near the garage, two mountain ash and a juniper shrub at the entrance to the house, and peonies at the rear of the

[1] Vegetation Map, Con Warren Complex HS-58, Based on observations by Lanette King (1994) and drawing by Gary Hansen (1995).

garage.[2] Several stumps are still visible throughout the yard. In 2003 the NPS initiated removal of the tree stumps and replanting of representative (1934-1958) historic plantings.[3]

Spatial Organization
[see Map EC-16 at the end of this section]

The spaces located within the Warren Residence landscape are defined by the house and its outbuildings, fences, topography, and the large canopy trees. At the larger scale, the landscape contains four fields. The field to the east of the domestic yard is contained by the wood post and sheep wire fence and elevated road bed of Main Street, the entry lane and wood post and wire mesh fence along the north, the Warren domestic yard to the east, and the Johnson Creek riparian corridor to the south (see Photo 3-4-3).

There are two fields to the west of the Warren yard. The first contains the chicken coop and is defined by the entry lane and wood post and sheep wire fence along its north, south, and west sides, and the Warren domestic yard picket fence on the east (see Photo 3-4-4).

The field to the far west of the house is defined by the entry lane and post and wire fence to the north, the chicken coop field to the east, the jack-leg fence and elevated railroad corridor to the west, and the Johnson Creek riparian corridor to the south (see Photo 3-4-5).

The Stuart Pasture is defined by the Johnson Creek riparian corridor on the north, the fence and drainage swale along Main Street to the east, the jack-leg fence surrounding the Development Zone on the south, and the fence and elevated railroad corridor on the west (see Photo 3-4-6). At times, Warren put late calves here with extra feed.[4]

The spatial organization within the Warren domestic yard is further subdivided into the front, east, and rear, west, yards. The front yard is defined by the vertical plane of the front façade of the house and garage, the front edge of the pump house, and the front fence. The east yard is defined by the vertical plane of house and garage's east elevation, the picket fence, the large spruce trees along the fence, and the clothesline. The rear yard is defined by the clothesline on the north, the large spruce trees and fence along the southeast and along the back of the house, and the fence along the south side. While the back yard is contained by the fence, this area visually extends to Johnson Creek, as the sloping topography and large cottonwoods on the other side of the fence blend together. The west yard is defined by the pump house to the north, the house's west elevation, the fence to the east, and the northern façade of the boathouse.

Land Use
[see Map EC-16 at the end of this section]

From 1991-2002, the administrative office for the Grant-Kohrs Ranch had been located at 212 Missouri Street in the City of Deer Lodge. In 2002 the administrative offices were moved to the Warren Residence. The field located to the south of the Warren residence is used primarily for pasture, especially during visitor season so visitors can see the cattle.

[2] Grant-Kohrs Ranch National Historic Site, "Compliance Review Form, "Remove Trees Effecting HS-58 Warren Residence," Compliance No. GRKO 01-22 (On file at Grant-Kohrs NHS archives, July 27, 2001).
[3] Grant-Kohrs Ranch National Historic Site, "Compliance Review Form, "Plant Vegetation at HS-58 Warren House," Compliance No. GRKO 03-05 (On file at Grant-Kohrs NHS archives, February 10, 2003).
[4] NPS comments, 75% draft CLR review.

Constructed Water Features
[see Map EC-16 at the end of this section]

A portion of the north fork of Johnson Creek has been placed in a metal culvert to allow vehicles passage to and from the Stuart pasture (see Photo 3-4-7).
The Warren Residence well is located to the west of the residence, below the pumphouse (HS-88). This well, dug in 1934, originally provided water to the residence.[5] Today the entire site gets its water from the City of Deer Lodge.

Circulation
[see Map EC-16 at the end of this section]

The Warren Residence fronts the historic entry road, Kohrs-Warren Lane, linking the home ranch complex with Main Street (see Photo 3-4-8). Historically this lane was the main entry road to the Grant-Kohrs residence. On axis with the center of the home ranch, this lane was once lined by Cottonwood trees on either side, which were irrigated by a metal pipe. This pipe is still in place.[6] The Warren residence utilized this same access road; it is still used by the park staff that currently occupies the building.

Two unimproved roads are found near the house. These include the Stuart Pasture Road, which links Kohrs-Warren Lane with the pasture located south of the residence. The other provides access to the Chicken Coop Field. A paved driveway provides access to the garage, and concrete sidewalks provides pedestrian links to the front door of the house. A paved flagstone patio is also located to the east of the residence, just south of the breezeway.

There are several remnant stone paths within the yard. One path leads from the rear of the patio on the east side of the house and continues to the entrance of the boat house. It appears there are several stones missing. Other stepping stones can be found on the west side of the house leading to the picket double gate and the Chicken Coop field. A few other stones are located along the west side of the house; it is assumed that these connected to the front walk.

Views and Vistas
[see Map EC-17 at the end of this section]

Views found within the Warren Residence area are generally contained within this domestic yard. Vegetation to the east, south, and west (as well as the railroad corridor) encloses the landscape and orients views inward toward the house and grounds. From the front of the house, views are oriented outward towards the bull barns and Warren Barn. Views of the Visitor Center area and fairgrounds are prominent from within Stuart Pasture located behind the residence.

Buildings and Structures
[see Map EC-16 at the end of this section]

The following buildings and structures information has been derived from the "National Register of Historic Places Registration Form," the *Conrad and Nellie Warren Residence Historic*

[5] Cultural Resources & National Register Program Services, *Conrad and Nellie Warren Residence Historic Structure Report* (Santa Fe: National Park Service, Intermountain Support Office, First Draft 2001), V-3.
[6] Cultural Resources & National Register Program Services, *Conrad and Nellie Warren Residence Historic Structure Report* (Santa Fe: National Park Service, Intermountain Support Office, First Draft 2001), V-37-38; Irrigation information provided by NPS personnel draft review comments.

Structures Report, and supplemented by field observations during the 2002 site visit (see references for full citations).

Within the Warren domestic complex, buildings and structures supported and currently interpret the everyday ranch life of Conrad and Nellie Warren. The centerpiece of the complex is the **Warren Residence** (HS-58), (see Photo 3-4-9) built in 1934. The residence is a one-and-a-half story building with an irregular floor plan and a cross gable roof. The wood-frame house sits on a poured concrete footing foundation. White stucco covers the exterior walls on the north and east elevations while horizontal wood siding covers the south and west elevations, dormers, and front gable end. Red and gray asphalt shingles are set in a random pattern over the roof, which was replaced in-kind in 2002. The north side of the house has an enclosed entrance porch. Other north elevation features include one large picture window, one 16-light wood-sash window with four fixed side lights and eight center lights in an operable casement, and one six-light wood-sash casement window.

A nine-light, one panel door is on the south side of the east elevation. Four 16-light wood-sash windows, with operable centers and fixed side lights, are also located on the east elevation. The south elevation interior stucco chimney is topped with terra-cotta chimney pots. The second floor bedroom window has been replaced with a fire exit window.

The **Garage** (HS-61), (see Photo 3-4-10) is attached to the western elevation of the house by a wood-frame breezeway. The breezeway features horizontal beveled wood siding and three fixed-sash, wood-frame windows. The breezeway is original to the 1934 construction; it was not enclosed until the 1980s. The garage is a one-story, rectangular, wood-frame building constructed on a concrete pad. Gray and red asphalt shingles cover the gable roof. White stucco covers the exterior walls and the gable ends are covered with horizontal beveled wood siding. A wooden, 18-panel, overhead door dominates the north elevation. A centered, one-panel door provides access from the breezeway on the west elevation. Both the south and east elevations contain a centered, six-light, steel casement window.

The **Warren Residence Pump House** (HS-88), (see Photo 3-4-11) was built in 1952 and lies west of the Warren residence. The pump house is a rectangular, half-buried concrete structure with a gabled roof. The structure is exposed to a height of three feet above the ground. The walls are poured-in-place concrete. A hatch door on the south side of the building provides access to the interior. The roof has red asphalt shingles and exposed rafter ends. Five-inch dropped wood siding and 4-inch wood corner trim fill the gable ends. NPS installed a new pump and pressure tank during the 1990s.

Built in 1940, the **Chicken Coop** (HS-59), (see Photo 3-4-12) is a one-story, rectangular, wood-frame building set on a concrete pad and located west of the Warren residence. Red mineral rolled asphalt roofing covers the shed roof and rafter ends are exposed on the north and south elevations. Horizontal wood siding covers the exterior walls. Doors are located on the eastern and western elevations. The south elevation contains seven windows. Two rectangular vents and two chicken doors are located low on the south elevation.

The **Boat House** (HS-60), (see Photo 3-4-13) was constructed in the 1950s as storage for Conrad Warren's sailboat. The boat house is a one-story, rectangular, wood-frame building constructed on a concrete pad. Vertical board-and-batten siding covers the exterior walls. The gabled roof is covered with wood shingles. A four-panel wood door is located on the east elevation. Windows are three-light, wood-frame hoppers. A side-hinged, board-and-batten double garage door dominates the west elevation.

Objects and Small-scale Features
[see Map EC-18 at the end of this section]

Fences and gates around the Warren residence are both utilitarian and ornamental in design. Fences and gates are constructed of both wood and metal, and often combinations of the two.

The most prominent fence type of the component landscape is the **Picket Fence** that surrounds the Warren Residence (see Photo 3-4-14). The fence consists of white-painted, vertical, wooden pickets attached at the top and bottom to horizontal supports. All wood members were replaced in-kind ca. 2001.[7] The fence surrounds the Warren residence on all sides.

An **Electrical Fence** runs adjacent to the eastern and southern sections, and on the pasture side, of the picket fence (see Photo 3-4-15). This fence consists of short, metal posts supporting a single metal wire that carries some level of voltage. Installed by the NPS, this fence prevents cattle from leaning against, and thus damaging, the picket fence.

Three types of gates are associated with the picket fence: the **Picket Double Gate,** (see Photo 3-4-16) **Picket Single Gate,** (see Photo 3-4-14) and **Wire Mesh Gate,** (see Photo 3-4-17)**.** The double gate is located on the western side of the Warren residence. The wood gate consists of two rectangular frames that swing open at the center. The frames, cross-braced on the interior and attached to hinge-posts at opposite ends, are covered with evenly-spaced white pickets, matching those found on the regular fence.

The picket single gate is located on the north edge of the Warren residence; at the end of a concrete sidewalk leading from the house to the road. The gate is between 3 and 4 feet wide and consists of a square, cross-braced frame. The pickets that cover the frame are taller than the regular pickets and cut to form a rounded top.

The wire mesh gate is also located on the north edge of the Warren residence and encloses the driveway leading to the Warren Garage. The rectangular, metal pipe frame gate is between 12 and 15 feet wide. Wire mesh fills the pipe frame while a diagonal wire brace reaches from the hinge-post to the opposite, lower corner for support.
The small corral surrounding the chicken coop and the larger corral delineating the Warren residence limits are both defined by **Wood Post and Woven Wire Fence,** (see Photo 3-4-16). This fence is typical of other wood and woven wire fences found within the CLR study boundary. Woven Wire fence consists of un-milled wood posts or peeled logs supporting a wire mesh component. Variations of this fence type include metal posts or a combination of wood and metal posts supporting wire mesh. Sheep Wire fence is commonly referred to as woven wire fence. This fence type is also found in this landscape, and is common throughout the ranch. It is bundled in a large roll and, when stretched, it has a strong wire top and bottom. Wire squares are larger on top and smaller on the bottom.

Associated with this fence type is the **Red Wood Gate,** (see Photo 3-4-18) typical of other red gates found within the study boundary. Located on the western edge of the chicken coop corral, this red-painted gate consists of five milled boards attached horizontally to support posts at either end. The gate is braced on each side with a central vertical board and two diagonal boards.

[7] Grant-Kohrs Ranch National Historic Site, "Compliance Review Form, "Reconstruct Warren House Picket Fence," Compliance No. GRKO 01-01 (On file at Grant-Kohrs NHS archives, January 18, 2001).

Rather than wood post and woven wire fence, **Jack-Leg fence,** (see Photo 3-4-19) is located along the western edge of the Warren Residence landscape. The Jack-Leg fence consists of two posts that are crossed at the top to form X-shapes. These "X-posts" support 4 horizontal rails; the top rail rests in the crux of the X while the remaining three are attached to one of the posts that create the X. A fifth rail is attached to the opposite side of the fence, near the bottom. This arrangement creates an angled, rather than upright fence.

Several other small scale features are located within the Warren Residence component landscape. These include a **fire hydrant** and an **NPS mailbox** located along Warren Lane, directly to the north of the residence (see Photo 3-4-20), as well as a metal garbage can containing a fire hose with two wooden posts on either side. The mailbox post-dates this photo. To the east of the residence, along the inside of the picket fence, is an approximate four foot by four foot square **concrete foundation** that once supported the barbeque stove. A **metal burn barrel** now rests on this foundation (see Photo 3-4-21).

A freestanding **clothes line** structure is located just off the southeast corner of the residence. This is a four-sided metal pipe structure and has been painted dark green. A **concrete bird bath** is located just to the east of the clothes line (see Photo 3-4-22).

Along the north side of the residence, several stepping stones are located within the foundational planting area (see Photo 3-4-23). Found just to the west of the entry porch, these stones are not in their original configuration. Originally they curved from the front door to the front gate, and were subsequently covered/replaced by the covered porch and concrete path.[8]

An approximate three foot by three foot square **concrete trough** is located to the rear of the domestic yard (see Photo 3-4-24). This structure is supported by concrete feet. A **magpie trap** is located further to the south and west, near the north fork of Johnson Creek (see Photo 3-4-7). This is a wooden frame structure constructed of wooden posts, with a concave wood frame top supporting chicken wire mesh. This structure measures approximately five feet by five feet, and the mesh rests approximately three feet off the ground. This structure will likely be removed by the NPS.

Missing & Archeological Resources
[see Map EC-18 at the end of this section]

Based upon analysis of an aerial photograph dating from 1960, two granary foundations are located west of the Warren Chicken Coop (HS-59), west of the road leading south to the Warren pasture. While the granaries are no longer extant, their concrete foundations remain (see Photo 3-4-25). Based upon photographic evidence and staff recollections, these features were removed between 1954 and 1974.

A trailer appears in the 1983 aerial photo, just to the southeast of the chicken coop. This structure was occupied by Ole Berg, a ranch hand and later Con Warren's caretaker (Berg was later joined by his wife, Elizabeth). The trailer was removed in 1993 following Con Warren's death.[9]

During the Warren period, a one inch metal pipe was placed along both sides of the Kohrs-Warren Lane to irrigate the cottonwood trees.[10] While the source of this water is no longer available, the pipes remain.

[8] NPS comments, 75% draft CLR review.
[9] NPS comments, 75% draft CLR review.

Other missing small scale features are associated with the Warren domestic landscape. These include a dog house once located east of the house; a swing set once located in the area of the existing patio; a creep feeder southeast of the house in Stuart Pasture; and ornamental plantings, a wooden bridge over the ditch, and sweet pea trellis just southeast of the house, on the slope north of the North Fork of Johnson Creek. A stepping stone path led from the house to across the bridge over the ditch.

[10] NPS comments, 75% draft CLR review.



JMA, October 2002

Photo 3-4-1 : (RA-02) Tall native cottonwoods dominate the narrow riparian zone along the Johnson Creek (north fork) floodplain.



JMA, October 2002

Photo 3-4-2 : (RU-14) Spruce and cottonwood trees dominate the Warren domestic landscape.



JMA, October 2002

Photo 3-4-3 : (RY-23) East Field.



JMA, October 2002

Photo 3-4-4 : (RU-08) Chicken Coop Field.



JMA, October 2002

Photo 3-4-5 : (RU-16) West Field.



JMA, October 2002

Photo 3-4-6 : (RZ-01) Stuart Pasture.



JMA, October 2002

Photo 3-4-7 : (RZ-10) Metal culvert, Stuart Pasture Road, and Magpie Trap.



JMA, October 2002

Photo 3-4-8 : (RU-25) Kohrs-Warren Lane, looking east.



JMA, October 2002

Photo 3-4-9 : (COMP-32) Warren Residence (HS-58).



JMA, October 2002

Photo 3-4-10 : (RY-10) Warren Garage (HS-61).



JMA, October 2002

Photo 3-4-11 : (RV-23) Warren Residence Pump House (HS-88).



JMA, October 2002

Photo 3-4-12 : (RZ -21) Chicken Coop (HS-59).



JMA, October 2002

Photo 3-4-13 : (RZ-24) Boat House (HS-60).



JMA, October 2002

Photo 3-4-14 : (RV-02) Picket Fence and Picket Single Gate.



JMA, October 2002

Photo 3-4-15 : (RU-05) Electrical fence along outside of picket fence.



JMA, October 2002

Photo 3-4-16 : (RX-21) Picket fence and Picket Double Gate. Woven Wire Fence in foreground. Note antenna pole near picket double gate.



JMA, October 2002

Photo 3-4-17 : (RX-08) Wire Mesh Gate.



JMA, October 2002

Photo 3-4-18 : (RY-16) Red Wood Gate.



JMA, October 2002

Photo 3-4-19 : (RU-22) Jack-Leg Fence.



JMA, October 2002

Photo 3-4-20 : (RX-17) Fire hydrant.



JMA, October 2002

Photo 3-4-21 : (RV-10) Concrete foundation and metal burn barrel. Note that the family brands are still visible (the “CK” is Conrad Kohrs; the large “K” is a horse brand; “D-S” is Davis Hanson Stuart; and the right-side-up and upside-down pair of fives is Five Up and Five Down).



JMA, October 2002

Photo 3-4-22 : (RV-11)Clothes line and concrete bird bath.



JMA, October 2002

Photo 3-4-23 : (RV-3) Stepping stones along front of house. This is not the original configuration. When the NPS dug up the vegetation and repaired the drainage, they did not replace the stones in their exact locations and did not photo-document the change. They curved from the front door to the front gate, and were covered/replaced by the covered porch and concrete path.



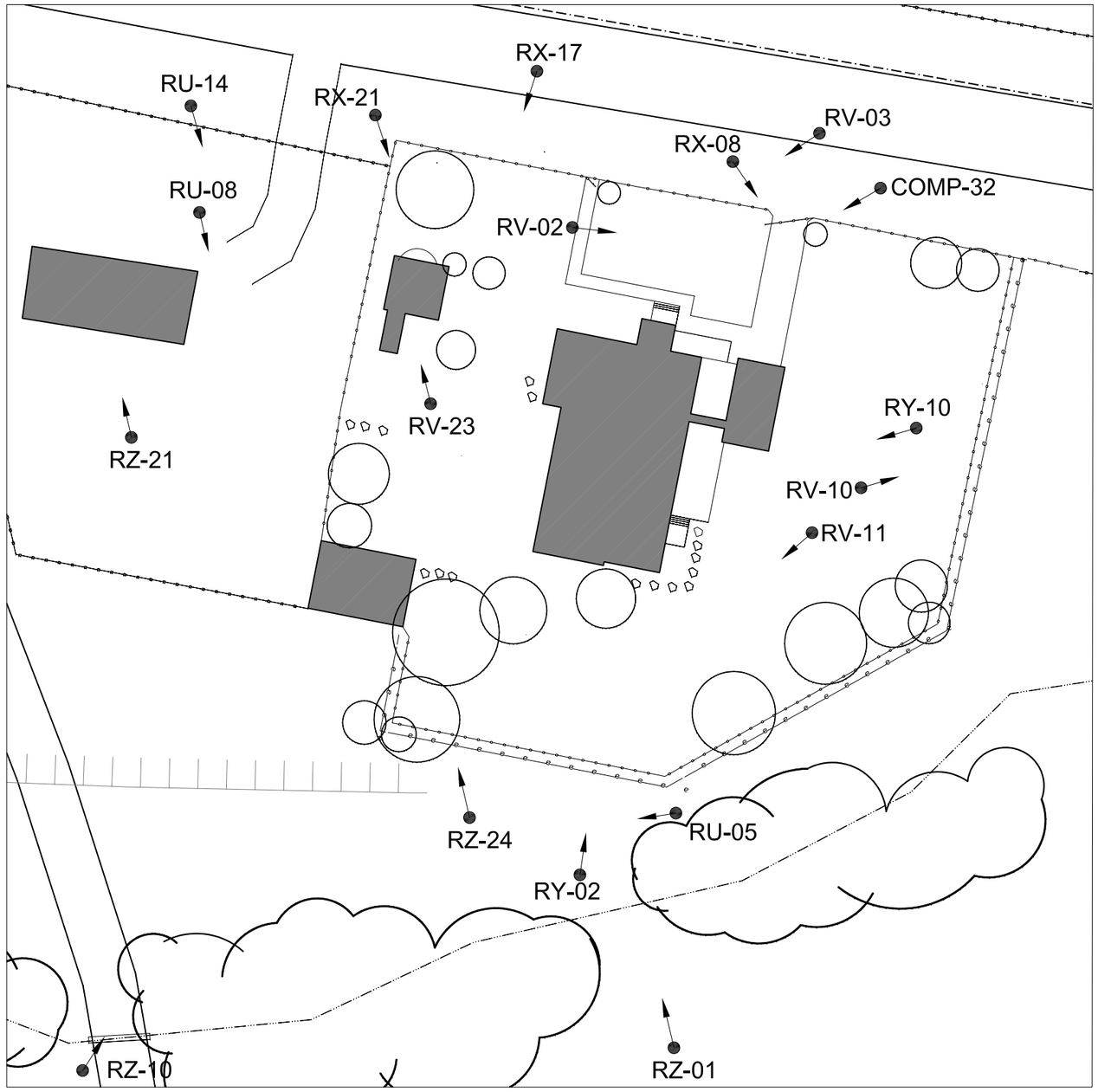
JMA, October 2002

Photo 3-4-24 : (RY-2) Concrete Trough.



JMA, October 2002

Photo 3-4-25 : (RU-23) Remnant concrete granary foundations.



Scale: 1" = 40'



Not To Scale

Map Sources: Cultural Resources & National Register Program Services. "Conrad and Nellie Warren Residence, Historic Structure Report. Grant-Kohrs Ranch, National Historic Site, Montana [Draft 1]," (Santa Fe: Intermountain Support Office, 2001); King, Lanette and Hansen, Gary. "Vegetation Map, Con Warren Complex HS-58." Autocad map of field observations during 1994 and 1995. Base mapping referenced to Grant-Kohrs Ranch National Historic Site 1994 aerial photographs and Montana 1:24,000 scale State Plane DRG quadrangles. GIS data was exported into Autocad format for production of base maps and further further detailed with additional data collected in the field.

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Legend:

- Roads
- Vegetation
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- Railroad
- Buildings/ Structures
- Springs
- Old Ditches
- Main Ditches
- Lateral Ditches
- Component Landscape Boundary Line
- GRKO Boundary Line
- Beaver Lodges

A/E FIRM

PRIME
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CITY, STATE: Philadelphia, PA

SUBCONTRACTOR
NAME: John Milner Associates, Inc.
CITY, STATE: Charlottesville, VA

DESIGNED:
DRAWN: ADF
TECH. REVIEW: KLS, RMM
DATE: JULY 2004

SUB SHEET NO.
P-6

EXISTING CONDITIONS INVENTORY

WARREN RESIDENCE

PHOTO STATION POINT MAP

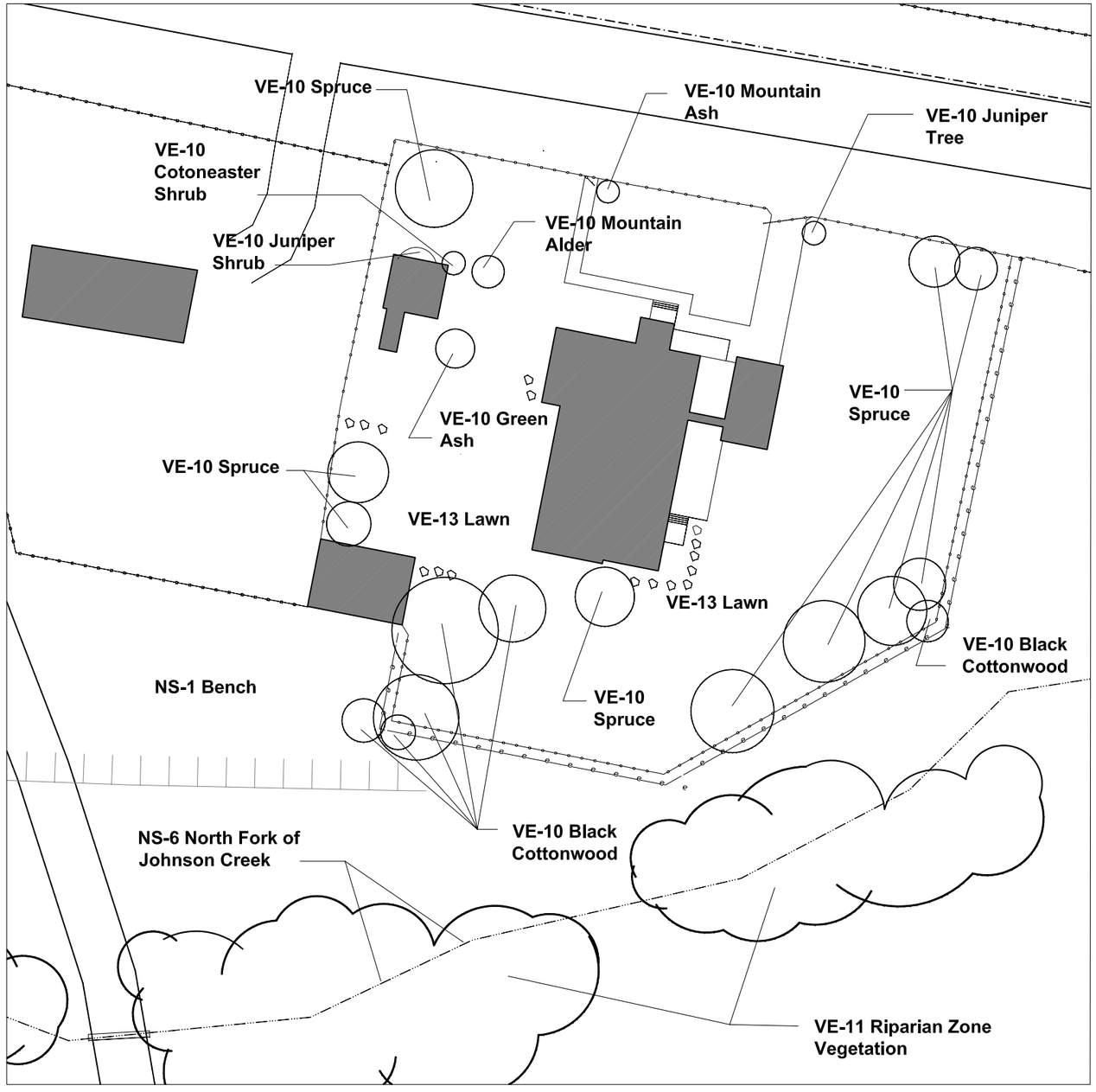
GRANT-KOHRS RANCH NATIONAL HISTORIC SITE

DRAWING NO.

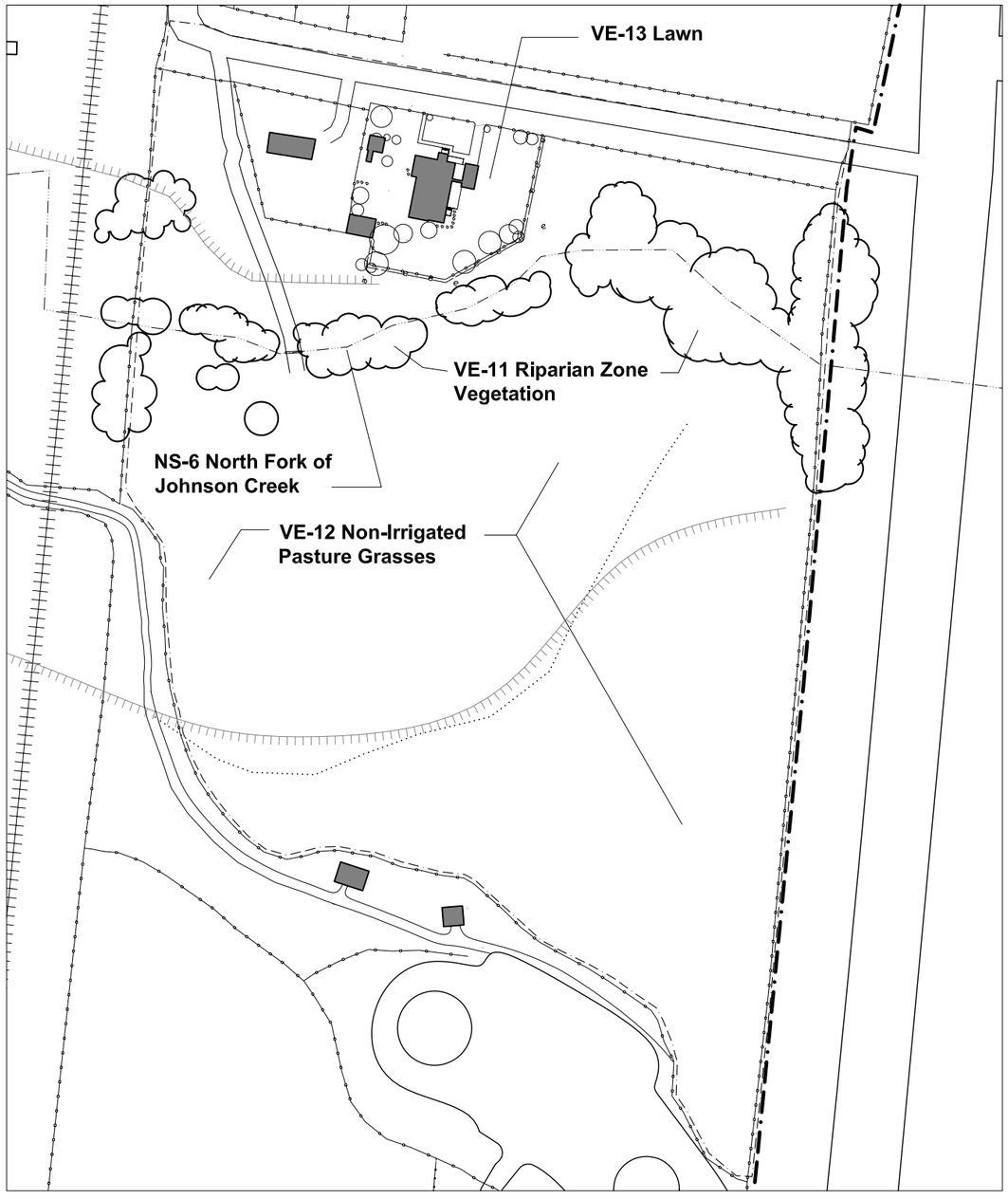
PKG. NO.

SHEET

OF



Scale: 1" = 40'



Not To Scale

Map Sources: Cultural Resources & National Register Program Services. "Conrad and Nellie Warren Residence, Historic Structure Report. Grant-Kohrs Ranch, National Historic Site, Montana [Draft 1]," (Santa Fe: Intermountain Support Office, 2001); King, Lanette and Hansen, Gary. "Vegetation Map, Con Warren Complex HS-58." Autocad map of field observations during 1994 and 1995. Base mapping referenced to Grant-Kohrs Ranch National Historic Site 1994 aerial photographs and Montana 1:24,000 scale State Plane DRG quadrangles. GIS data was exported into Autocad format for production of base maps and further further detailed with additional data collected in the field.

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A/E FIRM

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DESIGNED:
DRAWN: JLB, WMW
TECH. REVIEW: KLS, RMM
DATE: JULY 2004

SUB SHEET NO.
EC-15

EXISTING CONDITIONS INVENTORY

WARREN RESIDENCE

NATURAL SYSTEMS AND VEGETATION

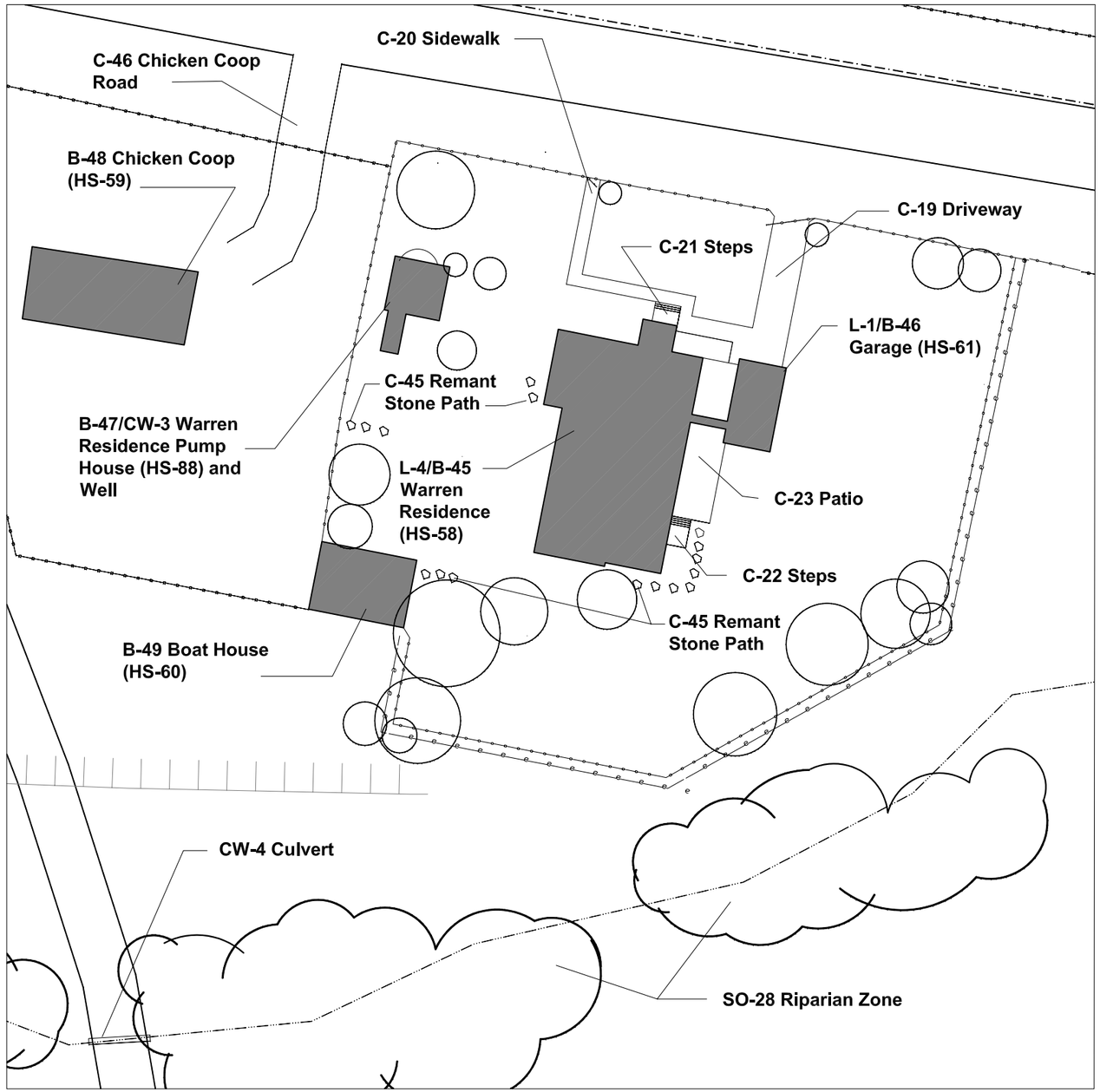
GRANT-KOHRS RANCH NATIONAL HISTORIC SITE

DRAWING NO.

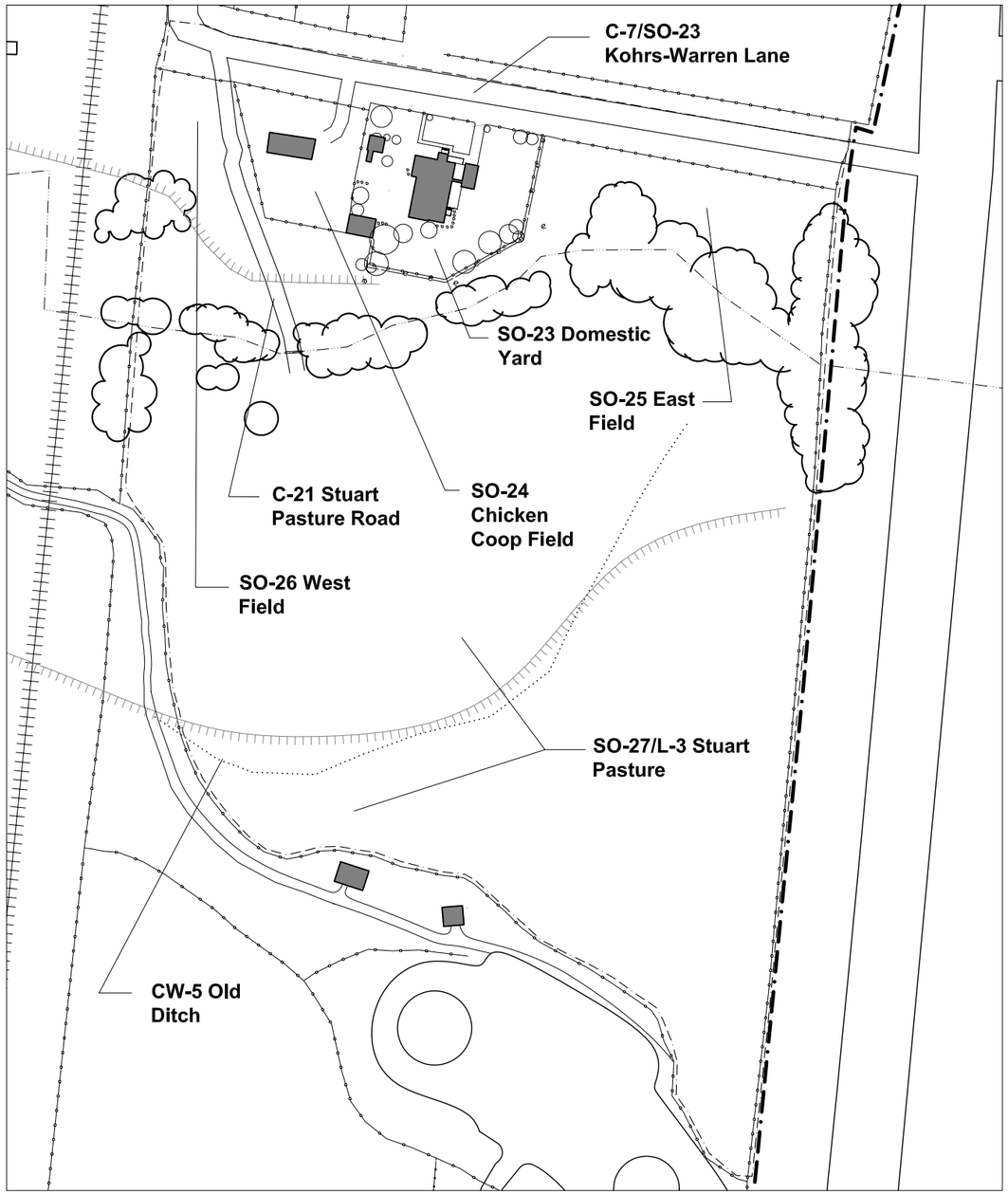
PKG. NO.

SHEET

OF



Scale: 1" = 40'



Not To Scale

Map Sources: Cultural Resources & National Register Program Services. "Conrad and Nellie Warren Residence, Historic Structure Report. Grant-Kohrs Ranch, National Historic Site, Montana [Draft 1]," (Santa Fe: Intermountain Support Office, 2001); King, Lanette and Hansen, Gary. "Vegetation Map, Con Warren Complex HS-58." Autocad map of field observations during 1994 and 1995. Base mapping referenced to Grant-Kohrs Ranch National Historic Site 1994 aerial photographs and Montana 1:24,000 scale State Plane DRG quadrangles. GIS data was exported into Autocad format for production of base maps and further further detailed with additional data collected in the field.

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- GRKO Boundary Line
- Beaver Lodges

A/E FIRM

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CITY, STATE: Philadelphia, PA

SUBCONTRACTOR
NAME: John Milner Associates, Inc.
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DESIGNED:

DRAWN: JLB, WMW

TECH. REVIEW: KLS, RMM

DATE: JULY 2004

SUB SHEET NO. EC-16

EXISTING CONDITIONS INVENTORY

WARREN RESIDENCE

CIRCULATION, SPATIAL ORGANIZATION, BUILDINGS, STRUCTURES, LAND USE, AND CONSTRUCTED WATER FEATURES

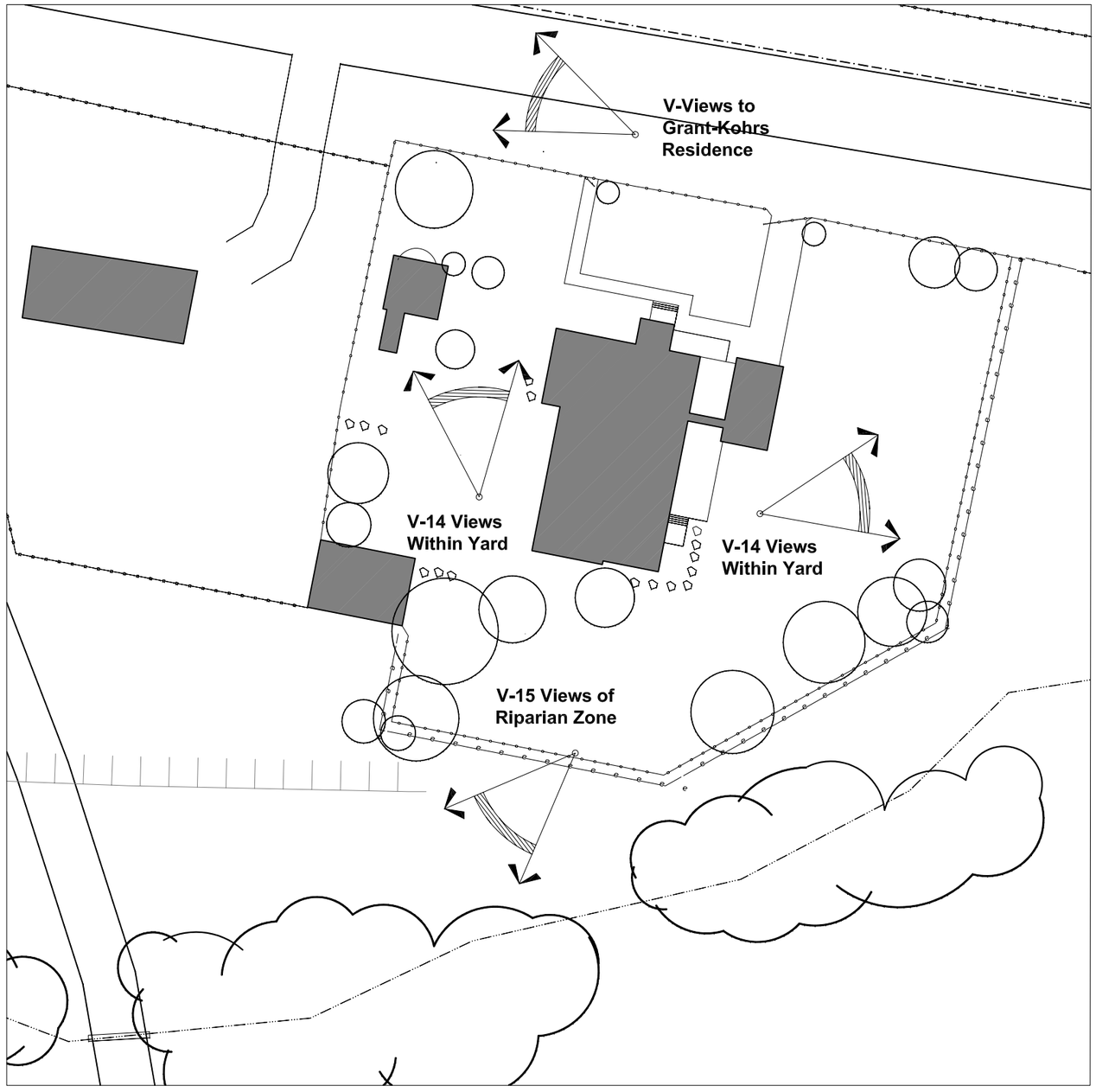
GRANT-KOHRS RANCH NATIONAL HISTORIC SITE

DRAWING NO.

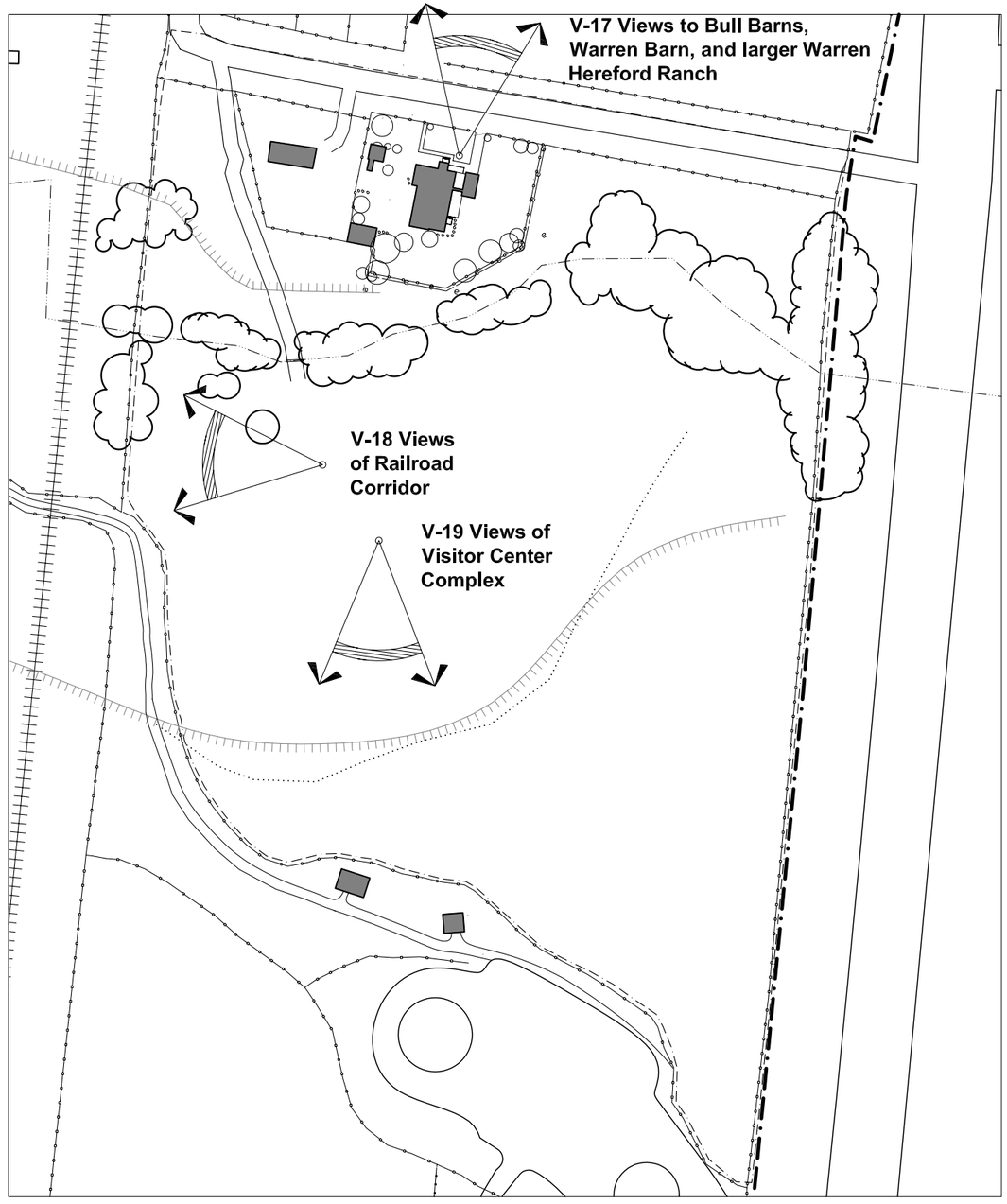
PKG. NO.

SHEET

OF



Scale: 1" = 40'



Not To Scale

Map Sources: Cultural Resources & National Register Program Services. "Conrad and Nellie Warren Residence, Historic Structure Report. Grant-Kohrs Ranch, National Historic Site, Montana [Draft 1]," (Santa Fe: Intermountain Support Office, 2001); King, Lanette and Hansen, Gary. "Vegetation Map, Con Warren Complex HS-58." Autocad map of field observations during 1994 and 1995. Base mapping referenced to Grant-Kohrs Ranch National Historic Site 1994 aerial photographs and Montana 1:24,000 scale State Plane DRG quadrangles. GIS data was exported into Autocad format for production of base maps and further further detailed with additional data collected in the field.

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A/E FIRM

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CITY,STATE: Philadelphia, PA

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CITY, STATE: Charlottesville, VA

DESIGNED:

DRAWN: JLB, WMW

TECH. REVIEW: KLS, RMM

DATE: JULY 2004

SUB SHEET NO.

EC-17

EXISTING CONDITIONS INVENTORY

WARREN RESIDENCE

VIEWS

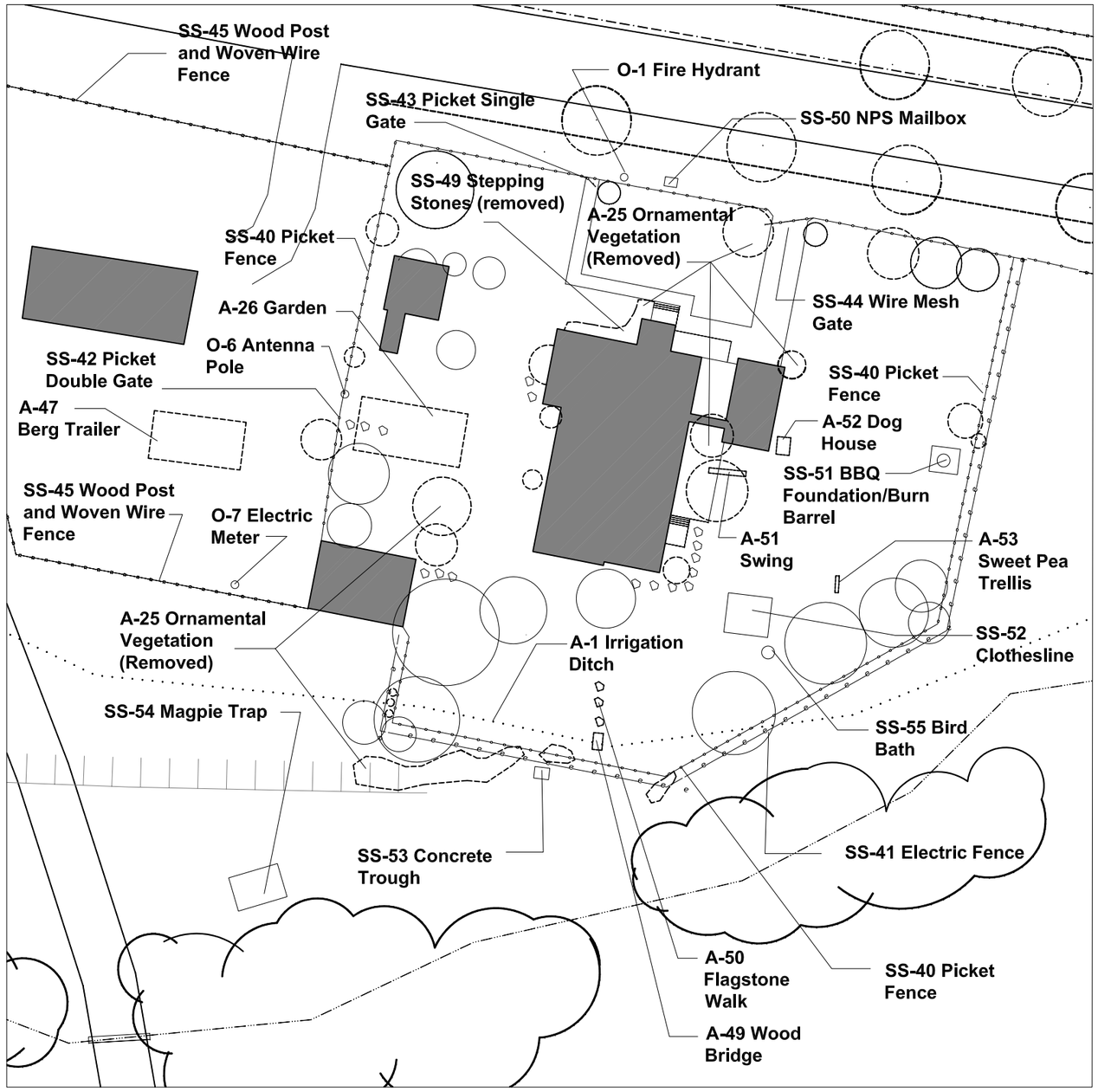
GRANT-KOHRS RANCH NATIONAL HISTORIC SITE

DRAWING NO.

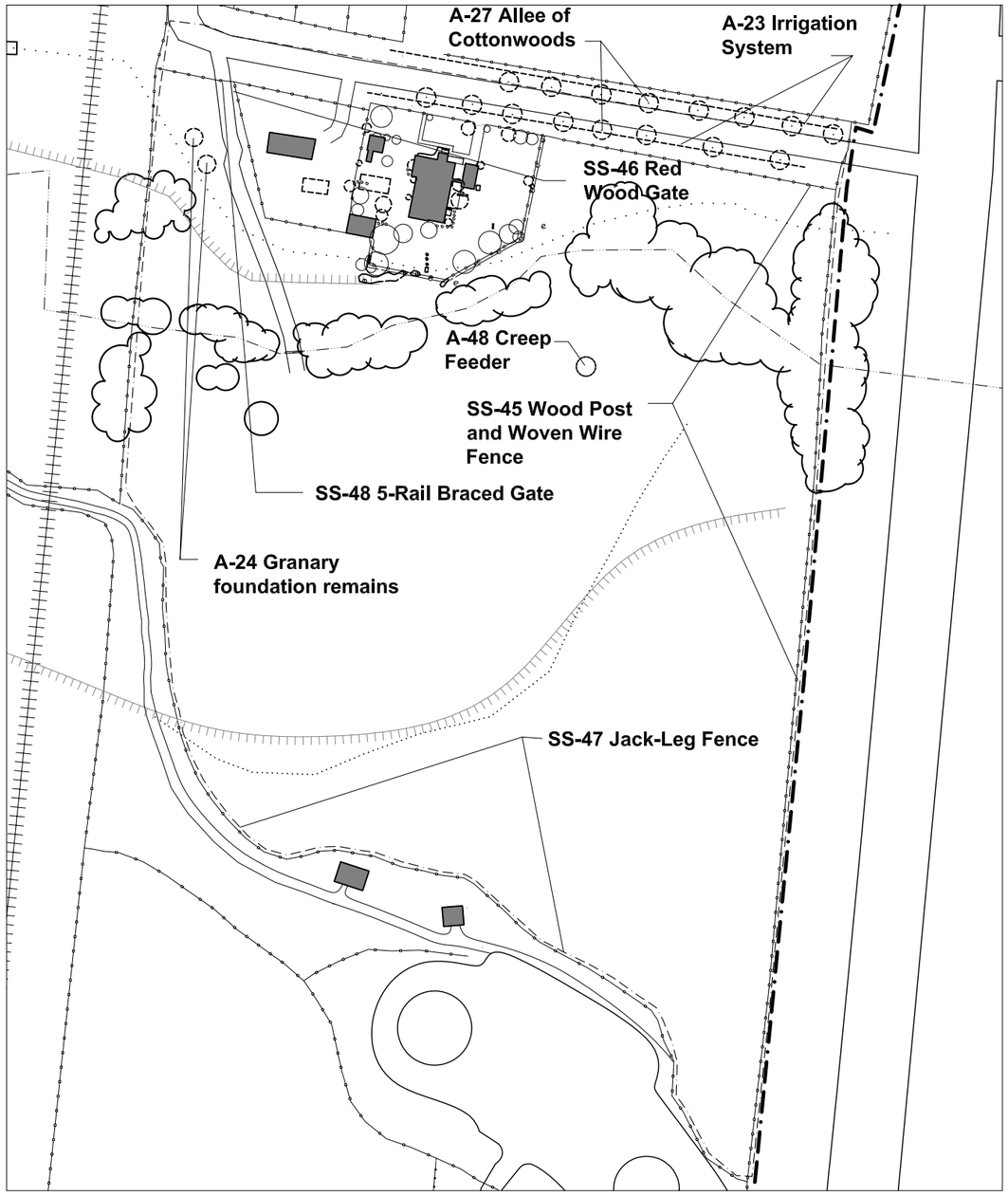
PKG. NO.

SHEET

OF



Scale: 1" = 40'



Not To Scale

Map Sources: Cultural Resources & National Register Program Services. "Conrad and Nellie Warren Residence, Historic Structure Report. Grant-Kohrs Ranch, National Historic Site, Montana [Draft 1]," (Santa Fe: Intermountain Support Office, 2001); 1960 aerial photograph; King, Lanette and Hansen, Gary. "Vegetation Map, Con Warren Complex HS-58." Autocad map of field observations during 1994 and 1995. Base mapping referenced to Grant-Kohrs Ranch National Historic Site 1994 aerial photographs and Montana 1:24,000 scale State Plane DRG quadrangles. GIS data was exported into Autocad format for production of base maps and further further detailed with additional data collected in the field.

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CITY, STATE: Philadelphia, PA

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CITY, STATE: Charlottesville, VA

DESIGNED:
DRAWN: JLB, WMW
TECH. REVIEW: KLS, RMM
DATE: JULY 2004

SUB SHEET NO.
EC-18

EXISTING CONDITIONS INVENTORY

WARREN RESIDENCE

OBJECTS, SMALL-SCALE, & MISSING FEATURES

GRANT-KOHRS RANCH NATIONAL HISTORIC SITE

DRAWING NO.

PKG. NO.

SHEET

OF

Pasture/Hay Fields

Pasture/Hay Field

[Existing conditions inventory maps and photographs follow this section]

Introduction

This landscape is generally characterized by the low-lying land located on either side of the Clark Fork River floodplain which is irrigated for hay production and grazing. It also includes the pasture land found in Front Field, which is located north of the Warren Hereford Ranch complex and along the eastern boundary of the ranch.

Natural Systems and Features

[see Map EC-19,20 at the end of this section]

This land is gently rolling to flat topography. Tetonview loams are found on the meadow land and hay fields found on either side of the river's floodplain, primarily on the east side where the lands have been cultivated with hay. These soils, as well as the Varney-Clay loams found in the western lower meadows, are very deep and poorly drained. The pasture located within Front Field contains a combination of Beaverell and Cetrack loams, which are very deep and well drained soils.[1]

Spring Gulch, also referred to as Spring Creek, feeds into the now abandoned Warren Ditch located in the northwest corner of the Ranch (currently the Olson land easement) before joining the Clark Fork River further to the north. Two unnamed gulches, one on the east, which feeds into the Kohrs-Manning Ditch near the Warren Pump (HS-86), (see Photo 3-5-1), and one on the west, which feeds into the Kohrs "Big" Ditch in the middle of the ranch also support the irrigation of the fields. The spring-fed No Name Creek is located within the pasture/hay field located east of the Clark Fork riparian woodland. It serves as a tributary to the Clark Fork River.

Vegetation

[see Map EC-19,20 at the end of this section]

The major grasses found in the irrigated hay fields and meadows along the riparian zone are smooth brome (*Bromus inermis*), common timothy (*Phleum partense*), Kentucky bluegrass (*Poa pratensis*), red clover (*Trifolium pretense*), Canada thistle (*Cirsium arvense*), crested wheatgrass (*Agropyron cristatum*), and white clover (*Trifolium repens*), (see Photo 3-5-2). All these species are exotic.[2] The Lower Yard Field and North Meadows area, in between the Kohrs-Manning Ditch and the Riparian Woodland, is a mix of riparian and dry upland grasses.[3] Bebb and slender willows, along with occasional black cottonwoods and river birch, are particularly found along the irrigation ditches, natural springs, and sloughs.

The most abundant grasses found within the dry upland benches and non-irrigated pasture areas include bluebunch wheatgrass (*Agropyron spicatum*), moss phlox (*Phlox muscoides*), needle-and-thread grass (*Stipa comata*), Missouri goldenrod (*Solidago missouriensis*), hairy goldenaster

[1] Natural Resource Conservation Service, *Soil Survey Geographic (SSURGO) and National Soils Information System (NASIS) Data* [electronic files online], Montana Natural Resource Information System, compiled 1995 (Accessed July 2002). Metadata available from World Wide Web: (http://nris.state.mt.us/nrcs/soils/).

[2] Species location information derived from Janet Hardin, "Plant Species & Locations, GRKO Database, Final Inventory" (Missoula: University of Montana, Division of Biological Sciences, June 3, 2003).

[3] Hardin.

(*Chrysopis villosa*), desert alyssum (*Alyssum desertorum*), and blue grama (*Bouteloua gracilis*).[4] Except for crested wheatgrass and desert alyssum (which are exotic), the rest of the species are native to the region.

The following species are also common to the non-irrigated upland benches: western wheatgrass (*Agropyron smithii*), crested wheatgrass (*Agropyron cristatum*), leafy musineon (*Musineon divaricatum*), scarlet gaura (*Gaura coccinea*), standing milkvetch (*Astragalus adsurgens*), plains reedgrass (*Calamagrostis montanensis*), prairie smoke (*Geum triflorum*), little-leaf alumroot (*Heuchera parvifolia*), spineless horsebrush (*Tetradymia canescens*), Bessey's locoweed (*Oxytropis besseyi*), winterfat (*Krascheninnikovia lanata*), and skeletonweed (*Lygodesmia juncea*).[5] All these species are native to the region.

Whereas the majority of abundant species found within the dry uplands and benches were observed in the 1983 Rice and Ray study, the eastern Front Fields and North Field, which are naturally dry but have been irrigated with water from the effluent ponds since the 1960s, are changing species composition from predominantly dry upland grasses (see above) to smooth brome and spotted knapweed, both exotic species, which are out-competing the native grasses.[6] These fields also contain less common species such as orchard grass (*Dactylis glomerata*) and western sticktight (*Lappula occidentalis*), the latter of which is an exotic species.[7]

Over the past few years, the park has been aggressively conducting a noxious weed program against Canadian thistle, leafy spurge, and spotted knapweed. These invasive exotic species threaten the ability of the ranch to produce certified weed-free hay for use in backcountry areas of other NPS units. These weeds also compromise the mission of the park to maintain the overall range condition of the land, and restore native grasses to the pastures. The weed control program consists of insect biological controls, herbicide spraying (the most common control method), as well as some hand pulling and mowing.[8] In 2002, the park sprayed over 160 acres of land, while achieving containment of 50.[9] The weed control program continues to present resource management challenges. The park will continue to try and reduce weed populations through monitoring and control programs.

Spatial Organization
[see Map EC-21,22 at the end of this section]

The spatial organization of the hay fields/meadows are generally defined by the vegetation of the riparian woodland, irrigation ditches, fences, and roads.

Stuart Field, which is approximately 32 acres, is located in the south central area of the ranch (see Photo 3-5-3). It is defined by riparian woodlands and jack leg fencing to the west and south, riparian woodlands, jack leg fencing, and the elevated railroad corridor to the east, and the main

[4] Hardin.
[5] Hardin.
[6] Hardin; Telephone interview with Janet Hardin, June 2, 2003.
[7] Hardin.
[8] Tony Schetzsle, "Technical Assistance Request-Integrated Pest Management," Grant-Kohrs Ranch National Historic Site, NPS Memorandum, (Grant-Kohrs Ranch National Historic Site, Deer Lodge, Montana, Central files, August 30, 1996).
[9] Darlene Koontz, "Narrative Report," Grant-Kohrs Ranch National Historic Site, NPS Memorandum highlighting management achievements during 2001-2002 (Grant-Kohrs Ranch National Historic Site, Deer Lodge, Montana, Central files, February 21, 2002).

east/west service road to the north. It is characterized by the hay grasses and contour irrigation ditches located within it.

The **Lower Yard Field** and **North Meadow** are located on the east side of the Clark Fork River, (see Photo 3-5-4). This 104 acre area is defined by the riparian woodland on the west, the Kohrs-Manning Ditch on the east, the west feedlots on the south, and the old sewage treatment pond to the north. This space is used primarily for grazing and is characterized mostly by the meadow grasses and the occasional willows and cottonwoods found along the ditch and spring-fed sloughs. The North Meadow is used for pasture, and can be irrigated with water from the Kohrs-Manning Ditch. Lower Yard Field is irrigated with water from the Kohrs-Manning Ditch and is cultivated for hay.

The **Front Fields** are located north of the Warren Hereford Ranch complex. This 100 acre area is bordered on the east by Business Loop 90 and on the west by the railroad corridor and barrow pits. The NHS boundary fence and Sewage Treatment Service Road forms the northern boundary of this area. Metal post and wire fences surround the whole area, and also subdivide the North Fields into four separate fields. This area is used for pasture and is irrigated via hand lines with effluent water from the sewage treatment ponds. This hand-line irrigation system was added by Warren in 1954 to irrigate planted crops (probably alfalfa), fell into disrepair, and was later rebuilt by NPS ca. 1999, using water from the treatment ponds.

As their name suggests, the **Western Hay Fields** (also known as Pumphouse Fields 1-4 and Lower Meadow Fields 1-4) are located in the lowland area on the western side of the Clark Fork River riparian area. They extend the entire length of the park, and are generally bounded on the west by the Kohrs "Big Ditch" Road. These fields are generally fenced with either wood or metal post and wire fencing. Some jack leg fencing is found along the southern edge of the riparian zone. These hay fields (213 acres total) are subdivided into four separate fields, each one irrigated with contour ditches that feed off of the Kohrs Ditch. The Kohrs ditch is supplemented with water pumped from the Clark Fork River.

L-Barn Field is located directly to the north of L-Barn Field South. Jack leg fencing, along with the Kohrs-Manning Ditch, defines this field's southern boundary. The eastern edge of this field is defined by the railroad corridor and barrow pits, and the Warren Pumphouse Road (which terminates along its northern border). This edge is reinforced by metal post and wire fencing. This 22 acre field can be irrigated via hand lines with water from the effluent field. **L-Barn Field North** is located directly to the north of L-Barn Field, in between the railroad barrow pit on the east, and the Kohrs-Manning ditch to the west. This long and narrow 11-acre field is primarily used for grazing.

The Olson property, located along the northern edge of the NHS, contains approximately 160 acres of land. Approximately 60 acres of this land falls within the riparian zone. **Olson Field West** is located west of the riparian area and backs up to the foothills. This land is cultivated for hay. Metal post and wire fencing, as well as the Kohrs Ditch Road, reinforces this western boundary. **Olson Field East** lies on the east side of the riparian zone. The Kohrs Manning Ditch flows along the eastern edge of this field. It too is primarily cultivated for hay. **Treatment Pond Field**, located directly east of the sewage treatment ponds and the Kohrs-Manning Ditch, is defined on the eastern side by the railroad corridor and barrow pit. This field is not irrigated. During the site visit in the fall of 2002, this field was being grazed by cattle. The sewage treatment pond access road divides this field from Olson Field East to the north. Its southern boundary is defined by the metal post and wire fencing separating it from the North Fields.

Land Use
[see Map EC-21,22 at the end of this section]

Approximately 224 acres of land within this component landscape are currently in pasture and used for grazing. The remaining 308 acres are used for hay production, which is typically harvested in the late summer. This number fluctuates annually (more irrigated fields can be used for grazing, if necessary), based upon the ranch's needs for hay and the number of cattle maintained on the land.

Constructed Water Features
[see Map EC-23,24 at the end of this section]

There are several constructed water features in the pasture/hay field which are used to irrigate the lands located in this area.

The **Kohrs-Manning Ditch** is located on the east side of the Clark Fork River (see Photo 3-5-1). It derives its water from the Clark Fork River, Johnson Creek, and an unnamed spring. It provides irrigation to Stuart Field, the South Pasture, and the Lower Yard Fields. Within the Lower Yard Field and North Meadow, a lateral, or secondary ditch of the Kohrs-Manning Ditch breaks off to the west to irrigate these areas.

The **Kohrs Ditch** (also known as "The Big Ditch"), is located on the west side of the Clark Fork River, and generally follows the ranch's western boundary (see Photo 3-5-5). It gets its water from both Taylor Creek and the Clark Fork River via pipe and pump, and provides irrigation to the Western Hay Fields that lay between it and the river.

The **Warren Ditch**, which is located along the far northwestern boundary of the ranch, derives its water from Spring Gulch. Based upon information provided by the park, this ditch is no longer in use.

The **Johnson Ditch**, which is located in Stuart Field, derives its water from Johnson Creek. It provides irrigation to Stuart Field before joining up with the Kohrs-Manning Ditch.

Constructed water features within the Pasture/Hay Field landscape area also include an **irrigation main line system with risers for the handline** used to provide effluent irrigation to Front Field and the southern section of North Field. There is also enough line to irrigate the large western pasture located in the East Feed Lot. All of the irrigation pipe in this area is completely removable, with the exception of the mainline, which has risers with valve opening elbows. These risers allow the NPS to open up the hand line for water and line extensions. This system, which was installed by the NPS in the mid-1990s, replaced the historic hand line irrigation system installed by Con Warren in 1954.[10]

The **effluent wells** located in this area monitor water quality from effluence application by the handline. The irrigation headgates are used for redirection of water on the fields and for secondary ditch use. The headgate that is located in the L-barn field is no longer in use. It was used for pooling to a pump station that ran the old irrigation system before the effluent system

[10] Grant-Kohrs Ranch National Historic Site, "Info on Hand Line," Portion of report prepared to describe impacts associated with installation of hand line system (On file at the Grant-Kohrs Ranch NHS archives, No date).

was installed. The line of pipe connecting to it is an abandoned line used in the old irrigation system and is no longer in use. [11]

An underground **irrigation pipe**, approximately 200 feet long, also takes up water that is pumped from the Clark Fork River (HS-87), and delivers it to the Kohrs Ditch further to the west.

Other irrigation hardware includes a variety of different types of head gates, distribution gates, diversion dams, and culverts. **Head gates** are typically comprised of either two concrete or wooden head walls that are constructed on the inside edges of the main ditch (see Photo 3-5-6 and Photo 3-5-7). Closing these headgates (typically with wooden gates), allows water to be distributed into the smaller lateral/secondary ditches. In other instances, small wooden gates or metal **distribution gates** (consisting of a hand knob that controls the elevation of the gate) control this distribution (see Photo 3-5-8). Some of these distribution gates have headwalls, while others do not. Although not all headgates and distribution gates were inventoried during the field visit, most of those observed appeared to be in fair condition. A few wooden gates were in need of repair.

Diversion dams, located every few hundred feet along the secondary ditches, are composed of rubber impregnated canvas (or a heavy rubber sheet in some cases) attached, as a manuscript is attached on a scroll, to sturdy poles, usually three to four inches in diameter. When flooding is desired in a given area the pole is placed across the ditch and the fabric dropped into the hole, the bottom held by any available nearby stones. The water then rises and spills over the edge or out of vents in the low berm along the ditch cut with a shovel. When not in use, the portable diversion dams are thrown alongside the ditch.[12]

Within the Grant-Kohrs Ranch NHS, there are approximately 100 **culverts** that have been placed to contain these ditches. These culverts are generally placed underground to allow roads to pass over them, while others have been constructed to allow ditches to pass over or under other water bodies. There are many different types of culverts, including those constructed of metal, wood, PVC, and concrete (Photo 3-5-9). These culverts vary in length from three to over 20 feet.[13]

Several beaver dams have been constructed within the pasture/hay fields area along the natural creeks and sloughs, as well the along the ditches. These animals, while native to the region and part of the natural ecosystem, pose hazards to the operability of the irrigation system. The construction of beaver dams may flood areas that historically were not flooded, creating different ecological conditions and plant community habitats than may be desired for ranch operations. Likewise, they may also prevent the legally mandated flow of water from passing through irrigation ditches to neighboring lands. Visual screening provided by the large cottonwoods is also threatened by beaver damage. As such, the NPS routinely issues special use permits to authorize the reduction of the beaver population through live trapping and relocation.[14]

Columbian ground squirrels also cause damage to the irrigation system. Poison grain baits have been used as a pest control measure with varied results.

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[11] Personal correspondence with Jesse Harris, Rancher, Grant-Kohrs Ranch NHS (February 2003).
[12] Albright, 157-158.
[13] National Park Service, *Culverts at Grant-Kohrs Ranch National Historic Site, Montana* [electronic file online]. Grant-Kohrs Ranch NHS GIS Program, compiled 1998 (Accessed 16 September 2002). Metadata available from World Wide Web: (http://www.nps.gov/gis/metadata/grko/grko_culvert.html).
[14] Tony Schetzsle, "Beaver Population Reduction," Grant-Kohrs Ranch National Historic Site, Email authorizing special use permit (Grant-Kohrs Ranch National Historic Site, Deer Lodge, Montana, Central files, February 3, 1999).

Circulation
[see Map EC-21,22 at the end of this section]

There are three primary north-south roads located within the pasture/hay field landscape areas. These include the **Kohrs Ditch Road** that generally follows the Kohrs "Big" Ditch on the west side of the ranch (see Photo 3-5-10). This road intersects with MTSR 4691 just outside of the park boundary. The road surface is dirt/gravel and approximately 10-12 feet wide. Just to the north of the Jensen hay-stacker, this road ends at a gate and continues on the western side of the park boundary fence. Just before the gate, a road branches off to the east and abruptly dead-ends where the unnamed gulch has eroded the road bed and made vehicular passage impassible (see Photo 3-5-11).

Another north-south service road, the **Warren Pumphouse Road** (see Photo 3-5-12), is located just to the west of the railroad corridor, and defines the eastern boundary of the L-Barn field before turning west near the Warren pumphouse (HS-86). Here it continues through North Field before terminating at the southern fence line of the Olson property. This road is dirt/gravel and approximately 10 feet wide.

The **Sewage Treatment Service Road,** (see Photo 3-5-13) is accessed off of Business Loop 90, at the northeastern corner of the NPS property line. This road passes along the northern edge of Front Field, over the railroad corridor, and through the Olson property before passing over the Kohrs-Manning Ditch. Before reaching the north edge of the treatment ponds, a short southern spur provides access along the ditch in Treatment Pond Field. The service road loops around each of the treatment cells and traverses the edge of the Clark Fork River and wetland (old treatment pond) to the south. This road is an approximately 10 foot wide gravel surface.

The Kohrs-Manning Ditch Road and the Clark Fork River Bridge Road are described in the Home Ranch Complex component landscape.

Views and Vistas
[see Map EC-25,26 at the end of this section]

Views within and around the pastures and hayfields are fairly diverse. Views within the Front Fields are fairly contained by the vegetation found along the barrow pits and railroad corridor, and open along the eastern side with views to residential development outside the park boundary. Views of the Continental Divide are fairly prominent from this area. Views are also fairly contained within the Lower Yard Fields, North Meadows, and Stuart Field (which is relatively enclosed by the riparian woodlands of Cottonwood Creek, Johnson Creek, and the Clark Fork River, as well as by the raised elevation of the railroad corridor). Within these fields, as within the other fields located along the eastern side of the river, views of the western foothills and the Flint Creek Mountain Range are very prominent and dominate the western viewshed.

Within the pastures and hayfields located along the western side of the river, views are oriented more towards the east and south. The riparian corridor, river, and home ranch complex add texture, scale, and diversity to the scene. From these fields, the home ranch complex appears relatively small in comparison to the larger context. The Hillcrest Cemetery (particularly the trees contained within it) also becomes a focal point, as do the cluster of buildings along the western edge of Deer Lodge. The steeper topography of the western foothills also act as a dramatic backdrop to this area. The mountains of the Flint Creek Range are generally not visible from the western hay fields. From the higher elevations, views of the sewage treatment ponds are visible.

Buildings and Structures
[see Map EC-19,20 at the end of this section]

The **Jensen Hay-Stacker** (see Photo 3-5-14) is a wood frame structure measuring approximately 30 feet high. Its approximate 12 foot square base is constructed of four posts that are bolted into two braced timber leg supports that provide stability to the structure. Each of the four posts is joined together at a pivot point approximately 15 feet off the ground. Here a triangular beam is attached, supported by a pulley system. It is believed that this structure was loaded with loose hay at the base of the lever, which was then lifted to the top of the stack via the pulley system. The stacker was used with a net—the swing arm moved the net that was then tripped, and dumped hay on the pile. This structure was left in place ca. 1940. It is in a bad state of disrepair, with conservation and relocation to Stuart Field planned for 2004.

Objects and Small-scale Features
[see Map EC-27,28 at the end of this section]

Fences and gates within this component landscape divide space and prevent access and escape by cattle and horses. To serve these purposes, fences and gates are utilitarian in design.

Jack-Leg fence, (see Photo 3-5-15) is found closer to the developed and interpreted areas of the ranch; the southeastern portion of the CLR study boundary. This fence type is similar to other Jack-Leg fences found throughout the CLR study boundary. Two wood posts are crossed at the top to form an X-shape. One horizontal rail rests in the crux of the X while 3 more rails are attached to the exterior of one post to form an angled fence. A fifth rail is attached to the lower side of the opposite pole for added strength and security. All wood members of the fence are un-milled and unfinished.

The two most prominent types of fence within this component landscape are the **Metal Post and Wire fence,** (see Photo 3-5-13) and the **Wood Post and Wire fence.** These fences consist of either thin metal posts or round wood posts, milled and un-milled, that support five (or sometime six) strands of barbed wire. A variation of these fence types combines both wood brace posts and metal posts that support the barbed wire strands. These fences are found further away from the developed areas, where historical accuracy is less important than utility and efficiency. Often times, this fence is referred to as "NPS Cross Fence." Cross fences are associated with function rather than design or materials. They are used to sub-divide a large field or pasture and are generally used to keep cattle from concentrating in one area, resulting in overgrazing or damage to the resource. Cross fencing forces the cattle to remain in other areas to graze.

Several variations of post and rail fence are also within the Pasture/Hay Field. A **4-rail Stacked-end fence,** (see Photo 3-5-16) can be found within the North Field. Four round rails extend between log posts on one side of the fence while two more rails are placed on the lower half of the fence on the other side. At each post, the rails for one section are placed alternately with the rails for the next section, creating a stacked appearance. This fence can also be found with 5 or 6 rails and varying rail and post size.

Woven wire fence is also found throughout the Pasture/Hay Field area. In general, the fence consists of un-milled wood posts or peeled logs supporting a wire mesh component. Variations of this fence type include metal posts or a combination of wood and metal posts supporting wire mesh. Sheep Wire fence is commonly referred to as woven wire fence. This fence is common

throughout the ranch. It is bundled in a large roll and when stretched, it has a strong wire top and bottom. Wire squares are larger on top and smaller on the bottom.

Gates provide access for humans and vehicles along the fence lines, and are also used to move cattle to various pastures and barns. **Overhead Gates,** (see Photo 3-5-15) have two tall, vertical posts supporting a top-mounted horizontal crossbar. These overhead gates were meant to support swinging gates, but many are missing at present. An example of overhead gates in this landscape is found in the southeast corner of the CLR study boundary, west of the railroad tracks and stream.

A second type of gate, part of the overhead gate given as the example above, is the **Double 5-rail Braced Gate** (see Photo 3-5-15). These gates, which swing open at the center, have hinge-posts almost twice the height of the gate and have long, diagonal braces leading from the top of the hinge-posts to the opposite corner of the gates. This brace prevents and corrects sagging.

Metal Pipe Gates, (see Photo 3-5-16) are located north of the haystacker, along the western edge of the CLR study boundary, and in the front fields. These gates are constructed of welded metal pipes and swing open from a hinge-post. The front fields also have **Metal Pipe and Mesh Gates,** (see Photo 3-5-17) that consist of welded metal pipe frames supporting welded wire mesh. Blue plastic **watering troughs,** (see Photo 3-5-16) are located along fence lines within the North Fields. These features measure approximately 8’ in diameter and two feet deep. Installed at the same time this field was sub-divided with cross-fencing (ca. 1999), they are used to provide water for the livestock in the fields.

Missing & Archeological Resources
[see Map EC-27, 28 at the end of this section]

The **ruins** of a wood frame structure are located in the Western Hay Fields. (see Photo 3-5-18). These ruins are remnants of old hay panels, which were placed around stacks of hay to keep livestock out. It appears as those this structure collapsed many years ago and has been deteriorating for some time.

According to NPS personnel, a **small hill** was once located in the hay fields. This hill was made up of earth that was removed ca.1988 from a knob in Big Gulch to grade the Clark Fork River Bridge Road bed.



JMA, October 2002

Photo 3-5-1 : (F-07) An unnamed gulch feeds into the Kohrs-Manning Ditch.



JMA, October 2002

Photo 3-5-2 : (G-07) Major hay grasses found in the irrigated hay fields and meadows along the riparian zone are non-native species.



JMA, October 2002

Photo 3-5-3 : (RE-20) Stuart Field in the distance.



JMA, October 2002

Photo 3-5-4 : (G-01) North Meadows.



JMA, October 2002

Photo 3-5-5 : (L-02) The Kohrs “Big” Ditch.



JMA, October 2002

Photo 3-5-6 : (K-24) Typical Wooden Headgate with Wooden Distribution Gate.



JMA, October 2002

Photo 3-5-7 : (L-21) Typical Concrete Headgate.



JMA, October 2002

Photo 3-5-8 : (M-24) Distribution Gate.



JMA, October 2002

Photo 3-5-9 : (L-19) Exposed Culvert.



JMA, October 2002

Photo 3-5-10 : (M-13) Kohrs Ditch Road.



JMA, October 2002

Photo 3-5-11 : (K-04) Erosion at end of unnamed gulch on the west side of the ranch.



JMA, October 2002

Photo 3-5-12 : (F-03) Warren Pumphouse Road.



JMA, October 2002

Photo 3-5-13 : (J-10) Sewage Treatment Service Road. Wood Post and Wire Fence (left); Metal Post and Wire Fence (right).



JMA, October 2002

Photo 3-5-14 : (L-24) Jensen Hay Stacker. Wood Post and Wire Fence in background.



JMA, October 2002

Photo 3-5-15 : (R-03) Jack-Leg Fence with Overhead Gates and Double 5-Rail Braced Gates.



JMA, October 2002

Photo 3-5-16 : (B-07) Metal Post and Wire Fence and Metal Pipe Gate (right). 4-Rail Stacked End Fence and watering trough (left).



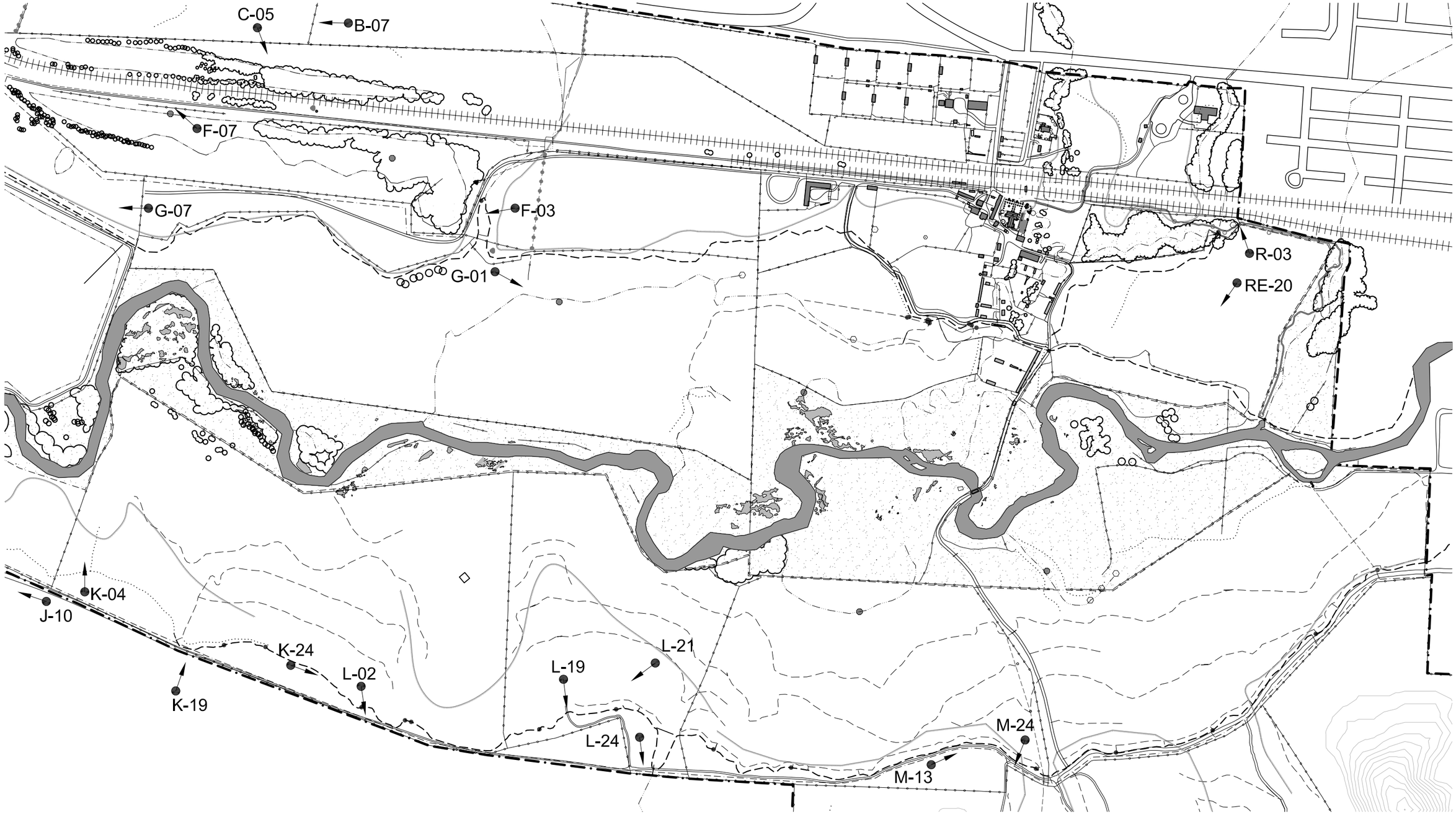
JMA, October 2002

Photo 3-5-17 : (C-05) Metal Pipe and Mesh Gate (left). Wood Post and Wire Gate and Metal Post and Wire fence (right).



JMA, October 2002

Photo 3-5-18 : (K-19) Ruins of hay panels.



Map Sources: Base mapping referenced to Grant-Kohrs Ranch National Historic Site 1994 aerial photographs and Montana 1:24,000 scale State Plane DRG quadrangles. GIS data was exported into Autocad format for production of base maps and further further detailed with additional data collected in the field.

The following data was provided by the National Park Service, Grant-Kohrs Ranch National Historic Site GIS Program (shapefile format), which was compiled 1998 and updated/field-checked by OCULUS/JMA during the October 2002 site visit: fences and gates; boundary lines; utility lines; fire hydrants; irrigation ditches, headgates, pipes, and risers; culverts; river boundaries; roads; railroad tracks; unvegetated slickens and tailings; fields; trails; cottonwood trees; beaver lodges and dams; hydrology; and groundwater monitoring wells. Metadata for this data is avaliable from World Wide Web: [http://www.nps.gov/gis/metadata/grko/]. Wetlands, hypsography (topography), and Montana 1:24,000 scale State Plane DRG quadrangles were derived from Montana State Library Natural Resource Information System, metadata available from: [http://nris.state.mt.us/gis/datalist.html].

Legend:

- Roads
- Vegetation
- Bench
- Fences
- Streams/Sloughs
- Railroad
- Buildings/ Structures
- Springs
- Old Ditches
- Main Ditches
- Lateral Ditches
- Component Landscape Boundary Line
- GRKO Boundary Line
- Beaver Lodges

Scale: 1" = 600'

A/E FIRM PRIME NAME: Susan Maxman Architects CITY, STATE: Philadelphia, PA SUBCONTRACTOR NAME: John Milner Associates, Inc. CITY, STATE: Charlottesville, VA	DESIGNED: DRAWN: ADF TECH. REVIEW: KLS, RMM DATE: JULY 2004	SUB SHEET NO. P-7	EXISTING CONDITIONS INVENTORY MAP PASTURE/HAYFIELDS **PHOTO STATION POINT MAP** GRANT-KOHRS RANCH NATIONAL HISTORIC SITE	DRAWING NO. PKG. NO. SHEET OF

NS-11 East Gulch

V-15 Irrigated Pasture Grasses

V-14 Non-Irrigated Pasture Grasses

V-13 Irrigated Hay Grasses

NS-17 Beaver Lodges

NS-8 No-Name Creek

NS-7 Springs

V-13 Irrigated Hay Grasses

V-13 Irrigated Hay Grasses

S-43 Jensen Hay-Stacker

NS-7 Springs

NS-17 Beaver Lodges

V-13 Irrigated Hay Grasses

NS-1 Bench

NS-10 West Gulch

Map Sources: Base mapping referenced to Grant-Kohrs Ranch National Historic Site 1994 aerial photographs and Montana 1:24,000 scale State Plane DRG quadrangles. GIS data was exported into Autocad format for production of base maps and further further detailed with additional data collected in the field.

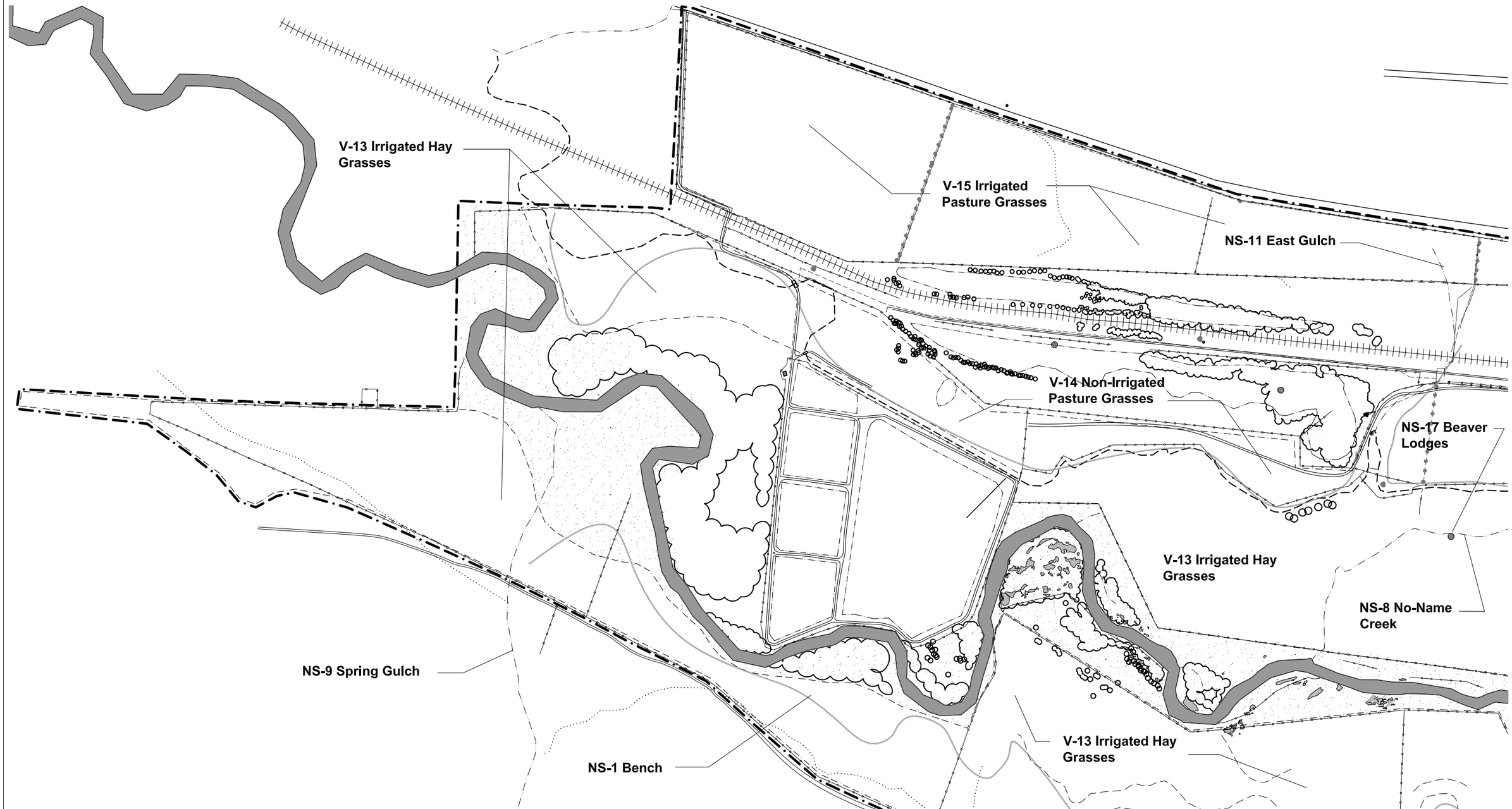
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Map Sources: Base mapping referenced to Grant-Kohrs Ranch National Historic Site 1994 aerial photographs and Montana 1:24,000 scale State Plane DRG quadrangles. GIS data was exported into Autocad format for production of base maps and further further detailed with additional data collected in the field.

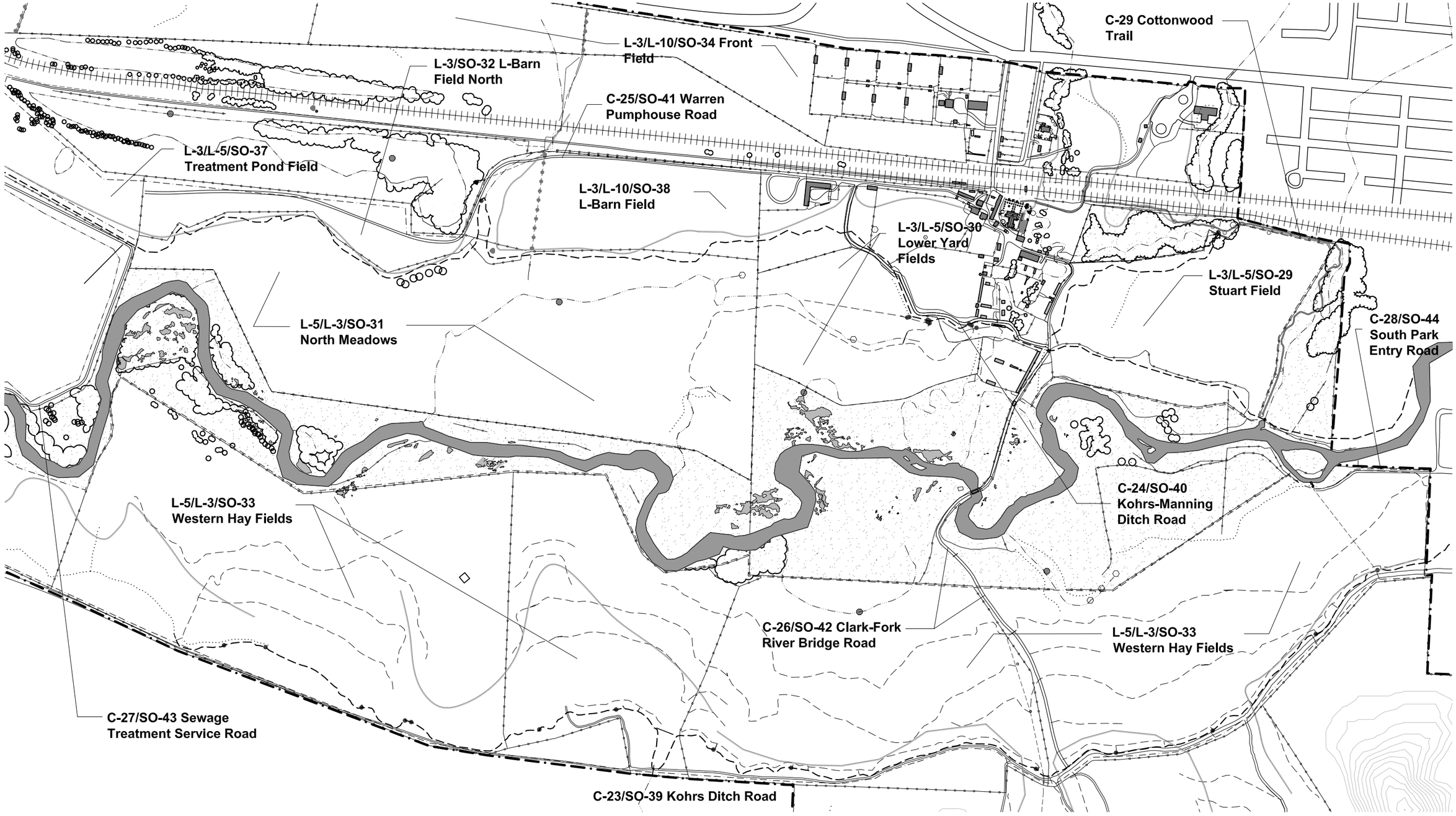
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A/E FIRM PRIME NAME: Susan Maxman Architects CITY, STATE: Philadelphia, PA SUBCONTRACTOR NAME: John Milner Associates, Inc. CITY, STATE: Charlottesville, VA	DESIGNED: DRAWN: JLB, WMW TECH. REVIEW: KLS, RMM DATE: JULY 2004	SUB SHEET NO. EC-20	EXISTING CONDITIONS INVENTORY MAP PASTURE/HAYFIELDS NORTH **NATURAL SYSTEMS, VEGETATION, BUILDINGS & STRUCTURES** GRANT-KOHRS RANCH NATIONAL HISTORIC SITE	DRAWING NO. PKG. NO. SHEET OF



Map Sources: Base mapping referenced to Grant-Kohrs Ranch National Historic Site 1994 aerial photographs and Montana 1:24,000 scale State Plane DRG quadrangles. GIS data was exported into Autocad format for production of base maps and further further detailed with additional data collected in the field.

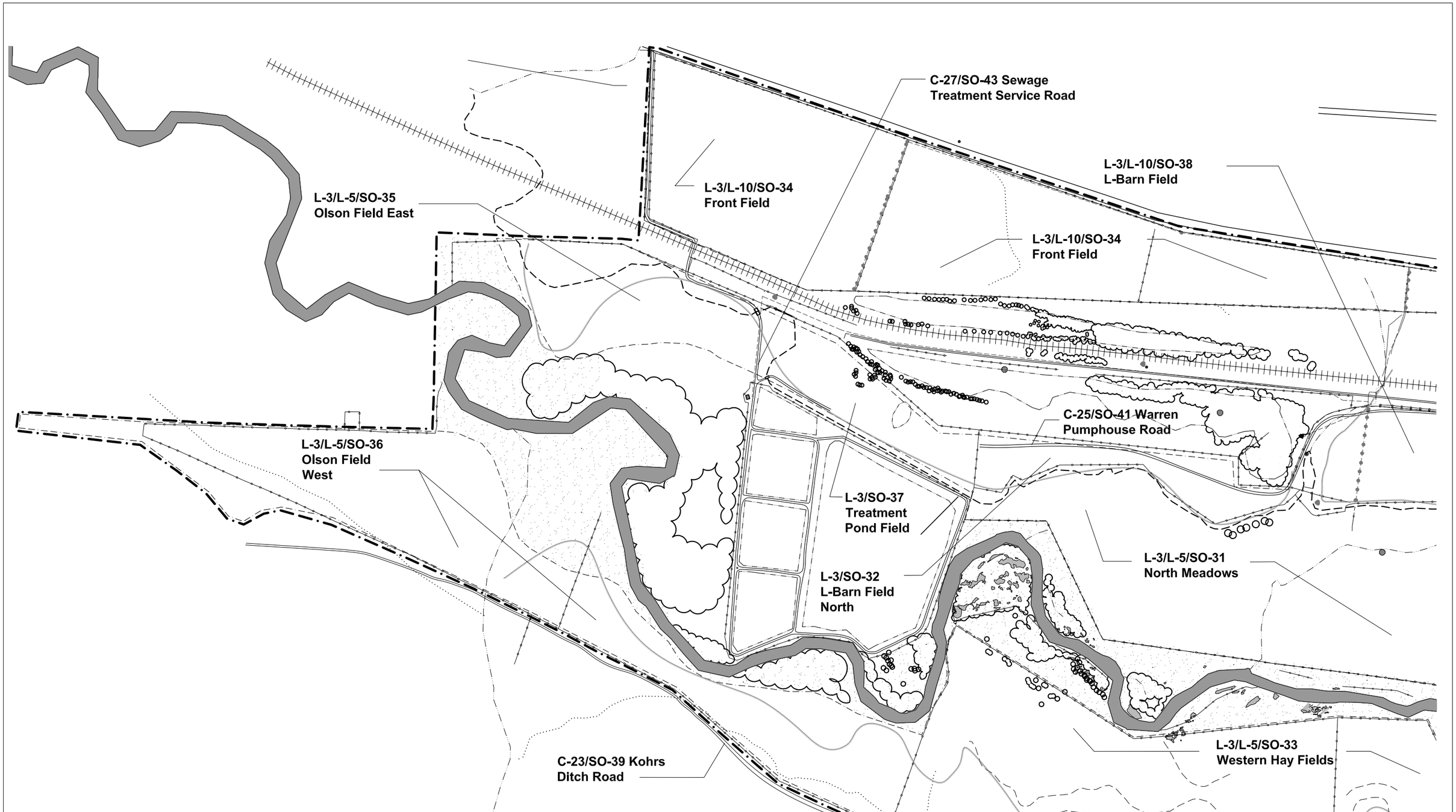
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A/E FIRM PRIME NAME: Susan Maxman Architects CITY, STATE: Philadelphia, PA SUBCONTRACTOR NAME: John Milner Associates, Inc. CITY, STATE: Charlottesville, VA	DESIGNED: DRAWN: JLB, WMW TECH. REVIEW: KLS, RMM DATE: JULY 2004	SUB SHEET NO. EC-21	EXISTING CONDITIONS INVENTORY MAP PASTURE/HAYFIELDS SOUTH **CIRCULATION, SPATIAL ORGANIZATION, AND LAND USE** GRANT-KOHRS RANCH NATIONAL HISTORIC SITE	DRAWING NO. PKG. NO. SHEET OF



Map Sources: Base mapping referenced to Grant-Kohrs Ranch National Historic Site 1994 aerial photographs and Montana 1:24,000 scale State Plane DRG quadrangles. GIS data was exported into Autocad format for production of base maps and further further detailed with additional data collected in the field.

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A/E FIRM PRIME NAME: Susan Maxman Architects CITY, STATE: Philadelphia, PA SUBCONTRACTOR NAME: John Milner Associates, Inc. CITY, STATE: Charlottesville, VA	DESIGNED: DRAWN: JLB, WMW TECH. REVIEW: KLS, RMM DATE: JULY 2004	SUB SHEET NO. EC-22	EXISTING CONDITIONS INVENTORY MAP PASTURE/HAYFIELDS NORTH **CIRCULATION, SPATIAL ORGANIZATION, AND LAND USE** GRANT-KOHRS RANCH NATIONAL HISTORIC SITE	DRAWING NO. PKG. NO. SHEET OF

CW-13/CW-10 Irrigation Mainline and Risers

CW-11 Irrigation Headgates

CW-13 Irrigation Mainline

CW-13 Irrigation Mainline

CW-10 Irrigation Risers

CW-1 Kohrs-Manning Ditch

CW-12 Effluent Well

CW-8 Lateral Ditches

CW-9 Old/Abandoned Ditches

CW-11 Irrigation Headgates

CW-7 Johnson Ditch

CW-1 Kohrs-Manning Ditch

CW-8 Lateral Ditches

CW-9 Old/Abandoned Ditches

CW-13 Irrigation Mainline

CW-13 Irrigation Mainline

CW-11 Irrigation Headgates

CW-11 Irrigation Headgates

CW-15 Culverts

CW-11 Irrigation Headgates

CW-9 Old/Abandoned Ditches

CW-11 Irrigation Headgates

CW-11 Irrigation Headgates

CW-6 Kohrs "Big" Ditch

CW-11 Irrigation Headgates

CW-15 Culverts

CW-6 Kohrs "Big" Ditch

Map Sources: Base mapping referenced to Grant-Kohrs Ranch National Historic Site 1994 aerial photographs and Montana 1:24,000 scale State Plane DRG quadrangles. GIS data was exported into Autocad format for production of base maps and further further detailed with additional data collected in the field.

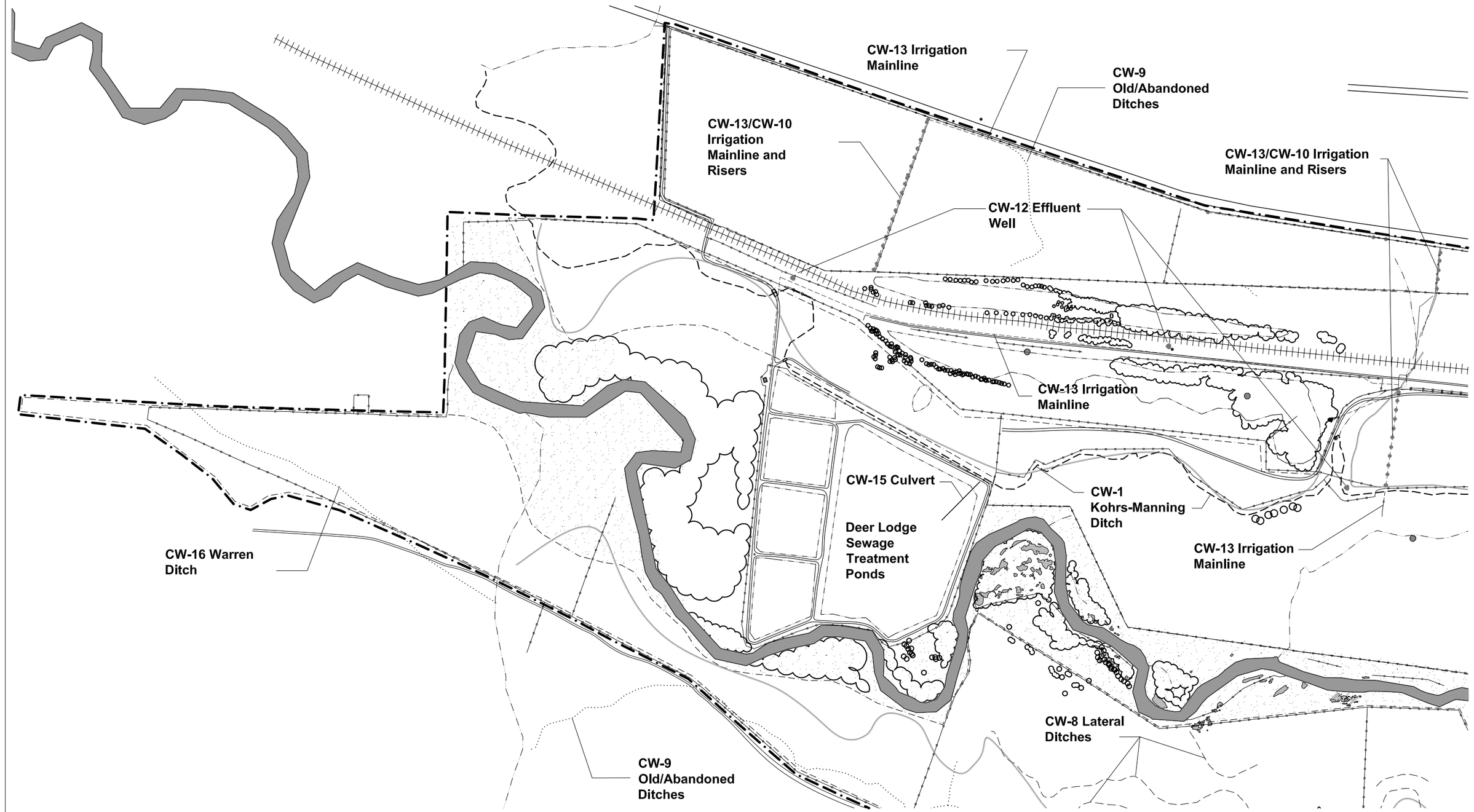
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Legend:

- Roads
- Vegetation
- Bench
- Fences
- Streams/Sloughs
- Railroad
- Buildings/ Structures
- Springs
- Old Ditches
- Main Ditches
- Lateral Ditches
- Component Landscape Boundary Line
- GRKO Boundary Line
- Beaver Lodges

Scale: 1" = 600'

A/E FIRM PRIME NAME: Susan Maxman Architects CITY, STATE: Philadelphia, PA SUBCONTRACTOR NAME: John Milner Associates, Inc. CITY, STATE: Charlottesville, VA	DESIGNED: DRAWN: JLB, WMW TECH. REVIEW: KLS, RMM DATE: JULY 2004	SUB SHEET NO. EC-23	EXISTING CONDITIONS INVENTORY MAP PASTURE/HAYFIELDS SOUTH **CONSTRUCTED WATER FEATURES** GRANT-KOHRS RANCH NATIONAL HISTORIC SITE	DRAWING NO. PKG. NO. SHEET OF



Map Sources: Base mapping referenced to Grant-Kohrs Ranch National Historic Site 1994 aerial photographs and Montana 1:24,000 scale State Plane DRG quadrangles. GIS data was exported into Autocad format for production of base maps and further further detailed with additional data collected in the field.

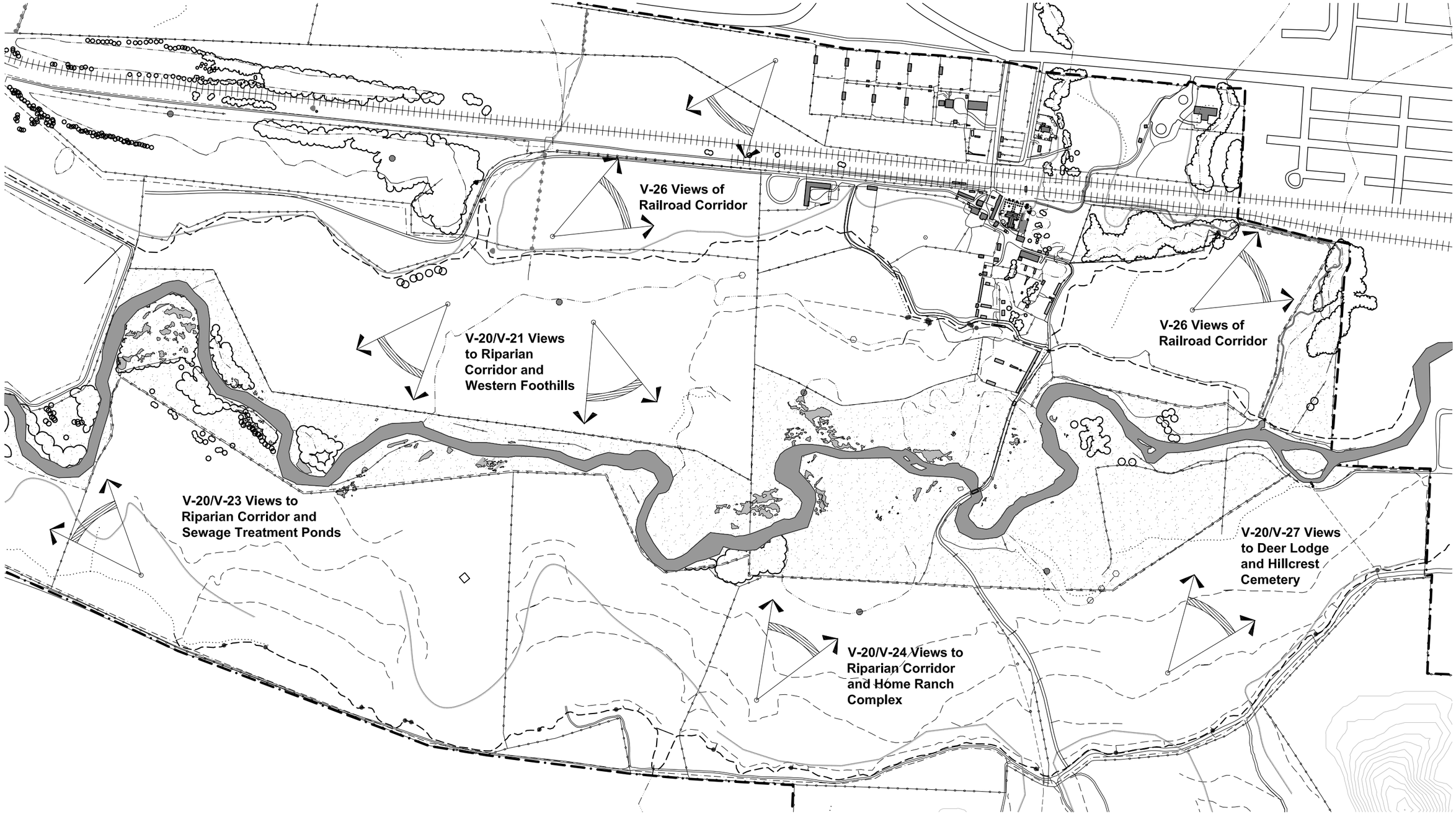
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Scale: 1" = 600'

A/E FIRM PRIME NAME: Susan Maxman Architects CITY, STATE: Philadelphia, PA SUBCONTRACTOR NAME: John Milner Associates, Inc. CITY, STATE: Charlottesville, VA	DESIGNED: DRAWN: JLB, WMW TECH. REVIEW: KLS, RMM DATE: JULY 2004	SUB SHEET NO. EC-24	EXISTING CONDITIONS INVENTORY MAP PASTURE/HAYFIELDS NORTH **CONSTRUCTED WATER FEATURES** GRANT-KOHRS RANCH NATIONAL HISTORIC SITE	DRAWING NO. PKG. NO. SHEET OF



Map Sources: Base mapping referenced to Grant-Kohrs Ranch National Historic Site 1994 aerial photographs and Montana 1:24,000 scale State Plane DRG quadrangles. GIS data was exported into Autocad format for production of base maps and further further detailed with additional data collected in the field.

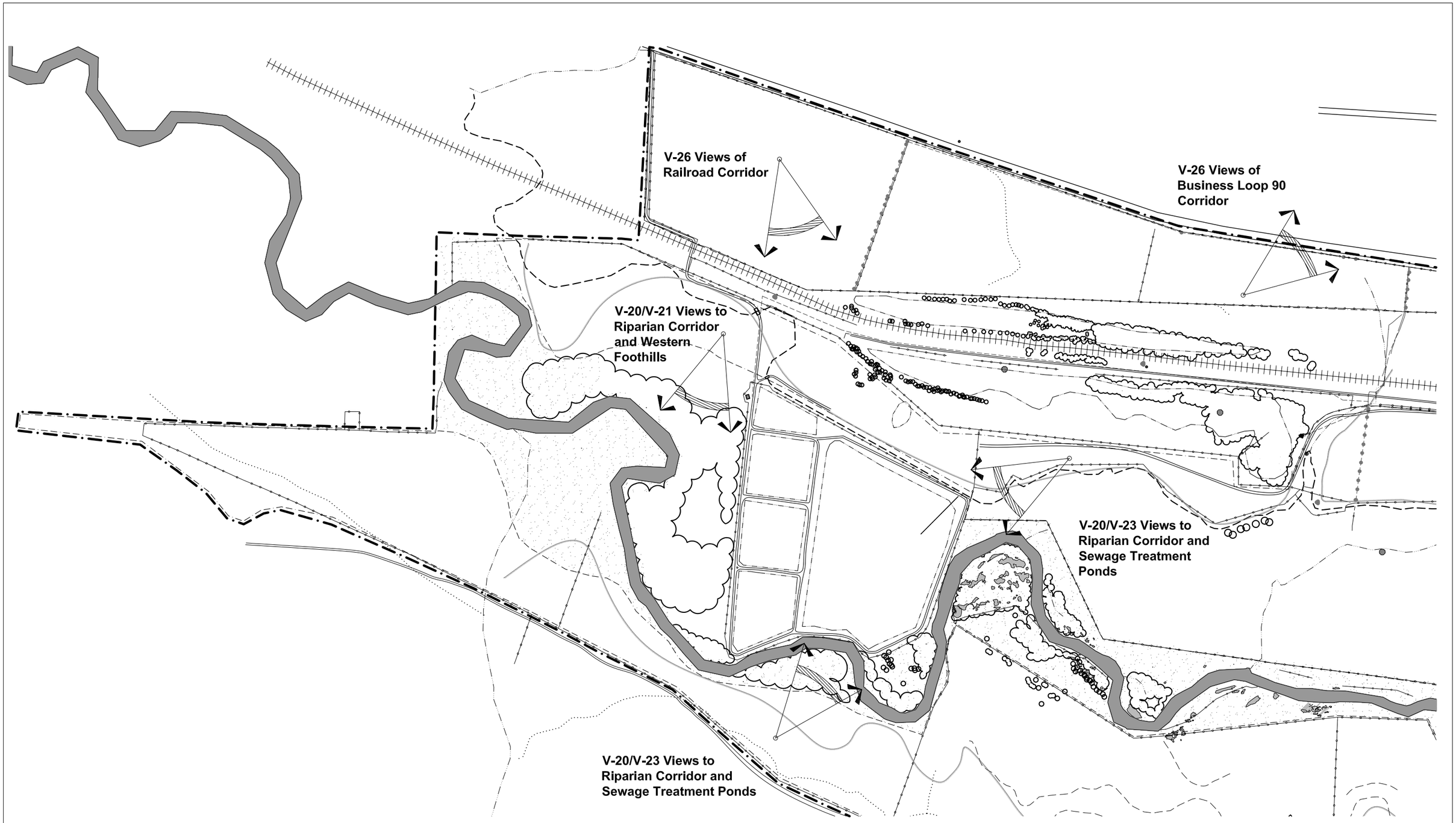
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- Lateral Ditches
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- GRKO Boundary Line
- Beaver Lodges

Scale: 1" = 600'

A/E FIRM PRIME NAME: Susan Maxman Architects CITY, STATE: Philadelphia, PA SUBCONTRACTOR NAME: John Milner Associates, Inc. CITY, STATE: Charlottesville, VA	DESIGNED: DRAWN: JLB, WMW TECH. REVIEW: KLS, RMM DATE: JULY 2004	SUB SHEET NO. EC-25	EXISTING CONDITIONS INVENTORY MAP PASTURE/HAYFIELDS SOUTH **VIEWS** GRANT-KOHRS RANCH NATIONAL HISTORIC SITE	DRAWING NO. PKG. NO. SHEET OF



Map Sources: Base mapping referenced to Grant-Kohrs Ranch National Historic Site 1994 aerial photographs and Montana 1:24,000 scale State Plane DRG quadrangles. GIS data was exported into Autocad format for production of base maps and further further detailed with additional data collected in the field.

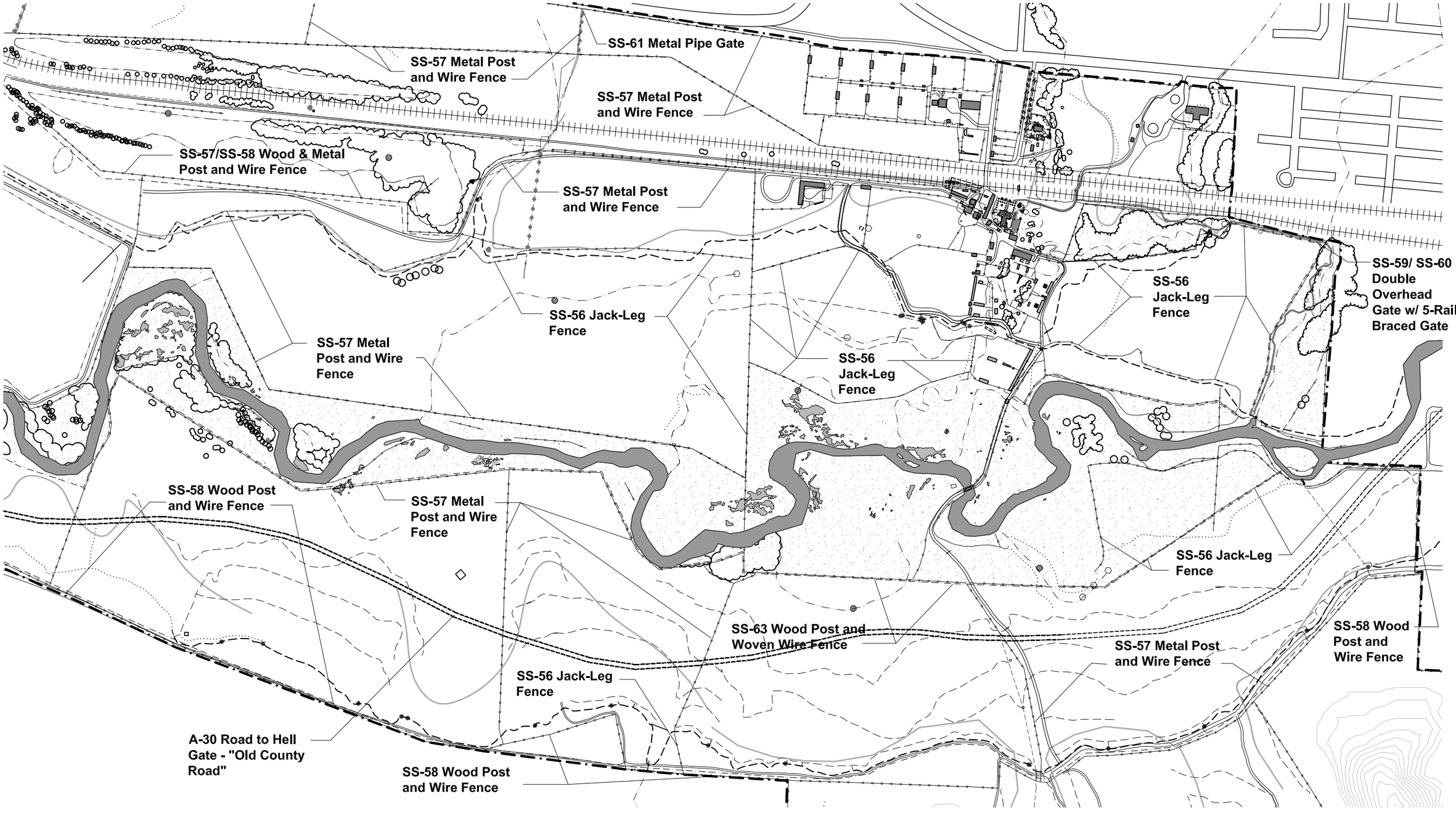
The following data was provided by the National Park Service, Grant-Kohrs Ranch National Historic Site GIS Program (shapefile format), which was compiled 1998 and updated/field-checked by OCULUS/JMA during the October 2002 site visit: fences and gates; boundary lines; utility lines; fire hydrants; irrigation ditches, headgates, pipes, and risers; culverts; river boundaries; roads; railroad tracks; unvegetated slickens and tailings; fields; trails; cottonwood trees; beaver lodges and dams; hydrology; and groundwater monitoring wells. Metadata for this data is avaliable from World Wide Web: [http://www.nps.gov/gis/metadata/grko/]. Wetlands, hypsography (topography), and Montana 1:24,000 scale State Plane DRG quadrangles were derived from Montana State Library Natural Resource Information System, metadata available from: [http://nris.state.mt.us/gis/datalist.html].

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- Bench
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- Lateral Ditches
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- GRKO Boundary Line
- Beaver Lodges

Scale: 1" = 600'

A/E FIRM PRIME NAME: Susan Maxman Architects CITY, STATE: Philadelphia, PA SUBCONTRACTOR NAME: John Millner Associates, Inc. CITY, STATE: Charlottesville, VA	DESIGNED: DRAWN: JLB, WMW TECH. REVIEW: KLS, RMM DATE: JULY 2004	SUB SHEET NO. EC-26	EXISTING CONDITIONS INVENTORY MAP PASTURE/HAYFIELDS NORTH **VIEWS** GRANT-KOHRS RANCH NATIONAL HISTORIC SITE	DRAWING NO. PKG. NO. SHEET OF



Map Sources: U. S. Surveyor's General Office. Plat of Township 8 North, Range 9 West of the Principal Meridian, Montana. W. W. Johnson, October 1868. Billings: Bureau of Land Management; Base mapping referenced to Grant-Kohrs Ranch National Historic Site 1994 aerial photographs and Montana 1:24,000 scale State Plane DRG quadrangles. GIS data was exported into Autocad format for production of base maps and further further detailed with additional data collected in the field.

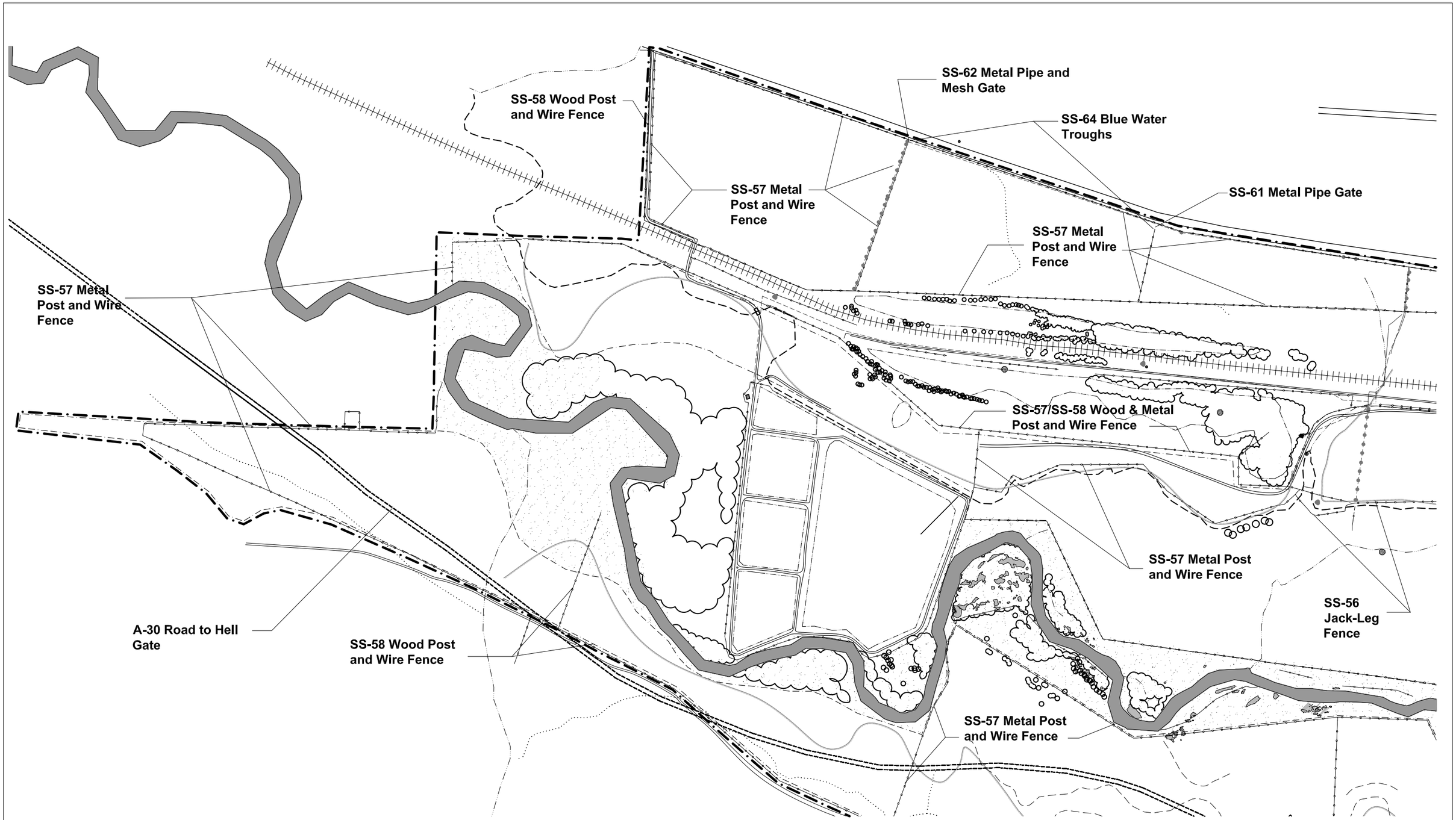
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- GRKO Boundary Line
- Beaver Lodges

Scale: 1" = 600'

A/E FIRM PRIME NAME: Susan Maxman Architects CITY, STATE: Philadelphia, PA SUBCONTRACTOR NAME: John Milner Associates, Inc. CITY, STATE: Charlottesville, VA	DESIGNED: DRAWN: JLB, WMW TECH. REVIEW: KLS, RMM DATE: JULY 2004	SUB SHEET NO. EC-27	EXISTING CONDITIONS INVENTORY MAP PASTURE/HAYFIELDS SOUTH **OBJECTS, SMALL SCALE, & MISSING FEATURES** GRANT-KOHRS RANCH NATIONAL HISTORIC SITE	DRAWING NO. PKG. NO. SHEET OF



Map Sources: U. S. Surveyor's General Office. Plat of Township 8 North, Range 9 West of the Principal Meridian, Montana. W. W. Johnson, October 1868. Billings: Bureau of Land Management; Base mapping referenced to Grant-Kohrs Ranch National Historic Site 1994 aerial photographs and Montana 1:24,000 scale State Plane DRG quadrangles. GIS data was exported into Autocad format for production of base maps and further further detailed with additional data collected in the field.

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- Old Ditches
- Main Ditches
- Lateral Ditches
- Component Landscape Boundary Line
- GRKO Boundary Line
- Beaver Lodges

Scale: 1" = 600'

A/E FIRM

PRIME
NAME: Susan Maxman Architects
CITY, STATE: Philadelphia, PA

SUBCONTRACTOR
NAME: John Milner Associates, Inc.
CITY, STATE: Charlottesville, VA

DESIGNED:

DRAWN: JLB, WMW

TECH. REVIEW: KLS, RMM

DATE: JULY 2004

SUB SHEET NO. EC-28

EXISTING CONDITIONS INVENTORY MAP

PASTURE/HAYFIELDS NORTH

OBJECTS, SMALL SCALE, & MISSING FEATURES

GRANT-KOHRS RANCH NATIONAL HISTORIC SITE

DRAWING NO.

PKG. NO.

SHEET

OF

Upland Pasture

Upland Pasture

[Existing conditions inventory maps and photographs follow this section]

Introduction

This landscape area is located west of the Kohrs, or "Big Ditch." It consists of rolling, grass covered foothills, and is used for both hay and pasture. It is bordered on the west, south, and north sides by the Grant-Kohrs Ranch property line. This land was added to the Grant-Kohrs Ranch National Historic Site in the 1930s.

Natural Systems and Features

[see Map EC-29 at the end of this section]

The steepest slopes and highest elevations within the ranch occur in this area. Like the benchland on the east side of the river, the upland areas to the west are generally comprised of very deep, well drained soils. Con loams, Varney-Con loams, and the Roy-Shawmut-Danvers complex, the latter of which is found on the hilltops and comprised of a combination of cobbly loam, clay loam, and very gravely clay, are the predominant soils in these fields. Without irrigation, these soils are naturally limited to pasture.

Taylor Creek is the primary drainage corridor in the upland pasture area. This creek is located along the southern boundary of the ranch, and provides irrigation water to the ditches that tap into it. Other intermittent drainage swales drain the gulches, but these are intercepted by the lateral ditches used to irrigate these areas.

Vegetation

[see Map EC-30 at the end of this section]

The dry upland pasture has been used primarily for grazing, and therefore retains much of the character of natural grassland communities (see Photo 3-6-1). These are primarily the bluebunch wheatgrass/western wheatgrass habitat type and the bluebunch wheatgrass/Sandber's bluegrass type.[1]

The most predominant species (plants observed within each of the four dry ranges) during the 2002 Rice and Hardin plant survey include the following (those marked with an asterisk (*) are exotic species): common yarrow (*Achillea millefolium*), crested wheatgrass (*Agripyron cristatum*)*, fringed sagebrush (*Artemisia frigida*), standing milkvetch (*Astragalus adsurgens*), blue grama (*Bouteloua gracilis*), smooth brome (*Bromus inermis*)*, spotted knapweed (*Centaurea biebersteinii*)*, waveleaf thistle (*Cirsium undulatum*), rubber rabbitbush (*Ericameria nauseosa*), shaggy fleabane (*Erigeron pumilus*), cultleaf daisy (*Erigeron compositus*), rough fescue (*Festuca camperstris*), scarlet gaura (*Gaura coccinea*), prairie smoke (*Geum triflorum*), curly-cup gumweed (*Grindelia squarrosa*), broom snakeweed (*Gutierrezia saothrae*), baby's breath (*Gypsophia paniculata*)*, needle-and-thread (*Hesperostipa comata*), little-leaf alumroot (*Heuchera parvifolia*), winterfat (*Krascheninnikovia lanata*), bitterroot (*Lewisia rediviva*), yellow sweetclover (*Melilotus officinalis*)*, plains pricklypear (*Opuntia polyacantha*), Bessey's locoweed (*Oxytropis besseyi*), western wheatgrass (*Agropyron smithii*), longleaf phlox (*Phlox longifolia*), moss phlox (*Phlox muscoides*), sandbergr's bluegrass (*Poa juncifolia*), bluebunch wheatgrass (*Agropyron spicatum*), tall tumblemustard (*Sisymbrium altissimum*)*, Missouri

[1] Peter M. Rice and Janet G. Hardin, "Vascular Plant Survey of Grant-Kohrs Ranch National Historic Site" (Missoula: Division of Biological Sciences, University of Montana, October 2002), 2.

goldenrod (*Solidago missouriensis*), scarlet globemarrow (*Sphaeralcea coccinea*), dandelion (*Taraxacum officinale*)*, spineless horsebrush (*Tetradymia canescens*), and intermediate wheatgrass (*Agropyron intermedium*)*.[2]

The irrigated areas of the upland pasture contain hay grasses, such as smooth brome (*Bromus inermis*), common timothy (*Phleum partense*), Kentucky bluegrass (*Poa pratensis*), red clover (*Trifolium pretense*), Canada thistle (*Cirsium arvense*), crested wheatgrass (*Agropyron cristatum*), and white clover (*Trifolium repens*). All these species are exotic.[3]

Several species of noxious weeds have taken root within the Grant-Kohrs Ranch. Noxious weeds are not only exotic species (non-native to the site), but they are also harmful species because they grow aggressively and out-compete native species for water, nutrients, and space. Noxious weeds can change ecological systems within the landscape and alter relationships that have existed for hundreds of years. The most common and troublesome noxious weed found in the upland pasture is spotted knapweed. These weeds are of concern because they can lower the grazing value of pasture by out-competing the native bluebunch grasses. Negative effects of this weed include the loss of wildlife habitat, reduced livestock grazing capacity, increased soil erosion and topsoil loss, and reduced cropland and farmland production.[4] For a more in-depth discussion of park efforts to control noxious weeds, refer to the pasture/hay fields existing conditions section.

The upland pasture also contains a cluster of very mature and prolific apple trees, which mark the site of an old homestead (see Photo 3-6-2). A row of cottonwoods along the south boundary also mark what is believed to be the entrance road to this home site along Taylor Creek (see Photo 3-6-3).

Spatial Organization
[see Map EC-30 at the end of this section]

The spatial organization of the upland pasture is defined by the topography, fences, and irrigation ditches. The major spaces within this landscape area include **Big Gulch** (66 acres) and **Little Gulch** (29 acres) which are defined primarily by the surrounding hills (see Photo 3-6-4 and Photo 3-6-5). The **Taylor Fields** (109 acres) are defined by the surrounding hills to the north, Taylor Creek to the south, and the boundary fence of the ranch to the east and west (see Photo 3-6-6). In 1995 Upper Taylor Field was re-farmed. This involved plowing, tilling, and planting barley hay.

The dry ranges within the Upland Pasture area are defined by the topography. The **Upper Northwest Range** (100 acres) is the largest. It is located along the northern edge of the boundary fence. **Taylor Ridge Range** (76 acres) is located along the western boundary, whereas **Ridge Road Range** (26 acres) and **Gravel Pit Range** (33 acres) are located along the Kohrs Ditch Road. Both the Gravel Pit Range and Taylor Fields are enclosed by a combination of wood and metal post and wire fencing.

[2] Species location information derived from Janet Hardin, "Plant Species & Locations, GRKO Database, Westside Ranges" (Missoula: University of Montana, Division of Biological Sciences, June 3, 2003).
[3] Species location information derived from Janet Hardin, "Plant Species & Locations, GRKO Database, Final Inventory" (Missoula: University of Montana, Division of Biological Sciences, June 3, 2003).
[4] Montana Department of Agriculture, Noxious Weed Program, "Noxious Weeds," (Boulder, MT: Pamphlet distributed by the Jefferson County Weed District, no date).

Land Use
[see Map EC-30 at the end of this section]

Approximately 235 acres of the upland pasture area are used for grazing. The remaining 177 acres is used for hay production, which is typically harvested in the late summer/early fall. This number fluctuates annually (more irrigated fields can be used for grazing, if necessary), based upon the ranch's needs for hay and the number of cattle maintained on the land. The hay land is typically grazed after harvest.

Constructed Water Features
[see Map EC-29 at the end of this section]

There are several constructed water features in the Upland Pasture which are used to irrigate the hayfields located in this area. As with the Pasture/Hayfield component landscape, a complex system of ditches can be found in this area.

The **Westside Ditch** (see Photo 3-6-7), which gets its water from Lost Creek (further to the south of the ranch), provides irrigation to Big Gulch, Little Gulch, and part of Lower Taylor Field.

The **Hartz Ditch**, which is located in the southwestern corner of the upland pasture, derives its water from Lost Creek (further south of the ranch) and provides irrigation to Upper Taylor Field.

The **Salmonson Waste Ditch** is located along the southeastern portion of the upland pasture. Its water source is Taylor Creek. This ditch no longer appears to be in use, as the majority of its length has been consumed by the residential expansion of Deer Lodge.

Taylor Creek provides water to four independent ditches, each controlled by its own headgate. These ditches are located in the Taylor Fields to provide irrigation for hay cultivation.

A **mainline with risers system**, installed by the NPS in 1995, is located to the west of Kohrs Ditch Road. It starts at the West Side Ditch, midway up Big Gulch. It runs down the south side of the gulch and terminates at the bottom. It is fed by a headgate to an underground line with risers and ends at the bottom of Big Gulch, approximately 250 feet west of the road.[5] This line replaced a historic ditch that frequently washed out.

As with the other hay fields located throughout the Grant-Kohrs Ranch NHS, there are a variety of different types of head gates, distribution gates, diversion dams, and culverts. Refer to the Pasture/Hayfields component landscape section for more detailed descriptions of these features.

Circulation
[see Map EC-31 at the end of this section]

The Upland Pasture area is accessed through a network of very informal and poorly defined dirt/grass roads (see Photo 3-6-8). These generally follow the edge of the foothills that divide the grazing areas from the hayfields.

Two entrances to the park boundary are accessed from the **Kohrs Ditch Road**, which defines the eastern edge of the Upland Pasture area (see Photo-3-6-9). One of these entrances is the **Gravel Pit Road**, which traverses the southern edge of the Gravel Pit Range, and continues north until

[5] NPS comments, 75% draft CLR review.

terminating at Big Gulch Road. **Big Gulch Road** travels east-west along the south edge of this hay field until connecting back to the Kohrs Ditch Road.

Upland Pasture Road connects the Kohrs Ditch Road with **MTSR 4691** by traversing along the edge of the Upper Northwest Range and Taylor Ridge Range. **Ridge Road** and **Little Gulch Road** traverse east-west through the topographical features that bear their name. Both of these roads connect Gravel Road with the Kohrs Ditch Road.

Views and Vistas
[see Map EC-31 at the end of this section]

Views within the Upland Pasture are oriented towards the east and south, where the lower topography of the gulches and Taylor Fields provide sweeping middle ground views of the Western Hay Fields and the Clark Fork River and riparian area. Distant views of the Home Ranch Complex, Deer Lodge, and Hillcrest Cemetery are also noteworthy (see Photos 3-6-5 and 3-6-10). From the higher elevations, one can also gain views to Deer Lodge Mountain and Mount Powell.

Buildings and Structures
There are no buildings or structures located within the Upland Pasture.

Objects and Small-scale Features
[see Map EC-32 at the end of this section]

The Upland Pasture is used to graze cattle, and fences in this area support this use. Fences made of posts, barbed wire, and electrified wire help to separate pastures and prevent animals from overrunning the fences.

The **Metal Post and Barbed Wire fence** is most prevalent, while the **Wood Post and Barbed Wire fence** is also often seen. These fences consist of thin metal posts or round wood posts, both milled and un-milled, supporting five (sometimes six) strands of barbed wire. Often times, this fence is referred to as "NPS Cross Fence." This name is more associated with its function than its design or materials, and refers to fencing that is used to sub-divide a large field or pasture; it can also be used as a boundary fence.

An **Electric Fence,** (see Photo 3-6-11) stretches through the western portion of the pasture. The fence consists of three strands of electrified wire supported by round, milled posts. Short, narrow, wooden posts are located between each larger post to prevent the wire from sagging.

A short section of **5-rail Locked-End fence,** (see Photo 3-6-12) is found near the southeast corner of the pasture. Approximately 25 feet in length, the fence consists of 5 horizontal split-log rails supported by wood poles. Two more split-log rails are located on the opposite side of the fence, near the bottom, as rubrails to prevent cattle from rubbing on rails and pushing them off.

Wire Gates in the pasture are simple devices consisting of four to five thin, round, wood posts supporting six strands of barbed wire, (see Photo 3-6-13). The wire gate is stretched across the road--one end tied permanently to the fence post to act as a hinge; the other end is hooked at the top and bottom for easy opening and closing.

Missing & Archeological Resources
[see Map EC-32 at the end of this section]

The upland pasture contains several archeological features. These include the remnants of the Kading Homestead, which consists of rock wall building foundations and cultural vegetation (see Photo 3-6-2), mining excavation sites (see Photo 3-6-14), and another foundation believed to be an old pig farm (see Photo 3-6-15).

A dump site is also located in this landscape. It includes several rock piles, as well as a light concentration of domestic trash (see Photo 3-6-16).



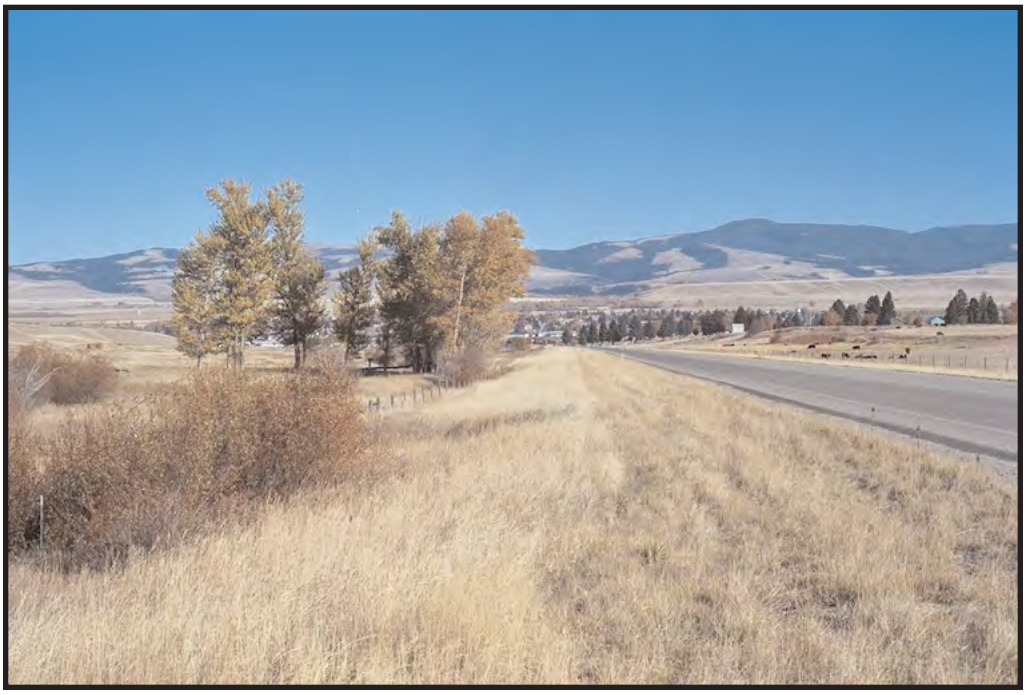
JMA, October 2002

Photo 3-6-1 : (N-11) Much of the dry upland pasture has been used for grazing, and therefore retains much of the character of natural grassland communities.



JMA, October 2002

Photo 3-6-2 : (O-18) A cluster of mature apple trees mark the site of the old Kading homestead.



JMA, October 2002

Photo 3-6-3 : (P-2) Row of cottonwoods along Taylor Creek. MTSR 4691 on right with views to Deer Lodge.



JMA, October 2002

Photo 3-6-4 : (O-03) Big Gulch.



JMA, October 2002

Photo 3-6-5 : (O-16) Little Gulch with views toward ranch.



JMA, October 2002

Photo 3-6-6 : (P-03) Taylor Fields.



JMA, October 2002

Photo 3-6-7 : (N-19) Westside Ditch.



JMA, October 2002

Photo 3-6-8 : (N-22) The Upland Pasture area is accessed through a network of very informal and poorly defined dirt/grass roads.



JMA, October 2002

Photo 3-6-9 : (P-06) Kohrs “Big” Ditch Road.



JMA, October 2002

Photo 3-6-10 : (0-17) Views of Hillcrest Cemetery.



JMA, October 2002

Photo 3-6-11 : (N-16) Electric Fence.



JMA, October 2002

Photo 3-6-12 : (P-05) 5-Rail Locked-End Fence. Views of Deer Lodge in background.



JMA, October 2002

Photo 3-6-13 : (N-01) Wire Gate.



JMA, October 2002

Photo 3-6-14 : (O-2) Mining excavations.



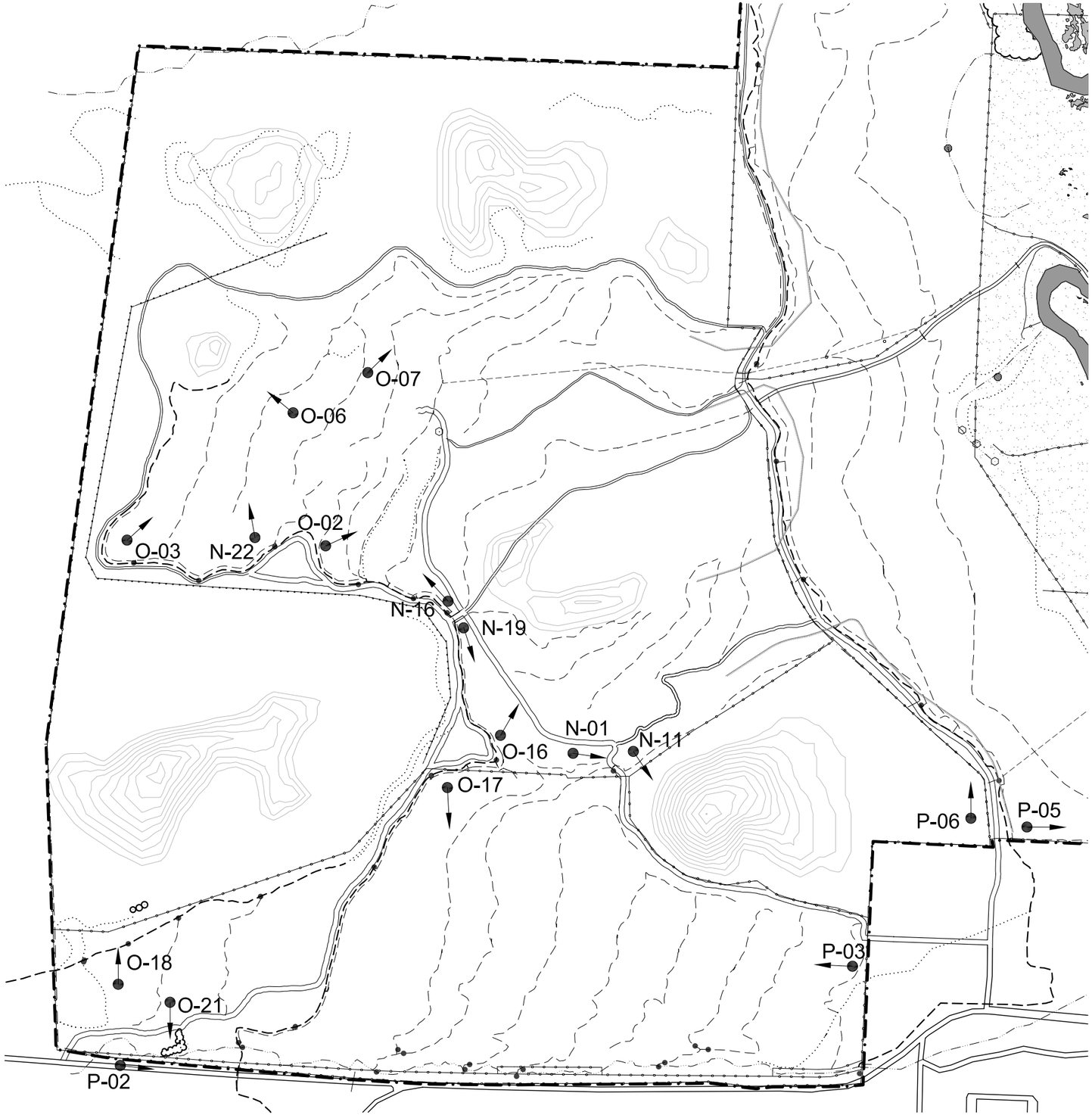
JMA, October 2002

Photo 3-6-15 : (O-6) Pig Farm Foundations.



JMA, October 2002

Photo 3-6-16 : (O-7) Dump site.



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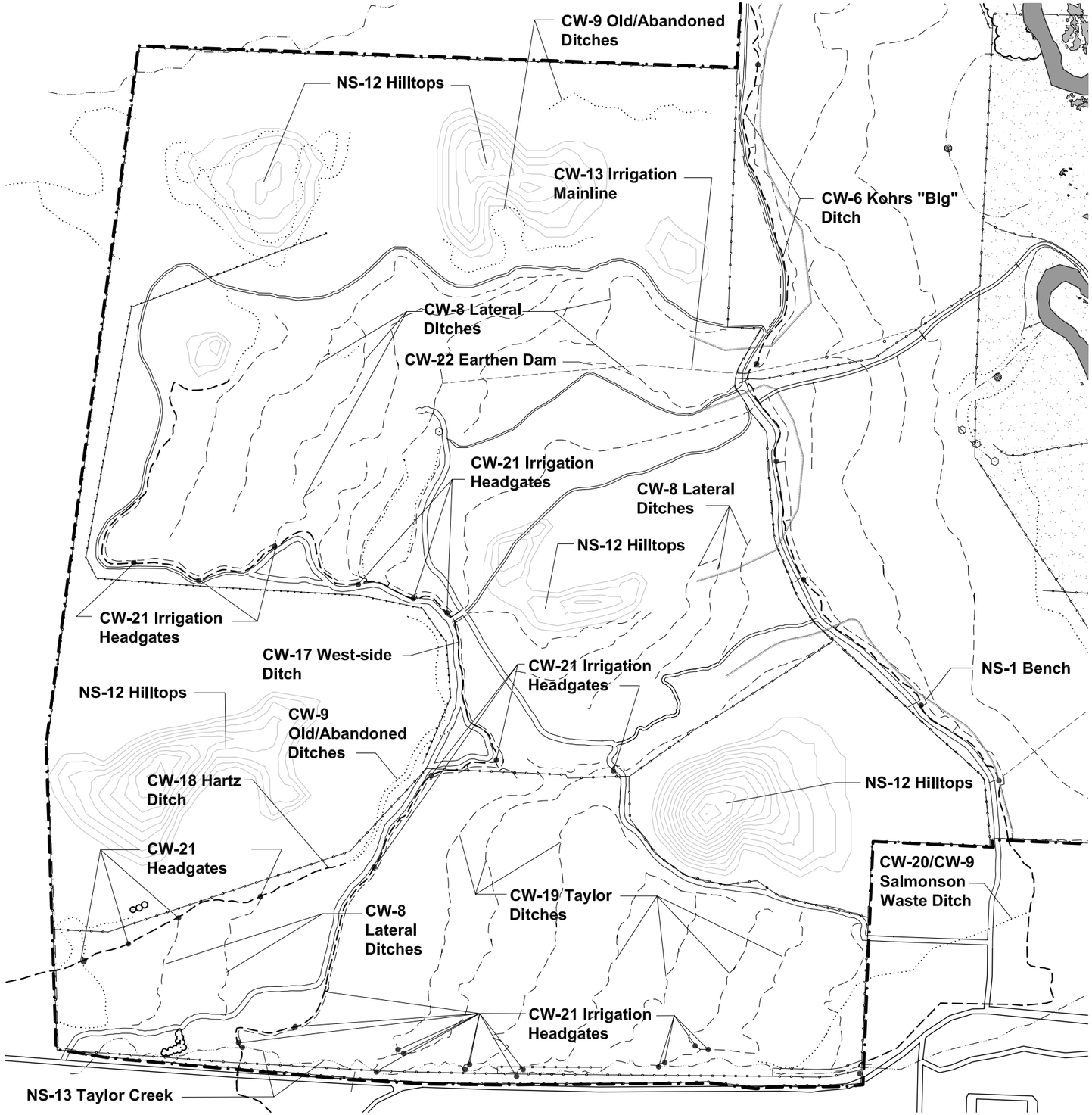
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- Springs
- GRKO Boundary Line
- Fences
- Old Ditches
- Beaver Lodges
- Streams/Sloughs
- Main Ditches

Scale: 1" = 600'

Map Sources: Base mapping referenced to Grant-Kohrs Ranch National Historic Site 1994 aerial photographs and Montana 1:24,000 scale State Plane DRG quadrangles. GIS data was exported into Autocad format for production of base maps and further further detailed with additional data collected in the field.

The following data was provided by the National Park Service, Grant-Kohrs Ranch National Historic Site GIS Program (shapefile format), which was compiled 1998 and updated/field-checked by OCULUS/JMA during the October 2002 site visit: fences and gates; boundary lines; utility lines; fire hydrants; irrigation ditches, headgates, pipes, and risers; culverts; river boundaries; roads; railroad tracks; unvegetated slickens and tailings; fields; trails; cottonwood trees; beaver lodges and dams; hydrology; and groundwater monitoring wells. Metadata for this data is avaliable from World Wide Web: [http://www.nps.gov/gis/metadata/grko/]. Wetlands, hypsography (topography), and Montana 1:24,000 scale State Plane DRG quadrangles were derived from Montana State Library Natural Resource Information System, metadata available from: [http://nris.state.mt.us/gis/datalist.html].

A/E FIRM PRIME NAME: Susan Maxman Architects CITY, STATE: Philadelphia, PA SUBCONTRACTOR NAME: John Milner Associates, Inc. CITY, STATE: Charlottesville, VA	DESIGNED: DRAWN: ADF TECH. REVIEW: KLS, RMM DATE: JULY 2004	SUB SHEET NO. P-8	EXISTING CONDITIONS INVENTORY UPLAND PASTURE **PHOTO STATION POINT MAP** GRANT-KOHRS RANCH NATIONAL HISTORIC SITE	DRAWING NO. PKG. NO. SHEET OF



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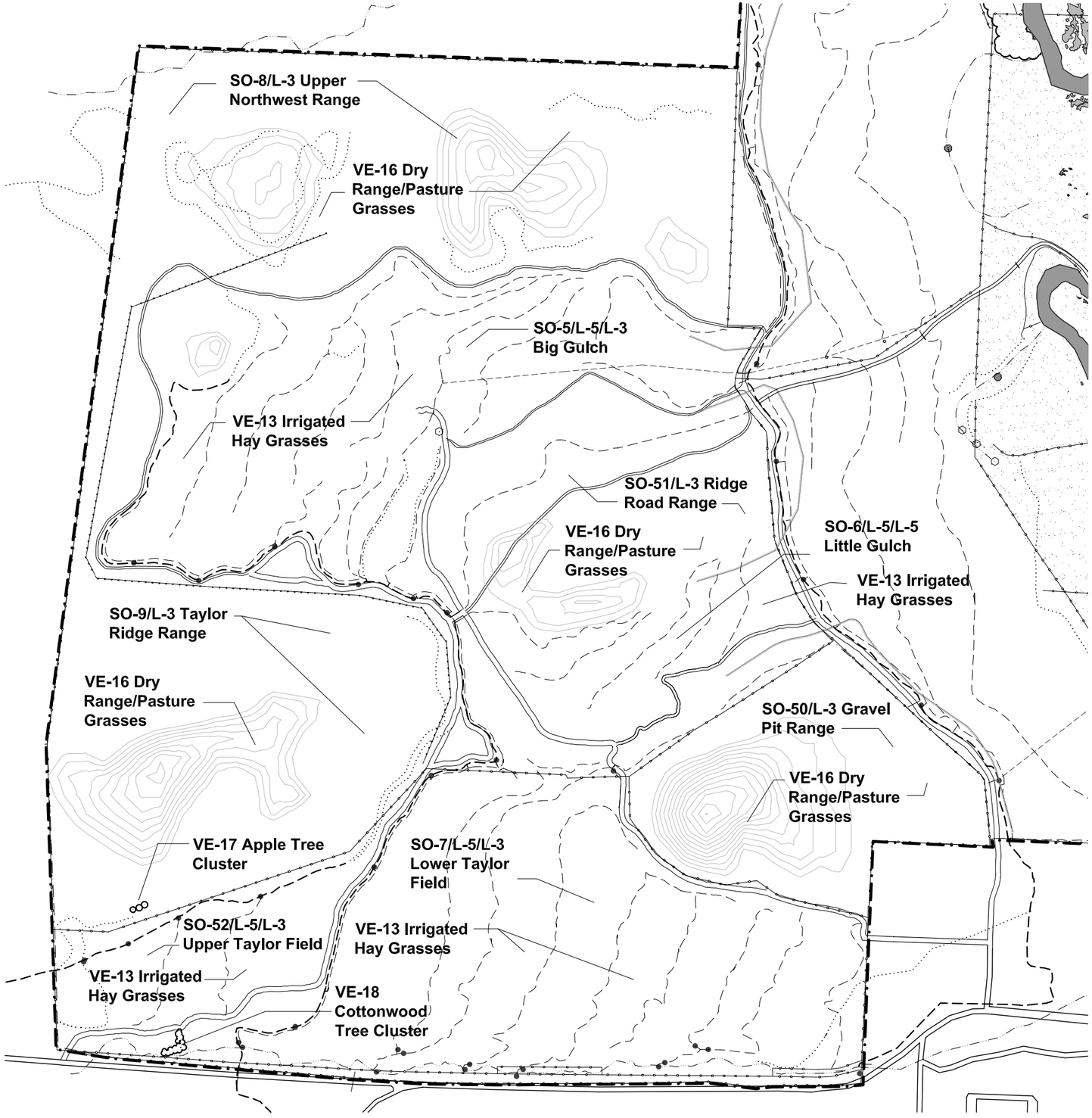
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Scale: 1" = 600'

Map Sources: Base mapping referenced to Grant-Kohrs Ranch National Historic Site 1994 aerial photographs and Montana 1:24,000 scale State Plane DRG quadrangles. GIS data was exported into Autocad format for production of base maps and further further detailed with additional data collected in the field.

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A/E FIRM PRIME NAME: Susan Maxman Architects CITY, STATE: Philadelphia, PA SUBCONTRACTOR NAME: John Millner Associates, Inc. CITY, STATE: Charlottesville, VA	DESIGNED: DRAWN: JLB, WMW TECH. REVIEW: KLS, RMM DATE: JULY 2004	SUB SHEET NO. EC-29	EXISTING CONDITIONS INVENTORY UPLAND PASTURE NATURAL SYSTEMS AND CONSTRUCTED WATER FEATURES GRANT-KOHRS RANCH NATIONAL HISTORIC SITE	DRAWING NO. PKG. NO. SHEET OF



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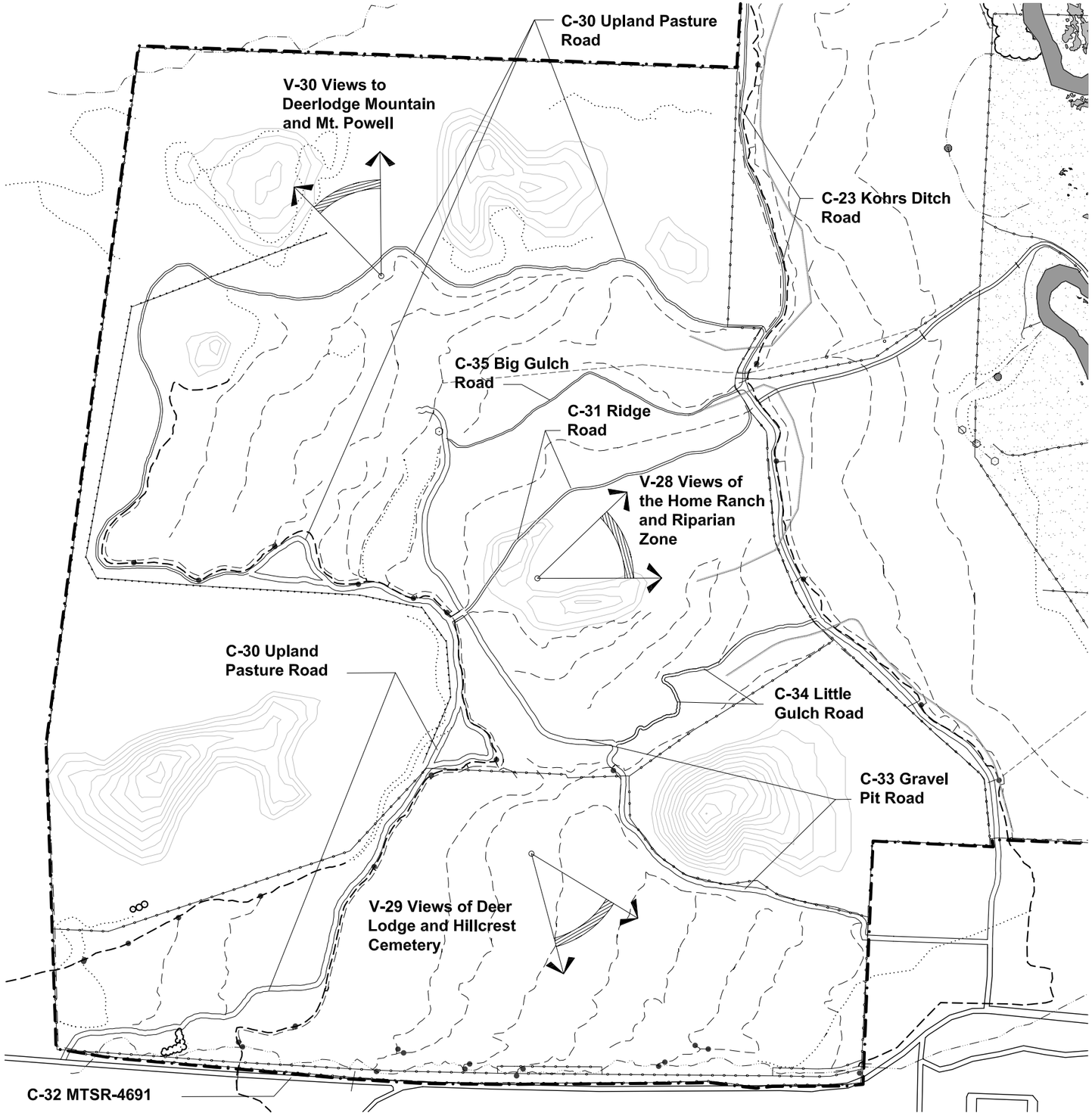
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- GRKO Boundary Line
- Fences
- Old Ditches
- Beaver Lodges
- Streams/Sloughs
- Main Ditches

Scale: 1" = 600'

Map Sources: Base mapping referenced to Grant-Kohrs Ranch National Historic Site 1994 aerial photographs and Montana 1:24,000 scale State Plane DRG quadrangles. GIS data was exported into Autocad format for production of base maps and further further detailed with additional data collected in the field.

The following data was provided by the National Park Service, Grant-Kohrs Ranch National Historic Site GIS Program (shapefile format), which was compiled 1998 and updated/field-checked by OCULUS/JMA during the October 2002 site visit: fences and gates; boundary lines; utility lines; fire hydrants; irrigation ditches, headgates, pipes, and risers; culverts; river boundaries; roads; railroad tracks; unvegetated slickens and tailings; fields; trails; cottonwood trees; beaver lodges and dams; hydrology; and groundwater monitoring wells. Metadata for this data is avaliable from World Wide Web: [http://www.nps.gov/gis/metadata/grko/]. Wetlands, hypsography (topography), and Montana 1:24,000 scale State Plane DRG quadrangles were derived from Montana State Library Natural Resource Information System, metadata available from: [http://nris.state.mt.us/gis/datalist.html].

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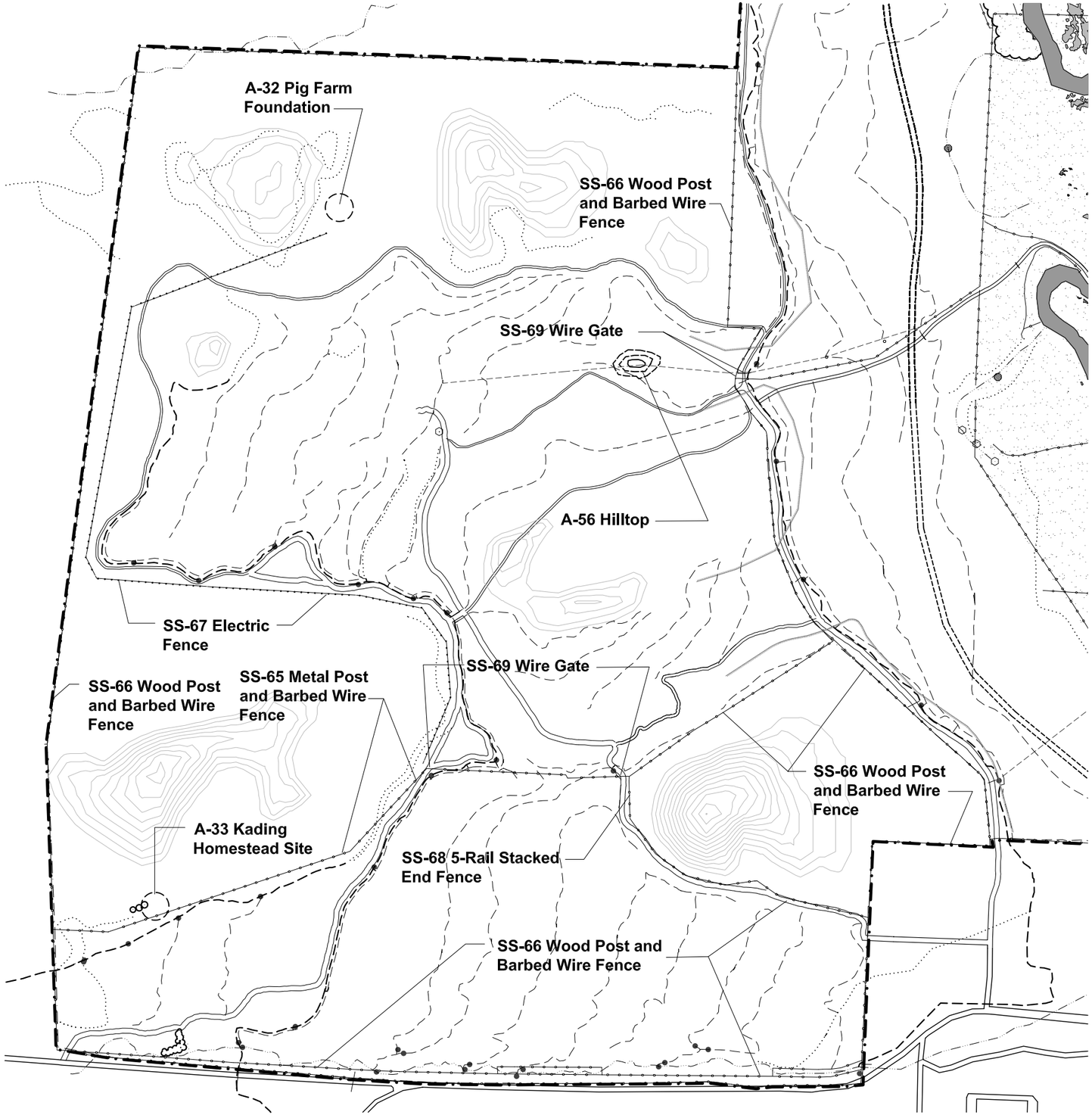
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- Old Ditches
- Beaver Lodges
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- Main Ditches

Scale: 1" = 600'

Map Sources: Base mapping referenced to Grant-Kohrs Ranch National Historic Site 1994 aerial photographs and Montana 1:24,000 scale State Plane DRG quadrangles. GIS data was exported into Autocad format for production of base maps and further further detailed with additional data collected in the field.

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A/E FIRM PRIME NAME: Susan Maxman Architects CITY, STATE: Philadelphia, PA SUBCONTRACTOR NAME: John Milner Associates, Inc. CITY, STATE: Charlottesville, VA	DESIGNED: DRAWN: JLB, WMW TECH. REVIEW: KLS, RMM DATE: JULY 2004	SUB SHEET NO. EC-31	EXISTING CONDITIONS INVENTORY UPLAND PASTURE **CIRCULATION AND VIEWS** GRANT-KOHRS RANCH NATIONAL HISTORIC SITE	DRAWING NO. PKG. NO. SHEET OF



Legend:

- Roads
- Railroad
- Lateral Ditches
- Vegetation
- Buildings/ Structures
- Component Landscape Boundary Line
- Bench
- Springs
- GRKO Boundary Line
- Fences
- Old Ditches
- Beaver Lodges
- Streams/Sloughs
- Main Ditches

Scale: 1" = 600'

Map Sources: U. S. Surveyor's General Office. Plat of Township 8 North, Range 9 West of the Principal Meridian, Montana. W. W. Johnson, October 1868. Billings: Bureau of Land Management; historic aerial photographs (various), on file at Grant-Kohrs Ranch National Historic Site archives. Base mapping referenced to Grant-Kohrs Ranch National Historic Site 1994 aerial photographs and Montana 1:24,000 scale State Plane DRG quadrangles. GIS data was exported into Autocad format for production of base maps and further further detailed with additional data collected in the field.

The following data was provided by the National Park Service, Grant-Kohrs Ranch National Historic Site GIS Program (shapefile format), which was compiled 1998 and updated/field-checked by OCULUS/JMA during the October 2002 site visit: fences and gates; boundary lines; utility lines; fire hydrants; irrigation ditches, headgates, pipes, and risers; culverts; river boundaries; roads; railroad tracks; unvegetated slickens and tailings; fields; trails; cottonwood trees; beaver lodges and dams; hydrology; and groundwater monitoring wells. Metadata for this data is avaliable from World Wide Web: [http://www.nps.gov/gis/metadata/grko/]. Wetlands, hypsography (topography), and Montana 1:24,000 scale State Plane DRG quadrangles were derived from Montana State Library Natural Resource Information System, metadata available from: [http://nris.state.mt.us/gis/datalist.html].

A/E FIRM PRIME NAME: Susan Maxman Architects CITY, STATE: Philadelphia, PA SUBCONTRACTOR NAME: John Milner Associates, Inc. CITY, STATE: Charlottesville, VA	DESIGNED: DRAWN: JLB, WMW TECH. REVIEW: KLS, RMM DATE: JULY 2004	SUB SHEET NO. EC-32	EXISTING CONDITIONS INVENTORY UPLAND PASTURE **OBJECTS, SMALL-SCALE, & MISSING FEATURES** GRANT-KOHRS RANCH NATIONAL HISTORIC SITE	DRAWING NO. PKG. NO. SHEET OF

Riparian Woodland

Riparian Woodland

[Existing conditions inventory maps and photographs follow this section]

Introduction

The Grant-Kohrs Ranch Riparian Woodland is comprised of thick woodlands and wetland areas contained within the Clark Fork River, Cottonwood Creek, and Johnson Creek floodplains. While other riparian areas of the ranch are not entirely contained by fences, such as No Name Creek, the riparian areas along the Clark Fork River, Cottonwood Creek, and Johnson Creek have been fenced off for several years. As a result, vegetation within these areas has been allowed to grow without active cattle grazing.

Natural Systems and Features

[see Map EC-33 at the end of this section]

The headwaters of the Clark Fork River originate from the confluence of many creeks located approximately 19 miles south of the ranch near Anaconda. The principal tributaries are Warm Springs Creek and Silver Bow Creek. From here the river flows north through Deer Lodge Valley, where its tributaries join it after draining the upland areas and mountain ranges to its east and west. After traversing the Grant-Kohrs Ranch, the Clark Fork River winds its way north, eventually passing through Missoula on its way to Pend Oreille Lake and eventually the Columbia River (see Photo 3-7-1).

There are several natural water features within the riparian zone. Three natural springs source a 300 foot long slough located to the west of the Clark Fork River, just to the south of the Clark Fork River Bridge Road (see Photo 3-7-2).

Cottonwood Creek is a significant tributary of the Clark Fork River (see Photo 3-7-3). This creek begins in the foothills of Deer Lodge National Forest, and flows west into the City of Deer Lodge. Although the channel itself remains open, its floodplain has been developed within the town boundaries. The creek passes through culverts underneath the railroad corridor before flowing into the Ranch and along the southern boundary of Stuart Field. Large cottonwood trees shade the creek in this area, and several small dams have been constructed along its length, showing evidence of beaver inhabitation. Remnants of historic fencing are also in evidence here.

Johnson Creek is a more minor tributary of the Clark Fork. It begins just to the east of Interstate 90, where it flows south of the visitor center complex. After passing under the railroad corridor, it is supplemented by a natural spring before heading northeast through the home ranch complex.

The land associated with these riparian woodlands is very flat. It consists of very deep and poorly drained alluvial soils that are comprised of materials washed down from upriver and deposited on the floodplain.

Vegetation

[see Map EC-33 at the end of this section]

Riparian woodlands are by far the most ecologically diverse area of the park. These areas serve as a transition area between the aquatic and upland ecosystems, and their vegetation patterns

contrast vividly with the wet meadows and upland grasses found throughout the rest of the park.[1] Based upon information collected in a 2002 vascular plant survey, the riparian woodland along the Clark Fork River is dominated by 185 different species of shrubs, trees, grasses, and forbs (54% of the species documented on the ranch), and comprise 22 different community types.

The predominant species found within this area are shrubs, such as the geyer willow (*Salix geyeriana*), water birch (*Betula occidentalis*), sandbar willow (*Salix exigua*), western snowberry (*Symphoricarpos occidentalis*), Bebb willow (*Salix bebbiana*), and woods rose (*Rosa woodsii*); perennial grasses and forbs, such as smooth brome (*Bromus inermis*), Baltic rush (*Juncus balticus*), redtop bentgrass (*Agrostis stonlonifera*), and beaked sedge (*Carex utriculata*); and trees such as the black cottonwood (*Populus trichocarpa*) and Rocky Mountain juniper (*Juniperus scopulorum*), (see Photo 3-7-4).[2] Most of the predominant trees and shrubs in this zone are native, while several of the grasses, such as smooth brome and redtop bentgrass, are exotic.

These water-tolerant species, as well as obligate species such as the cattail (*Typha latifolia*), are also found in the riparian areas along Cottonwood and Johnson Creek, the wetland (abandoned sewage lagoon) located within the northern portion of the park property (see Photo 3-7-5), as well as in the oxbow cutoff, spring-fed sloughs, and the railroad barrow pits.
Riparian plant communities are the most diverse plant communities in the park; they provide food and habitat for waterfowl, hawks, great horned owls, great blue herons, muskrats, beaver, and a variety of other birds and mammals, such as white-tailed deer, squirrels, mice, skunks, and cottontail rabbits.[3] Before this area was fenced off, it also provided livestock shelter and shade, particularly during winter calving.

Growing almost 100 feet tall, the cottonwood trees are the most visually significant forms within the park and contrast strongly with their context. They stand out as focal points along the river, and in the fall their leaf color changes from green to gold. This tree species, like many native species found within the Deer Lodge Valley, is also culturally significant. Several native Indian tribes such as the Flathead, Kootenai, and Blackfeet, depended upon the cottonwood for sap, firewood, dye, and medicine.[4]

Spatial Organization
[see Map EC-34 at the end of this section]

The spatial organization within the riparian woodland is characterized by the trees and shrubs found there, along with the perimeter fences that are intended to keep livestock out of these areas. While some areas of this woodland are quite dense with trees and shrubs, other areas within the riparian zone are open grassland (see Photo 3-7-6).

Within the Clark Fork River riparian woodland, many open areas are associated with "slickens." These are areas of highly concentrated and exposed tailings where no vegetation can survive, and will be discussed in more detail below (see Photo 3-7-7).

[1] Peter M. Rice and Janet G. Hardin, "Vascular Plant Survey of Grant-Kohrs Ranch National Historic Site" (Missoula: University of Montana, 2002), 2.
[2] Rice and Hardin, 8.
[3] Rice and Ray, 28; Ray, 4.
[4] Jeff Hart, *Montana Native Plants and Early Peoples*, (Helena: Montana Historical Society Press, 1992), 131.

Land Uses
[see Map EC-34 at the end of this section]

Although portions of the riparian woodland were fenced beginning in the early 1980s, the entire riparian woodland was fenced in 1994 (primarily the northern portions) due to contamination concerns for staff, visitors, and livestock, and to protect the vegetation that is contained there. The uses associated with these areas include conservation of soil and riparian plant communities and flood protection, as well as visitor interpretation/education which was provided via the Cottonwood Trail.

Since the late 19th century, mine tailings containing heavy metals such as copper, lead, zinc, cadmium, and arsenic washed down the Clark Fork River and its two main headwater tributaries from ore mining and smelting areas upriver, specifically Butte and Anaconda. These tailings have accumulated throughout the floodplain and in some areas, settled in deep deposits along the banks of the Clark Fork River. These deposits, known as slickens, are areas of highly concentrated and exposed tailings where no vegetation can survive. Slickens are defined as "an undifferentiated soil type consisting of accumulation of fine-textured materials, such as are separated in placer-mine and ore-mill operations. Slickens from ore mills consist largely of freshly ground rock that commonly has undergone chemical treatment during milling or smelting processes."[5] Although slickens are the most visible indication of the presence of contaminants, mining-related wastes are not limited to slickens areas. Mine tailings are present throughout the floodplain, with the highest concentrations located in buried material to depths of approximately four feet.[6]

Several significant environmental hazards are associated with these contaminated areas, specifically: accelerated bank erosion and channel migration; vulnerability of the floodplain to destabilization (i.e. river braiding); hazards to terrestrial and aquatic life; degraded groundwater and surface water quality; and poor agricultural productivity.[7] In a map comprised of data compiled by the University of Montana (Moore et. al. 2002), it is evident that the river channel has moved as much as 120 feet in some areas between 1947 and 2001.[8] Significant floods during this time period (based on data compiled since 1978), have raised the river velocity to over 1000 cubic feet per second in June of 1980, 1982, and 1997 (the average monthly stream flow for the wettest month is 508 cubic feet per second).[9] This flooding, and subsequent channel movement, has exposed bank tailings in some segments, deposited them in others, and severely eroded the bank's river channel.

In the 2002 report published by Peter Rice and Janet Hardin, it is stated that although rivers are naturally dynamic in nature, "increased erosion and channel migration pose potential hazards if tailings deposits are exposed in unstable streambanks. Material eroded from the tailings will be redeposited elsewhere…maintaining the integrity of ecological processes and the natural riparian

[5] Peter M. Rice and Gary J. Ray, "Floral & Faunal Survey & Toxic Metal Contamination Study of the Grant-Kohrs Ranch National Historic Site," Referenced in text as Soil Conservation Service definition (Missoula: Gordon Environmental Studies Laboratory, Botany Department, University of Montana, May 1984), 5.
[6] Written comments provided by NPS personnel for 50% draft review, May 12, 2003; Moore, "Geologic, Soil Water and Groundwater Report-2001" (Missoula: University of Montana, 2000).
[7] U. S. Environmental Protection Agency, "Superfund Program Clean-up Proposal: Clark Fork River Operable Unit of the Milltown Reservoir/Clark Fork River Superfund Site [fact sheet], August 2002 [cited 24 October 2002]. Available from http://epa.gov/region8/superfund/pdfs/ClarkForkRProposedPlanFactsheet.pdf.
[8] Comparison of 1947 aerial photographs and 2001 stream banks.
[9] Department of the Interior, U. S. Geological Survey, "Surface Water Data for Montana: Clark Fork Monthly Streamflow Statistics [table], October 2002 [cited 18 October 2002]. Available from http://waterdata.usgs.gov/mt/nwis/monthly?.

vegetation at Grant-Kohrs is of primary importance not only to the Ranch, but the Clark Fork system as a whole."[10]

In 1983, approximately 100 years after Anaconda smelter operations began and three years after its closure, the U. S. Environmental Protection Agency (EPA) placed the area surrounding the smelter on its Superfund National Priorities List. Since that time, investigations have been ongoing to determine the extent and severity of contamination. It has been estimated that over 65,000 acres of the south end of Deer Lodge Valley has been affected.[11] The Grant-Kohrs Ranch, which is part of the Clark Fork River Operable Unit, comprises approximately 3.5 of the 120 miles of river impacted by the contaminants, extending from Warm Springs Pond near Anaconda, to the Milltown Reservoir near Missoula.

Within the Grant-Kohrs Ranch NHS, slickens deposits account for approximately 8 acres within the riparian zone, predominantly along the river edges. Typically, these slickens are individually less than 0.5 acres in size.[12] The extent of the tailings contamination, however, is estimated to cover the entire floodplain.[13] This extent is attributable to several flood events, particularly the 1908 flood, which swelled the river and raised the water level high over the banks of the river channel.

In a 2002 toxic metals-pH impact study on riparian plant community structure on the Grant-Kohrs Ranch conducted by Peter Rice, it was determined that concentrations of metals, adjusted for pH, are strongly related to plant community composition in the Grant-Kohrs Ranch riparian zone. For instance, tufted hairgrass (*Deschampsia cespitosa*), redtop bentgrass, and Booth willow (*Salix boothii*) were found to be metal tolerant, while woundwort (*Stachys palustris*), Hoary cress (*Cardaria draba)*, Kentucy bluegrass (*Poa pratensis*), Quackgrass (*Agropyron repens*), and smooth brome, were found to be sensitive to the presence of metals. As a result, it has been determined that metal contamination has altered the plant communities of the riparian zone by favoring certain species at the expense of others.[14]

In August of 2002, the EPA published a proposed plan for cleanup of the Clark Fork River, which called for extensive work to stabilize streambanks, remove some of the worst contaminated areas, and treat other contaminated areas in place.[15] EPA expects to publish a Record of Decision for the CFROU in early 2004. Based on that document, the NPS will determine what additional activities, if any, will be needed beyond the EPA remedy to restore ranch resources to the condition that would have existed if not for the release of hazardous substances.[16]

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[10] Rice and Hardin, i.
[11] "About the Anaconda Company Smelter Site: Site History." In Clark Fork Technical Assistance Committee [electronic bulletin board], August 2002 [cited 24 October 2002]. Available from http://www.clarkforkoptions.org/SiteAnaconda.asp.
[12] Rice and Ray,1984, v.
[13] Area analysis performed on Geographic Information Systems map data provided by the National Park Service: *Tailings Extent Introduced by the 1908 Flood at Grant-Kohrs Ranch National Historic Site, Montana* [electronic file online], Grant-Kohrs Ranch NHS GIS Program, compiled 2001 (Accessed 16 September 2002). Metadata available from World Wide Web: (http://www.nps.gov/gis/metadata/grko/ grko_tailingsext.html); statistical information supplemented by Greg Nottingham, NPS Superfund coordinator.
[14] Peter M. Rice, "Toxic Metal-pH Impact on Riparian Plant Community Structure at Grant-Kohrs Ranch," Need to get Moore 2001, 2002 (Missoula: University of Montana, 2002).
[15] U. S. Environmental Protection Agency, "Superfund Program Clean-up Proposal: Clark Fork River Operable Unit of the Milltown Reservoir/Clark Fork River Superfund Site [fact sheet], August 2002 [cited 24 October 2002]. Available from http://epa.gov/region8/superfund/pdfs/ClarkForkRProposedPlanFactsheet.pdf.
[16] Written comments provided by NPS personnel for 50% draft review (May 12, 2003).

Constructed Water Features
[see Map EC-35 at the end of this section]

The Kohrs-Manning Ditch taps off the Clark Fork River just south of the park boundary. From here the ditch flows through the riparian woodland, passing through a flume/headgate over Cottonwood Creek on its way to the Clark Fork River. An irrigation headgate located along Johnson Creek provides water to Johnson Ditch.

The pump located along the Clark Fork River, which was installed in 1960, provides water to a 450 foot long irrigation ditch along the west side of the river, located within the riparian woodland. This ditch, as well as two other short (apparently spring-fed ditches) located near spring-fed slough no longer appear to be in use.

Circulation
[see Map EC-34 at the end of this section]

Johnson Creek and Cottonwood Creek were key features of an interpretive trail constructed on the ranch in 1993. This "Cottonwood Trail" started at the visitor center, or from the front of the ranch home, and traveled south along the railroad corridor before passing through the Johnson Creek riparian woodland. From there, it continued along the west edge of the railroad corridor until reaching Cottonwood Creek, where it turned west to follow the creek to the Kohrs-Manning Ditch. This trail was recently abandoned by the NPS, as it could not be maintained.

Near the visitor center and ranch home, the trail is a six foot wide paved asphalt path, with one foot wide mown grass shoulders on either side. Shortly after passing the railroad underpass, the trail is no longer paved. Along the railroad bed the trail turns into an informal corridor that shows evidence of use as a worn road and footpath. After turning into the Johnson Creek riparian area, the trail becomes much more natural in character, becoming only a grassy path lined by jack leg fencing and interpretive signage (see Photo 3-7-8).

The Clark Fork River Bridge Road is an approximately 12 foot wide gravel road that extends from the south side of Johnson Creek to the Kohrs Ditch on the west side of the ranch (see Photo 3-7-9). It crosses the Clark Fork River, as well as the Kohrs Manning Ditch and natural slough via bridges (these features are discussed in greater detail below).

Views and Vistas
[see Map EC-35 at the end of this section]

Views of and within the riparian woodland provide contrast to the views found throughout the rest of the ranch. Within the riparian area, the trees, shrubs, and grasses provide both filtered and framed views. The Clark Fork River, Cottonwood Creek, and Johnson Creek are dynamic water elements that serve as focal points within this area.
Views of the riparian woodland from other areas of the ranch are defined by the contrast between the dense vegetation found along the river, and the hayfields and open grassland of the upland areas. Likewise, the species contained within the riparian woodland (particularly cottonwoods and willows) provide contrast in color and texture with the surrounding grassland. Views of the sewage treatment pond earthen embankments are prominent from within the northern portion of the riparian zone, as is the cattail-laden wetland. Views of the western foothills are also very prominent in this area.

Buildings and Structures
[see Map EC-35 at the end of this section]

The following buildings and structures information has been derived from the National Register of Historic Places Registration Form, the Grant-Kohrs Ranch NHS Historic Structures Report, and supplemented by field observations during the 2002 site visit (see bibliography for full citations).

Within the Riparian Woodland zone, buildings and structures relate to water; bridges to cross the river and wet areas, and a pump house to move water to various locations.

Built in 1930, the **Slough Bridge** (HS-90), (see Photo 3-7-10) is located west of the Grant-Kohrs Home Ranch complex. The wooden bridge is an extension of the two track access road that leads from the Kohrs-Manning ditch bridge and spans the wet area between the Clark Fork River and Johnson Creek. Between the wood abutments, eight large posts support the bridge deck which is constructed of 3-inch by 12-inch planks. There are no side rails. Jack leg fencing is located on both sides.

West of the Slough Bridge lies the **Clark Fork Bridge** (HS-89), (see Photo 3-7-11) also built in 1930. The bridge is on the east edge of the western pastures. The Clark Fork Bridge is a pony truss bridge with 10" timber piles and concrete retaining walls. Log and timber joists support the 3-inch by 12-inch deck planking.

A **pump house** (HS-87), one of three within the CLR study boundary, is located on the southern edge of the southwestern pasture, on the west bank of the Clark Fork River, (see Photo 3-7-12). Built in 1960, the pump house is a square, one-story, cast-in-place concrete building with a flat roof, set on a poured concrete foundation. Eight-inch horizontal boards were used to form the building. A louvered metal vent is centered high on each side of the building. Access is gained through a metal hatch in the roof. Electrical conduits lead to a metal utility pole attached to the southwest corner of the building. Near the pump house, a drum for screening debris is set into the river. After passing through the drum, water flows into a sump under the pump house and then up through the pump and into the delivery pipe. This pipe supplies water to the Kohrs Ditch further to the west.

Objects and Small-scale Features
[see Map EC-36 at the end of this section]

Within the Riparian Woodland component landscape, there are several types of fences and gates. Fences and gates are used to demarcate fence and road boundaries, prevent access to the river, and to protect features.

The most prevalent type of fence within this landscape is the **Metal Post and Barbed Wire Fence.** This fence type surrounds much of the riparian woodland corridor. The fence consists of thin metal posts supporting five (sometime six) strands of barbed wire. Metal Post and Barbed Wire fencing enclosures were installed in 2001 to protect groundwater and soil pore water monitoring nests (tensiometers, lysimeters, and piezometers) during Superfund investigations (see Photo 3-7-13). These will be removed during future site restoration.[17]

[17] Greg Nottingham, NPS 95% CLR draft review comments (March 12, 2004).

Wood Post and Woven Wire Fence, (see Photo 3-7-14) is also located within this landscape. The majority of this fence type is found on either side of the Clark Fork River Bridge Road. In general, the fence consists of un-milled wood posts or peeled logs supporting a wire mesh component. Variations of this fence type include metal posts or a combination of wood and metal posts supporting wire mesh. Sheep Wire fence is commonly referred to as woven wire fence. This fence is also common throughout the ranch. It is bundled in a large roll and when stretched, it has a strong wire top and bottom. Wire squares are larger on top and smaller on the bottom.

Closer to the developed and interpreted areas of the ranch is the **Jack-Leg fence.** This fence type is similar to other Jack-Leg fences found throughout the CLR study boundary. Two wood posts are crossed at the top to form an X-shape. One horizontal rail rests in the crux of the X while 3 more rails are attached to the exterior of one post to form an angled fence. A fifth rail is attached to the lower side of the opposite pole for added strength and security. All wood members of the fence are un-milled and unfinished.

A short section of **Double-Rail and Post fence,** (see Photo 3-7-15) is located in the southern section of the component landscape and on the western edge of the Clark Fork River. The fence has two wooden, horizontal rails supported by upright, wooden posts. The ends of the rails are overlapped at the posts to create a stacked appearance.

Metal Post and Hog Wire Fence, (see Photo 3-7-16) is also used to protect small scale features. The woven fence consists of a stiff, metal, mesh fence supported by thin metal posts. These fences enclose approximately 30 small rectangular areas along the riparian zone to protect Superfund investigations (geochemistry, microbial respiration, phytotoxicity, and plant community composition) and will be removed during restoration activities.[18]

A **4-rail Stacked-end fence** is found along the edge of the Home Ranch landscape. Four round rails extend between log posts on one side of the fence while two more rails are placed on the lower half of the fence on the other side. At each post, the rails for one section are placed alternately with the rails for the next section, creating a stacked appearance. This fence can also be found in other areas of the ranch with 5 or 6 rails and varying rail and post size.

A **5-rail Braced Gate,** (see Photo 3-7-17) is located along the Clark Fork River Bridge Road. The gate could be used to close off the road from vehicular traffic but was open during fieldwork observations. This gate has a hinge-post almost twice the height of the gate and has a long, diagonal brace leading from the top of the hinge-post to the opposite corner of the gate. This brace prevents and corrects sagging. The hinge-post is attached to a taller post that has diagonal braces running from the top of the post to the Jack-Leg fence and ground for stability.

A **metal pump drum** (see Photo 3-7-18) for screening debris is set into the river to draw water to the pump house. This drum is an approximately four foot long cylinder supported by metal braces. Metal mesh screens cover the outer surface.

Health warning signs are also located within the riparian woodland along the Clark Fork River (see Photo 3-7-19). These black and white signs are approximately 18" x 24" with red lettering, stating "Health Warning, Hazardous Mine Waste Materials Present. Ingestion, inhalation, or physical contact with mine waste soils located next to the Clark Fork River may be harmful to your health." They were installed in 1998 to warn recreationists using the river corridor (swimming, tubing, rafting, fishing, etc...) of the potential health risks associated with mining

[18] Greg Nottingham, NPS 95% CLR draft review comments (March 12, 2004).

wastes in soils and sediments of the Clark Fork River and its floodplain. These signs are distributed in areas where river users have easy access to areas of exposed tailings. The most prominent recreational area is the river bridge where grade school and high school-aged kids swim. It is one of the deepest points on the Clark Fork River and is located adjacent to a large slicken. For that reason, two signs are posted in and around that location, one on the bridge road fence toward the road, the other on the nearest upstream bend, facing the river. A third sign is located on the inside bend of the next major meander downstream of the bridge, also facing the river and located on the edge of a smaller slicken.[19]

Small **wooden signs**, approximately 4" x 8" are located near the slough bridge (see Photo 3-7-20). These signs are painted brown, with white lettering, and notify travelers of the "4 ton" weight limit.

Small **wooden interpretive marker posts**, approximately 4-5 inches in diameter, mark the interpretive points of the Cottonwood Trail (see Photo 3-7-21). The tops of these posts are mitered at an approximate 45 degree angle, and the number of the interpretive marker is engraved into the top.

A **wooden bench** is located within the Johnson Creek riparian woodland. It marks a rest stop along the Cottonwood Trail (see Photo 3-7-22). Constructed of wood, the bench seat is a half hewn log, and rests on cut logs.

Missing & Archeological Resources
[see Map EC-37 at the end of this section]

Based on information provided in the park's GIS database, there are several historic features documented in this area. These features include **wagon tongues**, **wagon wheels**, **old logs**, and the remains of what has been identified as an **old bridge**. A **historic dump** may also be located here. Other features relating to the site's irrigation history, such as the remains of a **berm dam** and **old wooden flume**, have also been identified. The date of origin of these features is unknown. An archeological survey of the riparian area was completed in the summer of 2003 by the University of Montana.[20]

[19] Personal correspondence with Greg Nottingham, Grant-Kohrs Ranch NHS Superfund Coordinator (June 11, 2003).
[20] Written comments provided by NPS personnel for 50% draft review (May 12, 2003).



JMA, October 2002

Photo 3-7-1 : (Q-14) Clark Fork River with views of ranch in background.



JMA, October 2002

Photo 3-7-2 : (P-13) Three natural springs source a 300 foot long slough located to the west of the Clark Fork River.



JMA, October 2002

Photo 3-7-3 : (RE-19) Cottonwood Creek.



JMA, October 2002

Photo 3-7-4 : (I-23) Riparian vegetation and remnant fencing along the Clark Fork River.



JMA, October 2002

Photo 3-7-5 : (H-11) Cattails in the abandoned sewage lagoon.



JMA, October 2002

Photo 3-7-6 : (Q-12) While some areas of the riparian woodland are quite dense with trees and shrubs, other areas are open grassland.



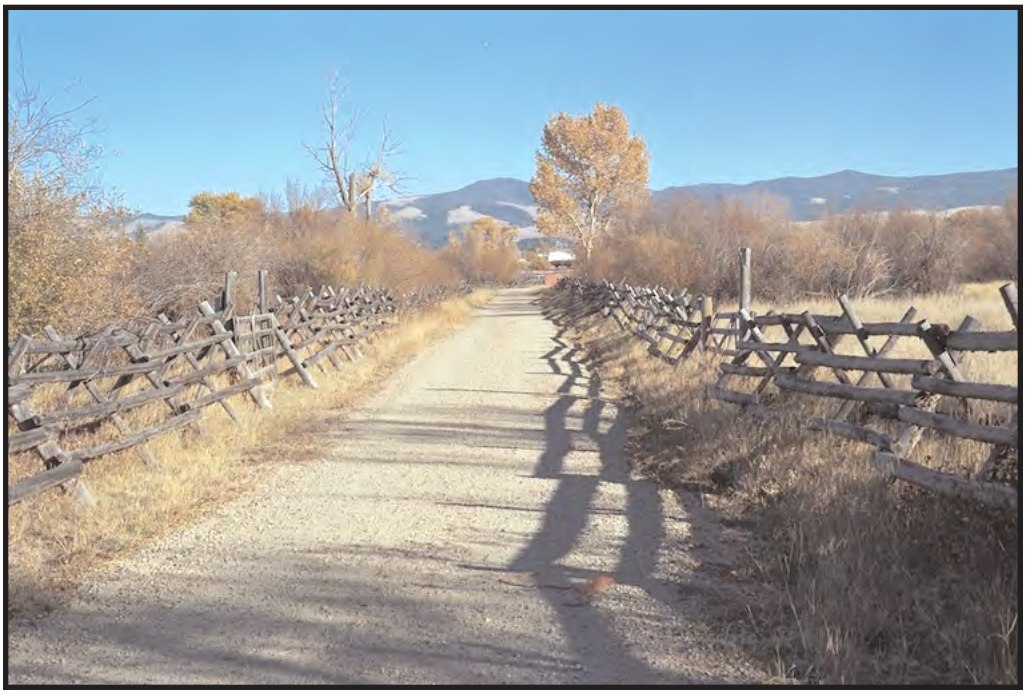
JMA, October 2002

Photo 3-7-7 : (Q-13) Slickens.



JMA, October 2002

Photo 3-7-8 : (RF-02) Cottonwood trail.



JMA, October 2002

Photo 3-7-9 : (Q-18) Clark Fork River Bridge Road with Jack-Leg Fencing on either side.



JMA, October 2002

Photo 3-7-10 : (Q-21) Slough Bridge (HS-90).



JMA, October 2002

Photo 3-7-11 : (Q-08) Clark Fork Bridge (HS-89).



JMA, October 2002

Photo 3-7-12 : (P-15) Pumphouse (HS-87).



JMA, October 2002

Photo 3-7-13 : (Q-10) Metal post and barbed wire fence (ca. 2000-2001) surrounds test pipes in various locations along the Clark Fork River.



JMA, October 2002

Photo 3-7-14 : (Q-05) Wood Post and Woven Wire Fence.



JMA, October 2002

Photo 3-7-15 : (P-19) Double Rail and Post Fence.



JMA, October 2002

Photo 3-7-16 : (Q-09) Metal Post and Hog Wire Fence. There are 30 sections of this kind of fence in the riparian area (ca. 2001).



JMA, October 2002

Photo 3-7-17 : (Q-17) 5-Rail Braced Gate.



JMA, October 2002

Photo 3-7-18 : (P-16) Metal Pump Drum.



JMA, October 2002

Photo 3-7-19 : (Q-16) Health Warning Signs.



JMA, October 2002

Photo 3-7-20 : (Q-20) Wooden signs.



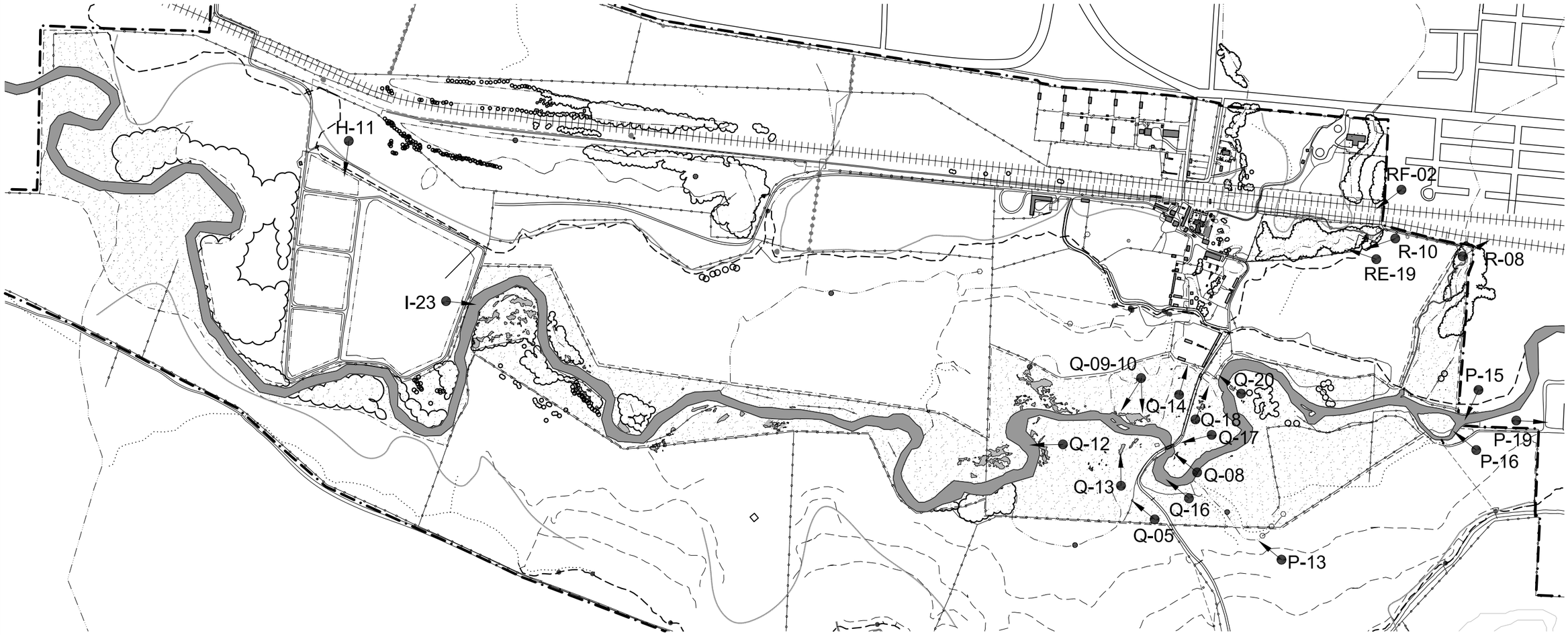
JMA, October 2002

Photo 3-7-21 : (R-8) Wood post along interpretive trail.



JMA, October 2002

Photo 3-7-22 : (R-10) Wooden bench along Johnson Creek.



Map Sources: Base mapping referenced to Grant-Kohrs Ranch National Historic Site 1994 aerial photographs and Montana 1:24,000 scale State Plane DRG quadrangles. GIS data was exported into Autocad format for production of base maps and further further detailed with additional data collected in the field.

The following data was provided by the National Park Service, Grant-Kohrs Ranch National Historic Site GIS Program (shapefile format), which was compiled 1998 and updated/field-checked by OCULUS/JMA during the October 2002 site visit: fences and gates; boundary lines; utility lines; fire hydrants; irrigation ditches, headgates, pipes, and risers; culverts; river boundaries; roads; railroad tracks; unvegetated slickens and tailings; fields; trails; cottonwood trees; beaver lodges and dams; hydrology; and groundwater monitoring wells. Metadata for this data is avaliable from World Wide Web: [http://www.nps.gov/gis/metadata/grko/]. Wetlands, hypsography (topography), and Montana 1:24,000 scale State Plane DRG quadrangles were derived from Montana State Library Natural Resource Information System, metadata available from: [http://nris.state.mt.us/gis/datalist.html].

Legend:

- Roads
- Vegetation
- Bench
- Fences
- Streams/Sloughs
- Railroad
- Buildings/ Structures
- Springs
- Old Ditches
- Main Ditches
- Lateral Ditches
- Component Landscape Boundary Line
- GRKO Boundary Line
- Beaver Lodges

Scale: 1" = 800'

A/E FIRM

PRIME
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CITY, STATE: Philadelphia, PA

SUBCONTRACTOR
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CITY, STATE: Charlottesville, VA

DESIGNED:
DRAWN: ADF
TECH. REVIEW: KLS, RMM
DATE: JULY 2004

SUB SHEET NO. P-9

EXISTING CONDITIONS INVENTORY

RIPARIAN WOODLAND

PHOTO STATION POINT MAP

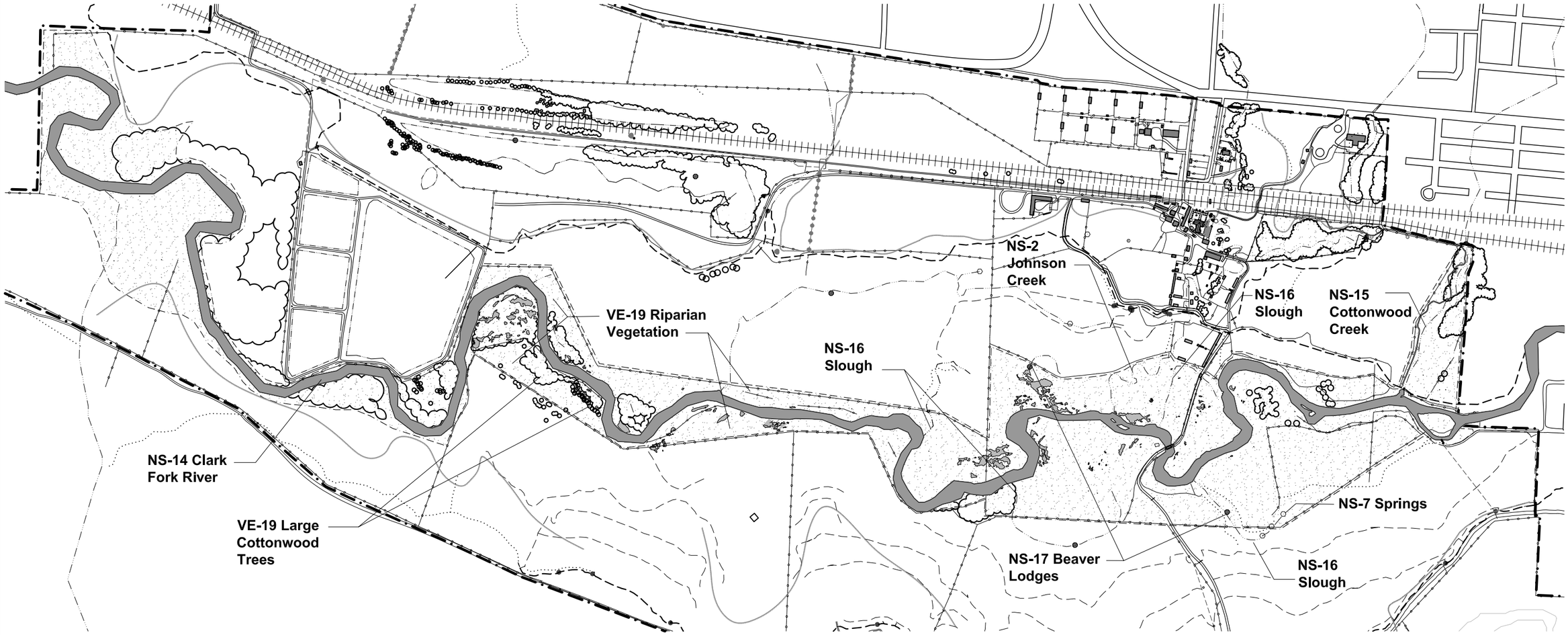
GRANT-KOHRS RANCH NATIONAL HISTORIC SITE

DRAWING NO.

PKG. NO.

SHEET

OF



Map Sources: Base mapping referenced to Grant-Kohrs Ranch National Historic Site 1994 aerial photographs and Montana 1:24,000 scale State Plane DRG quadrangles. GIS data was exported into Autocad format for production of base maps and further further detailed with additional data collected in the field.

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Legend:

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- Vegetation
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- Lateral Ditches
- Component Landscape Boundary Line
- GRKO Boundary Line
- Beaver Lodges

Scale: 1" = 800'

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DRAWN: JLB, WMW

TECH. REVIEW: KLS, RMM

DATE: JULY 2004

SUB SHEET NO. EC-33

EXISTING CONDITIONS INVENTORY

RIPARIAN WOODLAND

NATURAL SYSTEMS AND VEGETATION

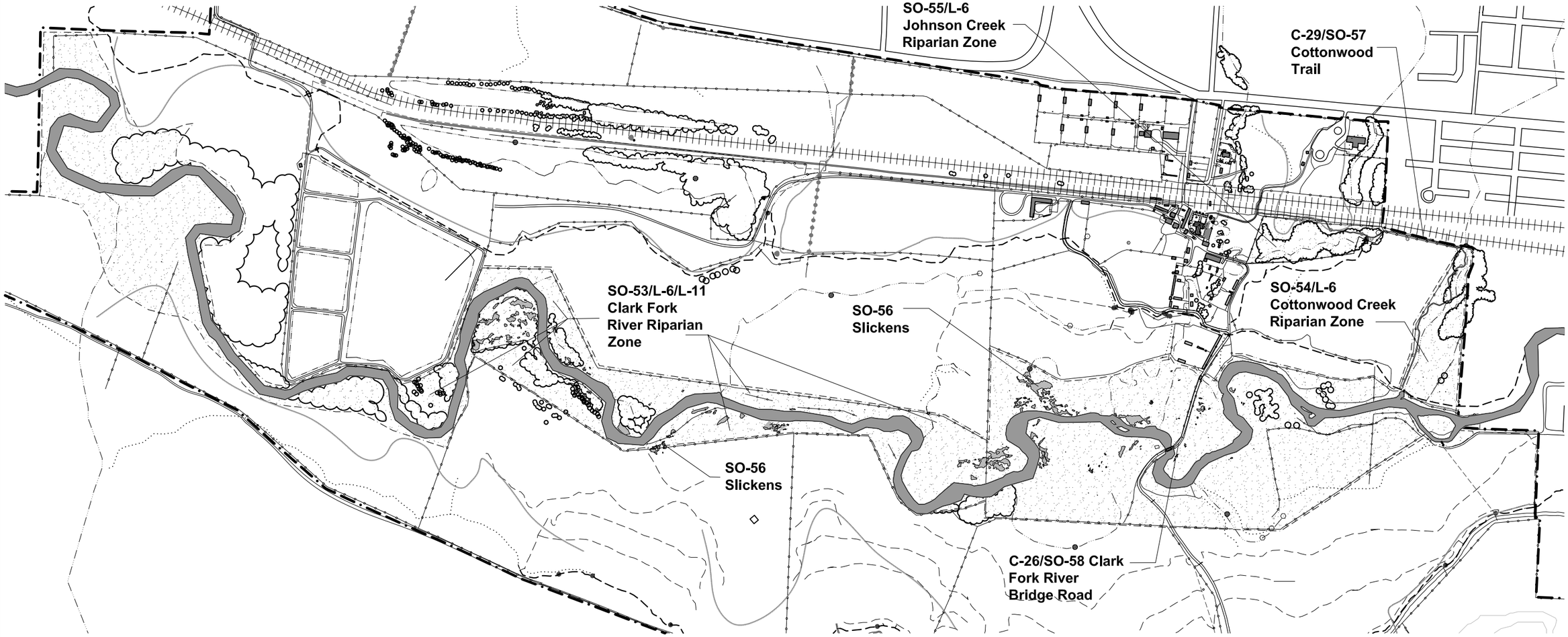
GRANT-KOHRS RANCH NATIONAL HISTORIC SITE

DRAWING NO.

PKG. NO.

SHEET

OF



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Legend:

- Roads
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- Old Ditches
- Main Ditches
- Lateral Ditches
- Component Landscape Boundary Line
- GRKO Boundary Line
- Beaver Lodges

Scale: 1" = 800'

A/E FIRM

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DATE: JULY 2004

SUB SHEET NO. EC-34

EXISTING CONDITIONS INVENTORY

RIPARIAN WOODLAND

CIRCULATION, SPATIAL ORGANIZATION, AND LAND-USE

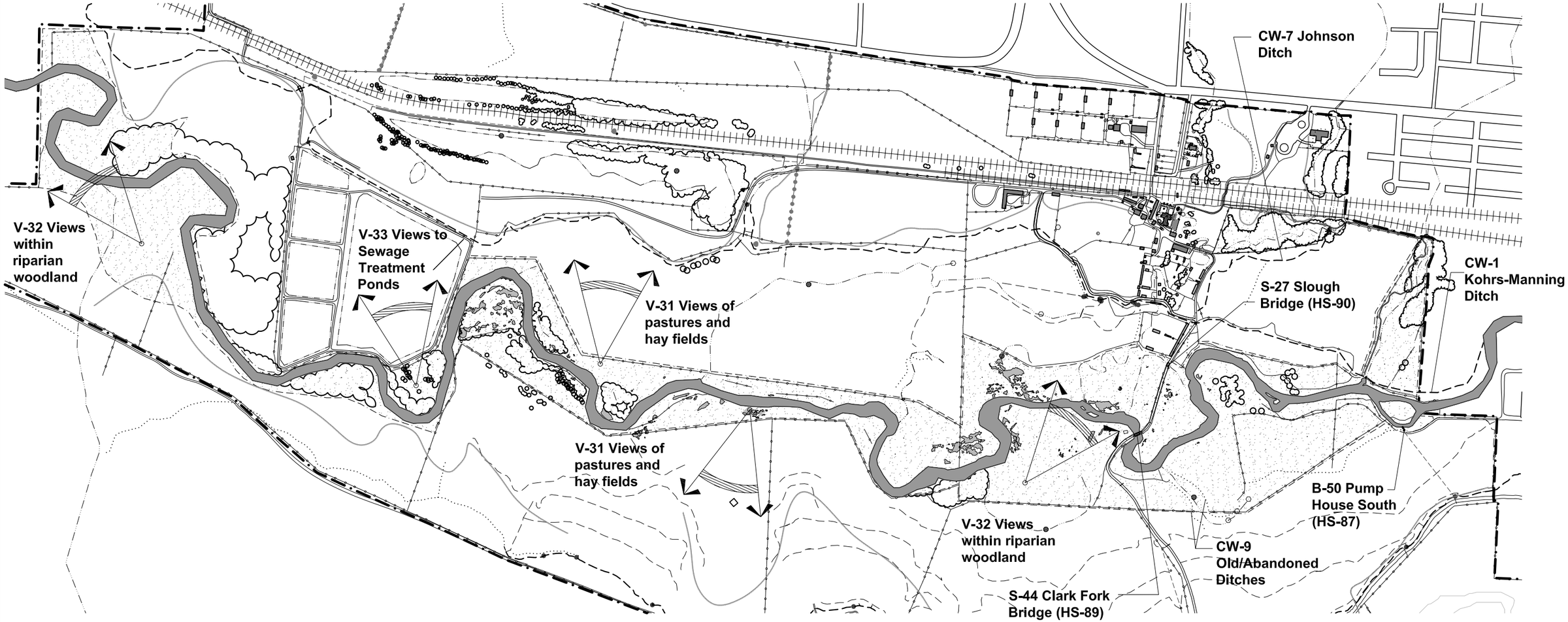
GRANT-KOHRS RANCH NATIONAL HISTORIC SITE

DRAWING NO.

PKG. NO.

SHEET

OF



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- Main Ditches
- Lateral Ditches
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Scale: 1" = 800'

A/E FIRM

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DRAWN: JLB, WMW
TECH. REVIEW: KLS, RMM
DATE: JULY 2004

SUB SHEET NO. EC-35

EXISTING CONDITIONS INVENTORY

RIPARIAN WOODLAND

BUILDINGS AND STRUCTURES, CONSTRUCTED WATER FEATURES, AND VIEWS

GRANT-KOHRS RANCH NATIONAL HISTORIC SITE

DRAWING NO.

PKG. NO.

SHEET OF

SS-57 Metal Post and Wire Fence

SS-77 Wooden Bench

SS-76 Wooden Interpretive Markers

SS-72 Wood Post and Wire Fence

SS-3 4-Rail Stacked End Fence

SS-56 Jack-Leg Fence

SS-57 Metal Post and Wire Fence

SS-73 Old Fence Remnants

SS-71 Double Rail and Post Fence

SS-75 Wooden Sign

SS-56 Jack-Leg Fence

SS-56 Jack-Leg Fence

O-5 Metal Pump Drum

SS-73 Old Fence Remnants

SS-57 Metal Post and Wire Fence

SS-57 Metal Post and Wire Fence

SS-70 Metal Post and Hog Panel Fence

SS-72 5-Rail Braced Gate

SS-56 Jack-Leg Fence

SS-73 Old Fence Remnants

SS-63 Wood Post and Woven Wire Fence

SS-74 Health Warning Signs

SS-74 Health Warning Signs

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Scale: 1" = 800'

A/E FIRM

PRIME
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CITY, STATE: Charlottesville, VA

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TECH. REVIEW: KLS, RMM

DATE: JULY 2004

SUB SHEET NO. EC-36

EXISTING CONDITIONS INVENTORY

RIPARIAN WOODLAND

OBJECTS AND SMALL-SCALE FEATURES

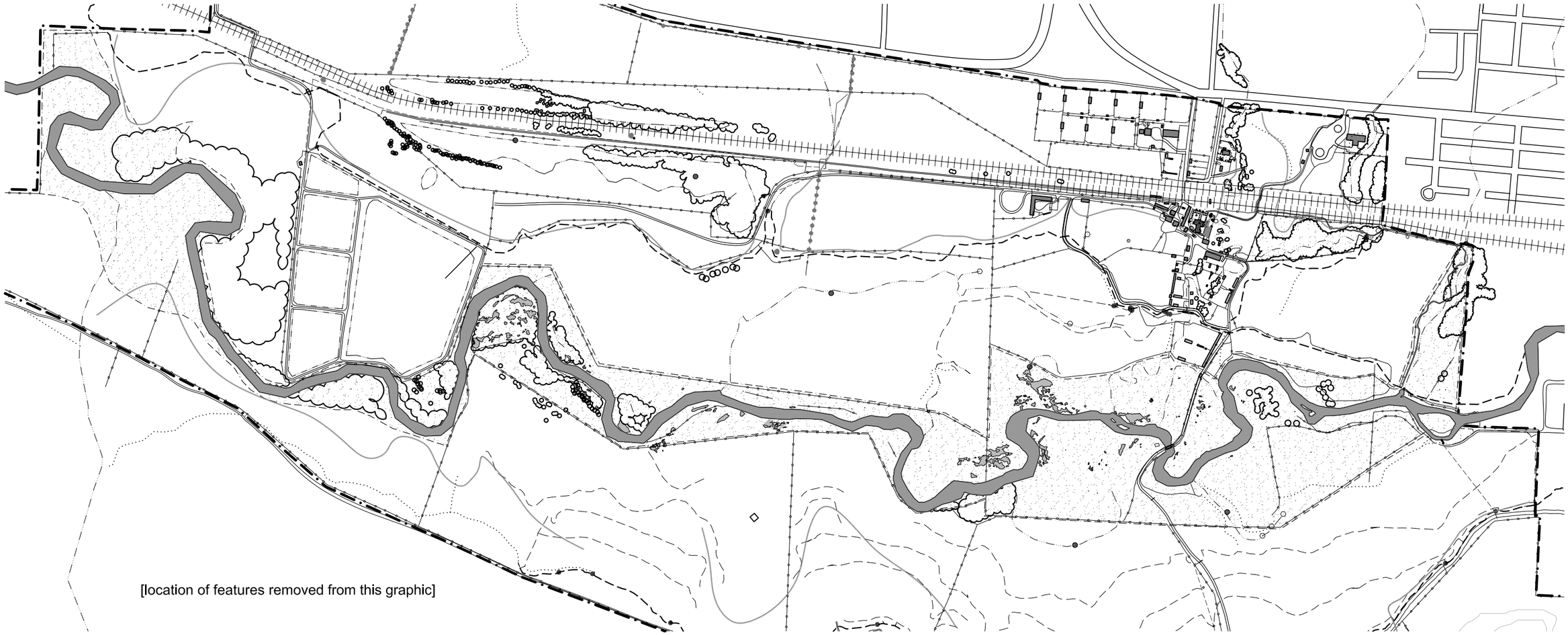
GRANT-KOHRS RANCH NATIONAL HISTORIC SITE

DRAWING NO.

PKG. NO.

SHEET

OF



Map Sources: Base mapping referenced to Grant-Kohrs Ranch National Historic Site 1994 aerial photographs and Montana 1:24,000 scale State Plane DRG quadrangles. GIS data was exported into Autocad format for production of base maps and further further detailed with additional data collected in the field.

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Scale: 1" = 800'

A/E FIRM PRIME NAME: Susan Maxman Architects CITY, STATE: Philadelphia, PA SUBCONTRACTOR NAME: John Milner Assodates, Inc. CITY, STATE: Charlottesville, VA	DESIGNED: DRAWN: JLB, WMW TECH. REVIEW: KLS, RMM DATE: JULY 2004	SUB SHEET NO. EC-37	EXISTING CONDITIONS INVENTORY RIPARIAN WOODLAND **MISSING FEATURES** GRANT-KOHRS RANCH NATIONAL HISTORIC SITE	DRAWING NO. PKG. NO. SHEET OF

Railroad Corridor & Barrow Pit/Wetland

Railroad Corridor & Barrow Pit/Wetland

[Existing conditions inventory maps and photographs follow this section]

Introduction

Two parallel railroad tracks bisect the ranch near its eastern boundary. Circa 1879, the Utah Northern Railroad (acquired by the Northern Pacific Railroad Company in 1888) established a line through Deer Lodge. Today, the Burlington Northern Santa Fe railroad uses this east track, with an average of two trains passing each day. The western track Chicago, Milwaukee, St. Paul & Pacific Railroad, built in 1908, ceased operation in 1983. A portion of the track remains, as does the graded railroad bed. This line is used to interpret the role of the railroad in ranching operations. Both these railroads served as important early transportation networks for transporting cattle to markets. They also allowed for the expansion of the ranch (and the western cattle industry in general) during that time period.

Approximately 64 acres of land on either side of the railroad corridor was dredged for the construction of the Milwaukee Railroad. These barrow pits are approximately 1000 yards long and reach almost two hundred yards in width at their widest point. As they are considered an integral part of the railroad corridor, they are included in this component landscape.

Natural Systems and Features

[see Map EC-38 at the end of this section]

The railroad beds are elevated above grade for most of their length, except at road crossings located near the home ranch and northern boundary where they area at grade (see Photo 3-8-1). Each bed is approximately 10 feet wide and separated by an average of 75 feet throughout most of the park, although this area expands to over 140 feet near Cottonwood Creek. This is a depressed area that functions as a drainage swale for the two beds.

There are four stream crossings along the railroad corridor. The lines cross Cottonwood Creek at the southeast corner of the ranch, Johnson Creek near the Visitor Center, the North Fork of Johnson Creek near the Warren Residence, and an unnamed gulch near the Warren Pumphouse (HS-86).

The Burlington Northern Railroad bed is elevated approximately 10 feet higher than the Milwaukee Railroad bed throughout most of the ranch (see Photo 3-8-2). These beds consist of sand and gravel fill material taken from the barrow pits; additional fill material was likely taken from other borrow areas off the ranch, although the source and composition of this material is not known.

The barrow pits are deep pits that are lower in elevation than their surrounding landscape, and the banks of the railroad beds rise steeply up along their sides (see Photo 3-8-3). This is more noticeable in the western pit, as it appears deeper. These pits are now considered wetlands and standing water is evident in these areas.

The beaver, in particular, has found conditions within these pits and many other areas within the riparian corridor ideal for colonization. Several beaver lodges have been constructed within these areas and are visible from Ranch roads (see Photo 3-8-4). This big-toothed, water-loving creature plays a significant role in the ecological history of the Clark Fork River valley, as well as the cultural history associated with the Ranch itself. Beaver are believed to have inhabited the

floodplains of the Deer Lodge Valley for thousands of years prior to European settlement. These animals were hunted by the American Indian tribes for their fur, and the significance of the beaver is evident in many of the names given to cultural features throughout the larger region (i.e., Beaverhead County and Beaverhead National Forest).

Before settling in the Clark Fork valley, John Grant earned his money as a fur-trader. Like his father before him, Grant trapped beaver for the Hudson Bay Company before becoming a rancher. The beaver, like the buffalo, was hunted to near extinction in the Northwest Territory during the mid-18th century. It has only been since the early 20th century that these creatures have begun to re-inhabit the region.

Beavers are an integral part of riparian and wetland ecosystems, and are considered a keystone species in an aquatic system. In addition to creating more biodiversity for wildlife and plants, other general benefits of a beaver ecosystem are erosion abatement and flood control, and the reduction of sedimentation in rivers and streams. However, while beavers are native species occupying an essential ecological niche, they are at times considered pests. In some areas of the ranch their presence is not welcomed, as their construction of structures, manipulation of riparian vegetation, burrowing in the waterways, etc., interfere with daily operations of the ranch, disrupt the historic patterns and features of the landscape, and limit the management of a number of other important natural and cultural resources. Some negative effects of these types of beaver activity include flooding of fences and gates, dammed irrigation ditches, restriction of cattle grazing and rotation by flooded pastures, alteration of vegetation patterns, overland flow of water across slickens that re-suspend toxic sediments, etc.

It is recommended that more research be conducted on the associated impacts, both positive and negative, of beaver colonization in preparation of Part II of this CLR, particularly as these impacts relate to the stabilization of the river corridor and mitigation of water quality.

Vegetation
[see Map EC-38 at the end of this section]

The vegetation found along the rail corridor generally consists of a mix of non-native and native grasses and forbs that are represented elsewhere in the ranch on dry upland benches. Common native grasses also include spring whitlow-grass (*Draba verna*) and uncommon/rare native forbs such as common sagewort (*Artemisia campestris*) and waxleaf penstemon (*Penstemon nitidus*). Non-native forbs, particularly baby's breath (*Gypsophila paniculata*) and spotted knapweed (*Centaurea biebersteinii*), are found along the railroad beds. These species are exotic. The park has invested considerable effort during recent years in trying to eradicate knapweed from this area.

A concentration of native grasses are found in a small area adjacent to the eastern barrow pit, which remains fenced off from the pasture land found in the Front Fields (see Photo 3-8-5). The 1984 vegetation study conducted by Peter Rice and Gary Ray found this area to contain bluebunch wheatgrass, giant wildrye, and needle-and-thread grass, as well as other grasses and forbs that represent the native Montana inter-mountain prairie community, such as Indian ricegrass (*Oryzopsis hymenoides*), moss phlox (*Phlox muscoides*), long-leaf phlox (*Phlox longifolia*), upland larkspur (*Delphinium nuttallianum*), woolypod milkvetch (*Astragalus purshii*)

and starvation cholla (*Opuntia polyacantha*).[1] The 2002 Rice/Hardin Vascular Plant Study generally found this area to contain generally the same species as were found in the 1984 study.[2]

The barrow pits contain plant species that are representative of wetland communities, and include cattails (*Typha latifolia*), softstem bulrush (*Scheonoplectus tabernaemontani*), forget-me-nots (*Myosotis scorpioides*), cottonwoods (*Populus trichocarpa*), willows (*Salix sp*.), and a variety of other less common and rare species (see Photo 3-8-6). These less common species include western serviceberry (*Amelanchier alnifolia*), yellow rocket (*Barbarea vulgaris*), ballhead waterleaf (*Hydrophyllum capitatum*), Utah honeysuckle (*Lonicera utahensis*), blunt-leaf yellowcress (*Rorippa curvipes*), redosier dogwood (*Cornus sericea*), chokecherry (*Prunus virginiana*), and violet (*Viola sp*.).[3] All but the yellow rocket and forget-me-nots are native species. Cottonwoods and willows can also be found in-between the two railroad beds, where wet conditions provide habitat for these water-loving plants.

Spatial Organization
[see Map EC-38 at the end of this section]

There are primarily two types of spaces within this area. One within the corridor, which is defined by the tracks and raised beds of the railroad itself, and those within the barrow pits, which are defined by the topography and vegetation that characterizes them.

The railroad corridor takes on the character of the spaces that it passes along. Through the length of the ranch, the beds pass by the riparian woodlands of Johnson and Cottonwood Creeks, as well as the barrow pits themselves; here the corridor is defined by the tall cottonwoods and shrubby willows that predominate in these areas. In the area near the barrow pits, this same vegetation can be found in the area between the two railroad beds, and contributes to the enclosed "tunnel" effect found within each corridor (see Photo 3-8-7). Where the railroad passes through the home ranch, the corridor is less defined, as the beds are graded down to allow vehicular passage.

The barrow pits are large and narrow, yet enclosed spaces that are defined by the steep slope of the railroad corridor along one side, and the slopes rising up to the pastures on the other. The east barrow pit is the larger of the two, and its edges are framed by tall cottonwoods, while the center of the pit is dominated with water and lower growing sedges and rushes, which contribute to a sense of openness. The western barrow pit is more narrow and is dominated by tall cottonwoods.

Land Uses
[see Map EC-39 at the end of this section]

The eastern railroad track is currently owned by the Union Pacific and leased to the Burlington Northern Railroad. The western track Milwaukee Railroad bed was constructed in 1908, and abandoned in 1983 (see Photo 3-8-8). Most of its tracks have been removed, except for a 3168 foot segment near the Grant-Kohrs Residence. It is now owned by the National Park Service and used for interpretation.

The railroad corridor is also occupied by a major overhead utility line.

[1] Ray, 4.
[2] Telephone interview with Janet Hardin, June 2, 2003.
[3] Species location information derived from Janet Hardin, "Plant Species & Locations, GRKO Database, Final Inventory" (Missoula: University of Montana, Division of Biological Sciences, June 3, 2003).

Constructed Water Features
[see Map EC-39 at the end of this section]

There are no active constructed water features within the railroad corridor or the barrow pit/wetland area. A siphon (HS-57) was constructed to channel irrigation water under the railroad beds. This historic feature is discussed in the buildings and structures section below.

Circulation
[see Map EC-39 at the end of this section]

As mentioned above, there are only two at-grade road crossings of the railroad corridor, one located near the northern edge of the ranch which provides access to the sewage lagoons (see Photo 3-8-1); the other is located near the home ranch (see Photo 3-8-9).

One dirt road runs parallel to the old Milwaukee Railroad bed, where it continues until the area where the tracks have been removed (near the L-Barn, HS-13). Here it shifts and continues over the abandoned rail bed corridor (see Photo 3-8-8).

Views and Vistas
[see Map EC-40 at the end of this section]

Views within the railroad corridor are characterized by the landscape features that are located along it. These include views of the Visitor Center area, the Grant-Kohrs Residence and Home Ranch Complex, the Warren Hereford Ranch Complex, and the pastures and hayfields located to the east and west of the corridor. Denser vegetation growth located within the barrow pits, as well as in the area between the two rail corridors, encloses the view within this area.

Views from within the barrow pits are fairly contained, as the topography surrounding these features rises steeply near the railroad corridor. Dense vegetation also encloses the views and focuses them inward.

Buildings and Structures
[see Map EC-39 at the end of this section]

Located east of the main ranch house and on either side of the railroad tracks, the **Siphon** (HS-57), (see Photo 3-8-10) was built circa 1908 by the Chicago, Milwaukee, & St. Paul Railroad as part of the construction of the railroad track. No longer in use, the siphon consists of two poured-in-place concrete wells joined by a subterranean concrete tunnel that channels water under the railroad grade. The siphon was used to irrigate the main ranch house front yard and to provide stock water to Stallion Barn HS-16.

A small **Pump House** (HS-86), (see Photo 3-8-11) is located in the northern pasture and on the north bank of the Kohrs-Manning Ditch. The pump house is a rectangular, one room structure with a gable roof. It is built on a concrete foundation with wood framing and the gable roof is covered with asphalt shingles. The roof is covered with corrugated metal sheets, which were added to the roof in 2000 by the NPS to protect the structure from further decay. A vertical plank door is located on the southern elevation as are two covered-over windows. A third covered window is found on the east elevation. A wetland surrounds the pump house and its outside piping systems are visible above the waterline. Built in 1960 by Con Warren, the structure is approximately 10 feet long by 8 feet high. It supplies water to the Front Field east of the railroad and north of the Warren Hereford Ranch complex.

Two **Cattle Cars** (GRKO-970 and GRKO-862), (see Photo 3-8-12) are located on the inactive Milwaukee railroad tracks and across from the Bielenberg Barn. The 1920s-era cattle cars are red-stained, wood-frame, box-type cattle cars attached to a metal railroad-car deck, axles, and wheels. Cattle car GRKO-970 was built circa 1923 while GRKO-862 was built circa 1929; both cars were donated to the NPS in the 1980s from other parts of the country. These cattle cars are typical of those used during the Conrad Warren era.

Two **railroad trestles** have been built to carry each of the railroad lines over the pedestrian underpass linking the visitor center with the rest of the ranch (see Photo 3-8-13). These trestles are supported by large wooden columns (approximately 10-12 inches in diameter) that support wooden beams and joists. Railroad track and ties are laid on top of wooden planking, and enclosed on the east and west sides by metal post and wire fencing. These overpasses are approximately 12 feet above the grade of the pedestrian trail.

Objects and Small-scale Features
[see Map EC-40 at the end of this section]

Fences and gates within the Railroad/Barrow pit component landscape are typical of those found elsewhere in the CLR study boundary. These fences and gates serve utilitarian purposes; prohibiting unauthorized access into the railroad corridor yet allowing NPS personnel into and out of the area.

The most predominant type of fence in this landscape is the **Metal Post and Wire fence.** This fence encloses almost all of the railroad corridor. Variations of this fence type surrounding the railroad corridor have both metal and wood posts supporting the barbed wire.

A short section of **Jack-Leg fence** is located along the railroad grade east of the Home Ranch Complex. This fence type is similar to other Jack-Leg fences found throughout the CLR study boundary. Two wood posts are crossed at the top to form an X-shape. One horizontal rail rest in the crux of the X while 3 more rails are attached to the exterior of one post to form an angled fence. A fifth rail is attached to the lower side of the opposite pole for added strength and security. All wood members of the fence are un-milled and unfinished.

In the northern portion of the railroad corridor is a short section of **4-rail stacked-end fence,** (see Photo 3-8-14). Four split-log rails extend between log posts on one side of the fence while two more split-log rails are placed on the lower half of the fence on the other side. At each post, the rails for one section are stacked alternately with the rails for the next section, creating a stacked appearance.
Three gate types are also located in the northern portion of the corridor: a **5-rail Braced Gate,** (see Photo 3-8-15) a **Galvanized Metal Gate,** (see Photo 3-8-16) and a **Metal Pipe Gate,** (see Photo 3-8-14). This gate has a hinge-post almost twice the height of the gate and has a long, diagonal brace leading from the top of the hinge-post to the opposite corner of the gate. This brace supposedly prevents and corrects sagging, although this gate is indeed sagging.

The metal pipe gate consists of brown-painted, welded metal pipe frame filled with 4 pipe rails and 2 vertical pipe posts. The upper corners of the frame are rounded.

The galvanized metal gate has 5 horizontal metal rails and a vertical metal post at the center. Two diagonal metal braces are located on each side of the central post.

Two overhead utility lines run parallel to the railroad corridor. The remaining electric power lines and poles along the east side of the Milwaukee rail corridor are remnants of the once electrified railroad. Most of these have been removed, except for a small section near the Home Ranch complex (see Photo 3-8-17). The other set of poles runs along the west side of the Milwaukee corridor. While the poles are still standing and appear to be in poor condition, the electrical wires appear discontinuous and are downed in some areas. It is assumed that this line is no longer in service.

A **wheel flange detector** is located just south of the railroad trestles, along side the Milwaukee railroad line. It consists of a gray metal utility box and concrete box with wooden lid. Two metal plates are also located on the inside edges of the adjacent tracks (see Photo 3-8-18). This system was installed to measure vibration caused by the trains, and is no longer operational.

Missing & Archeological Resources
[see Map EC-40 at the end of this section]

There is an area in this landscape that contains features possibly associated with excavation of gravel for the railroads. It consists of several concrete slabs, ramp type constructions, and scars of large drag lines.[4] A historic dump is also located within this component landscape. Specific information regarding the content and location of these features can be found in the *Cultural Resources Inventory* (2003).
Missing features include a maintenance shed which was used by the Milwaukee Railroad. Located to the west of the railroad cars, this feature was removed ca. 1982. Also missing is an oil barrel, which was located west of the railroad track, just south of the access road.

[4] NPS 95% Draft CLR review comments (March 12, 2004).



JMA, October 2002

Photo 3-8-1 : (C-22) The railroad beds are elevated above grade for most of their length, except at road crossings located near the home ranch and northern boundary where they are at grade.



JMA, October 2002

Photo 3-8-2 : (D-01) The Northern Pacific Railroad bed is elevated approximately 10 feet higher than the Milwaukee Railroad bed throughout most of the ranch.



JMA, October 2002

Photo 3-8-3 : (E-04) The barrow pits are deep pits that are lower in elevation than their surrounding landscape, and the banks of the railroad beds rise steeply up along their sides.



JMA, October 2002

Photo 3-8-4 : (E-01) Wetland conditions are found within the barrow pits. A beaver lodge can be seen at left.



JMA, October 2002

Photo 3-8-5 : (C-16) A concentration of native grasses are found in a small area adjacent to the eastern barrow pit, which remains fenced off from the pasture land found in the Front Fields.



JMA, October 2002

Photo 3-8-6 : (E-02) Cattails and other wetland plants, as well as cottonwoods and willows can be found within the barrow pits.



JMA, October 2002

Photo 3-8-7 : (D-22) Vegetation along the rail corridors create “tunnel” views in some areas.



JMA, October 2002

Photo 3-8-8 : (D-02) The Milwaukee Railroad bed was constructed in 1908, and abandoned in 1983.



JMA, October 2002

Photo 3-8-9 : (H-04) An at-grade crossing along the Sewage Treatment Service Road.



JMA, October 2002

Photo 3-8-10 : (AD-21) Siphon (HS-57).



JMA, October 2002

Photo 3-8-11 : (F-06) Pumphouse (HS-86).



JMA, October 2002

Photo 3-8-12 : (AD-19) Cattle Cars.



JMA, October 2002

Photo 3-8-13 : (RE-05) Railroad trestle above pedestrian underpass.



JMA, October 2002

Photo 3-8-14 : (E-09) 4-Rail Stacked End Fence with Metal Pipe Gate.



JMA, October 2002

Photo 3-8-15 : (E-08) 5-Rail Braced Gate.



JMA, October 2002

Photo 3-8-16 : (E-10) 4-Rail Locked End Gate with Galvanized Gate in background.



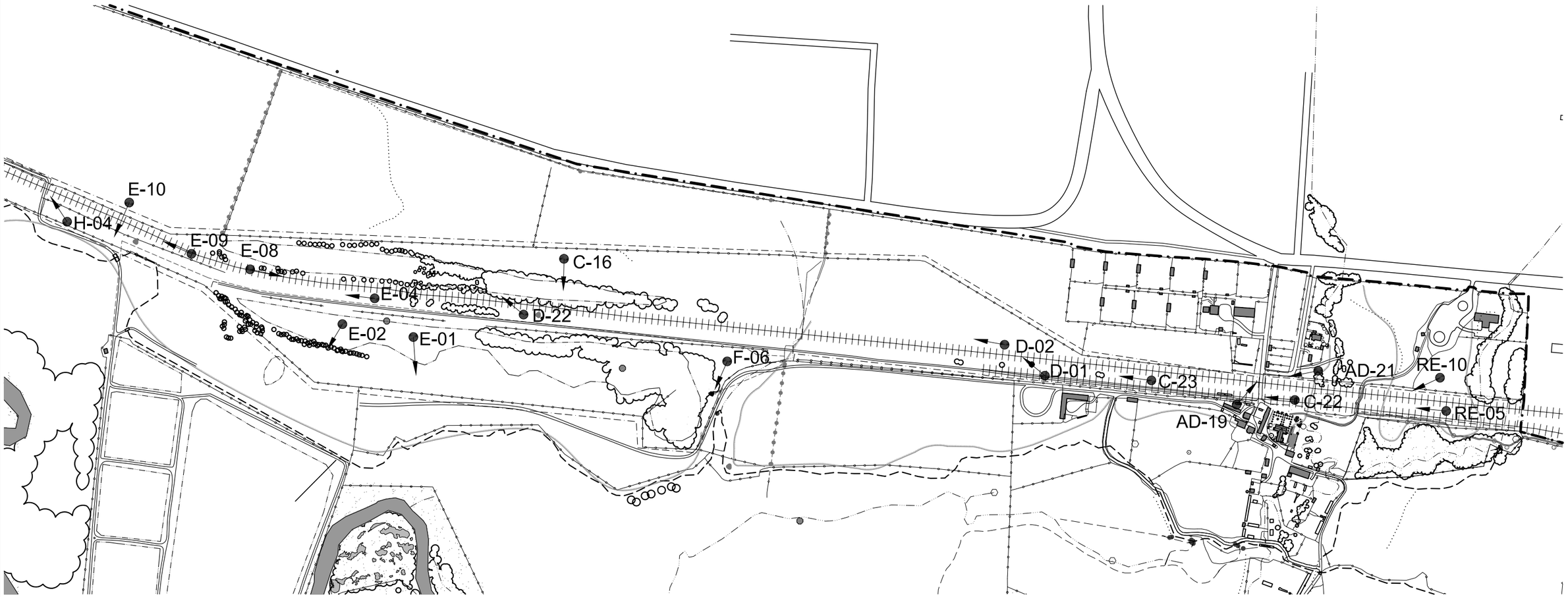
JMA, October 2002

Photo 3-8-17 : (C-23) Overhead utility lines.



JMA, October 2002

Photo 3-8-18 : (RE-10) Utility boxes with Wheel Flange Detector System.



Map Sources: Base mapping referenced to Grant-Kohrs Ranch National Historic Site 1994 aerial photographs and Montana 1:24,000 scale State Plane DRG quadrangles. GIS data was exported into Autocad format for production of base maps and further further detailed with additional data collected in the field.

The following data was provided by the National Park Service, Grant-Kohrs Ranch National Historic Site GIS Program (shapefile format), which was compiled 1998 and updated/field-checked by OCULUS/JMA during the October 2002 site visit: fences and gates; boundary lines; utility lines; fire hydrants; irrigation ditches, headgates, pipes, and risers; culverts; river boundaries; roads; railroad tracks; unvegetated slickens and tailings; fields; trails; cottonwood trees; beaver lodges and dams; hydrology; and groundwater monitoring wells. Metadata for this data is avaliable from World Wide Web: [http://www.nps.gov/gis/metadata/grko/]. Wetlands, hypsography (topography), and Montana 1:24,000 scale State Plane DRG quadrangles were derived from Montana State Library Natural Resource Information System, metadata available from: [http://nris.state.mt.us/gis/datalist.html].

Legend:

- Roads
- Vegetation
- Bench
- Fences
- Streams/Sloughs
- Railroad
- Buildings/ Structures
- Springs
- Old Ditches
- Main Ditches
- Lateral Ditches
- Component Landscape Boundary Line
- GRKO Boundary Line
- Beaver Lodges

Scale: 1" = 600'

A/E FIRM

PRIME
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CITY, STATE: Philadelphia, PA

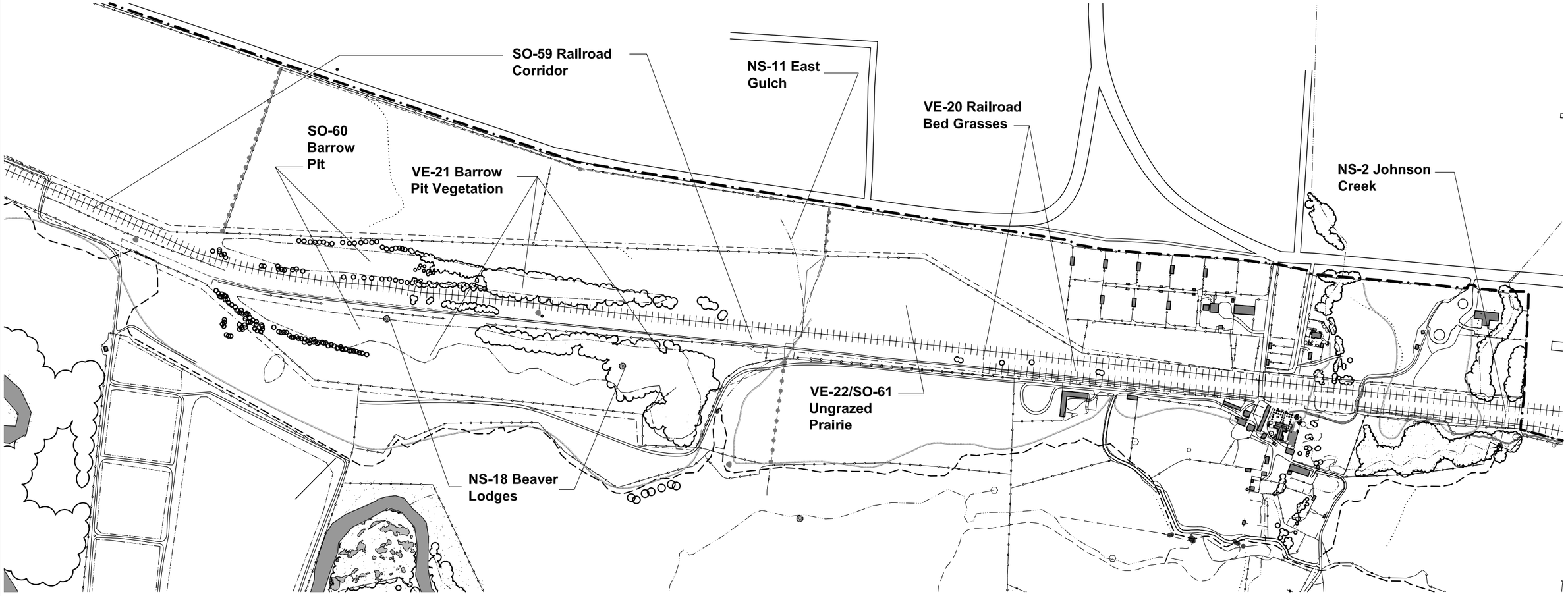
SUBCONTRACTOR
NAME: John Milner Associates, Inc.
CITY, STATE: Charlottesville, VA

DESIGNED:
DRAWN: ADF
TECH. REVIEW: KLS, RMM
DATE: JULY 2004

SUB SHEET NO. P-10

EXISTING CONDITIONS INVENTORY
RAILROAD CORRIDOR & BARROW PIT/WETLANDS
PHOTO STATION POINT MAP
GRANT-KOHRS RANCH NATIONAL HISTORIC SITE

DRAWING NO.
PKG. NO.
SHEET
OF



Map Sources: Base mapping referenced to Grant-Kohrs Ranch National Historic Site 1994 aerial photographs and Montana 1:24,000 scale State Plane DRG quadrangles. GIS data was exported into Autocad format for production of base maps and further further detailed with additional data collected in the field.

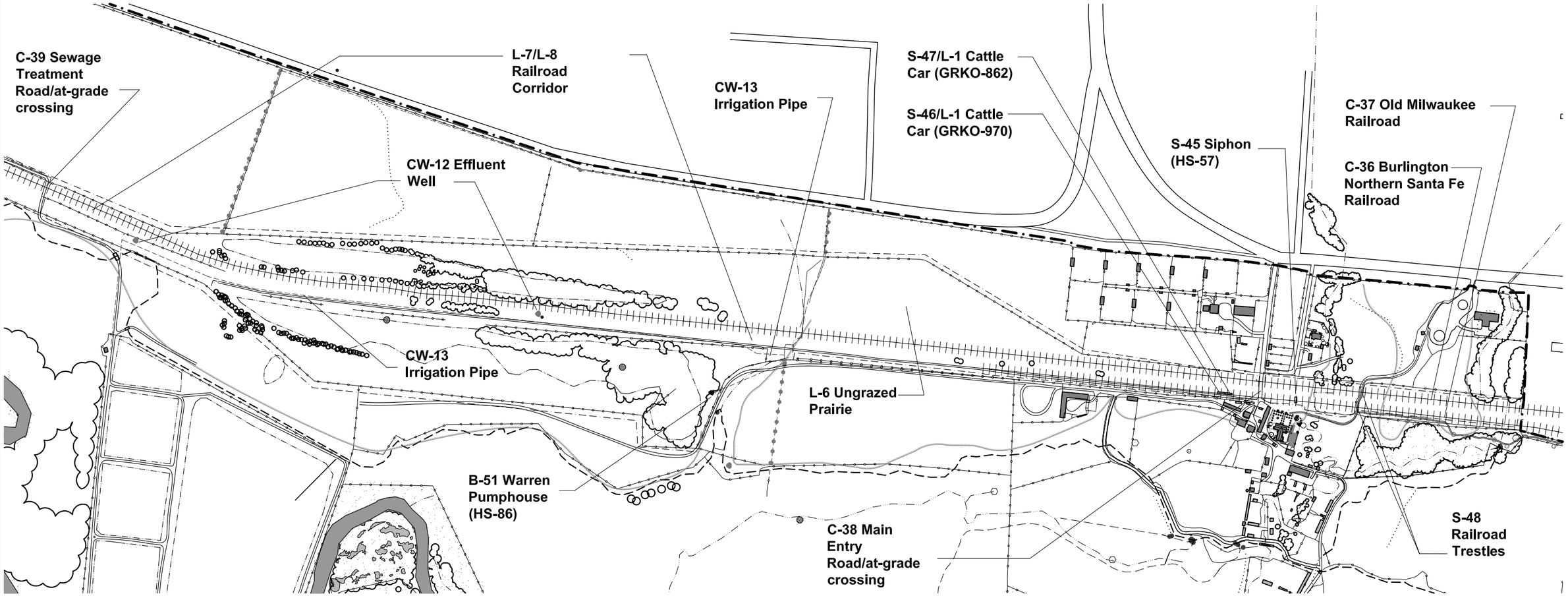
The following data was provided by the National Park Service, Grant-Kohrs Ranch National Historic Site GIS Program (shapefile format), which was compiled 1998 and updated/field-checked by OCULUS/JMA during the October 2002 site visit: fences and gates; boundary lines; utility lines; fire hydrants; irrigation ditches, headgates, pipes, and risers; culverts; river boundaries; roads; railroad tracks; unvegetated slickens and tailings; fields; trails; cottonwood trees; beaver lodges and dams; hydrology; and groundwater monitoring wells. Metadata for this data is avaliable from World Wide Web: [http://www.nps.gov/gis/metadata/grko/]. Wetlands, hypsography (topography), and Montana 1:24,000 scale State Plane DRG quadrangles were derived from Montana State Library Natural Resource Information System, metadata available from: [http://nris.state.mt.us/gis/datalist.html].

Legend:

- Roads
- Vegetation
- Bench
- Fences
- Streams/Sloughs
- Railroad
- Buildings/ Structures
- Springs
- Old Ditches
- Main Ditches
- Lateral Ditches
- Component Landscape Boundary Line
- GRKO Boundary Line
- Beaver Lodges

Scale: 1" = 800'

A/E FIRM PRIME NAME: Susan Maxman Architects CITY, STATE: Philadelphia, PA SUBCONTRACTOR NAME: John Millner Associates, Inc. CITY, STATE: Charlottesville, VA	DESIGNED: DRAWN: JLB, WMW TECH. REVIEW: KLS, RMM DATE: JULY 2004	SUB SHEET NO. EC-38	EXISTING CONDITIONS INVENTORY RAILROAD CORRIDOR & BARROW PIT/WETLANDS **NATURAL SYSTEMS, VEGETATION, AND SPATIAL ORGANIZATION** GRANT-KOHRS RANCH NATIONAL HISTORIC SITE	DRAWING NO. PKG. NO. SHEET OF



Map Sources: Base mapping referenced to Grant-Kohrs Ranch National Historic Site 1994 aerial photographs and Montana 1:24,000 scale State Plane DRG quadrangles. GIS data was exported into Autocad format for production of base maps and further further detailed with additional data collected in the field.

The following data was provided by the National Park Service, Grant-Kohrs Ranch National Historic Site GIS Program (shapefile format), which was compiled 1998 and updated/field-checked by OCULUS/JMA during the October 2002 site visit: fences and gates; boundary lines; utility lines; fire hydrants; irrigation ditches, headgates, pipes, and risers; culverts; river boundaries; roads; railroad tracks; unvegetated slickens and tailings; fields; trails; cottonwood trees; beaver lodges and dams; hydrology; and groundwater monitoring wells. Metadata for this data is avaliable from World Wide Web: [http://www.nps.gov/gis/metadata/grko/]. Wetlands, hypsography (topography), and Montana 1:24,000 scale State Plane DRG quadrangles were derived from Montana State Library Natural Resource Information System, metadata available from: [http://nris.state.mt.us/gis/datalist.html].

Legend:

- Roads
- Vegetation
- Bench
- Fences
- Streams/Sloughs
- Railroad
- Buildings/ Structures
- Springs
- Old Ditches
- Main Ditches
- Lateral Ditches
- Component Landscape Boundary Line
- GRKO Boundary Line
- Beaver Lodges

Scale: 1" = 600'

A/E FIRM

PRIME
NAME: Susan Maxman Architects
CITY, STATE: Philadelphia, PA

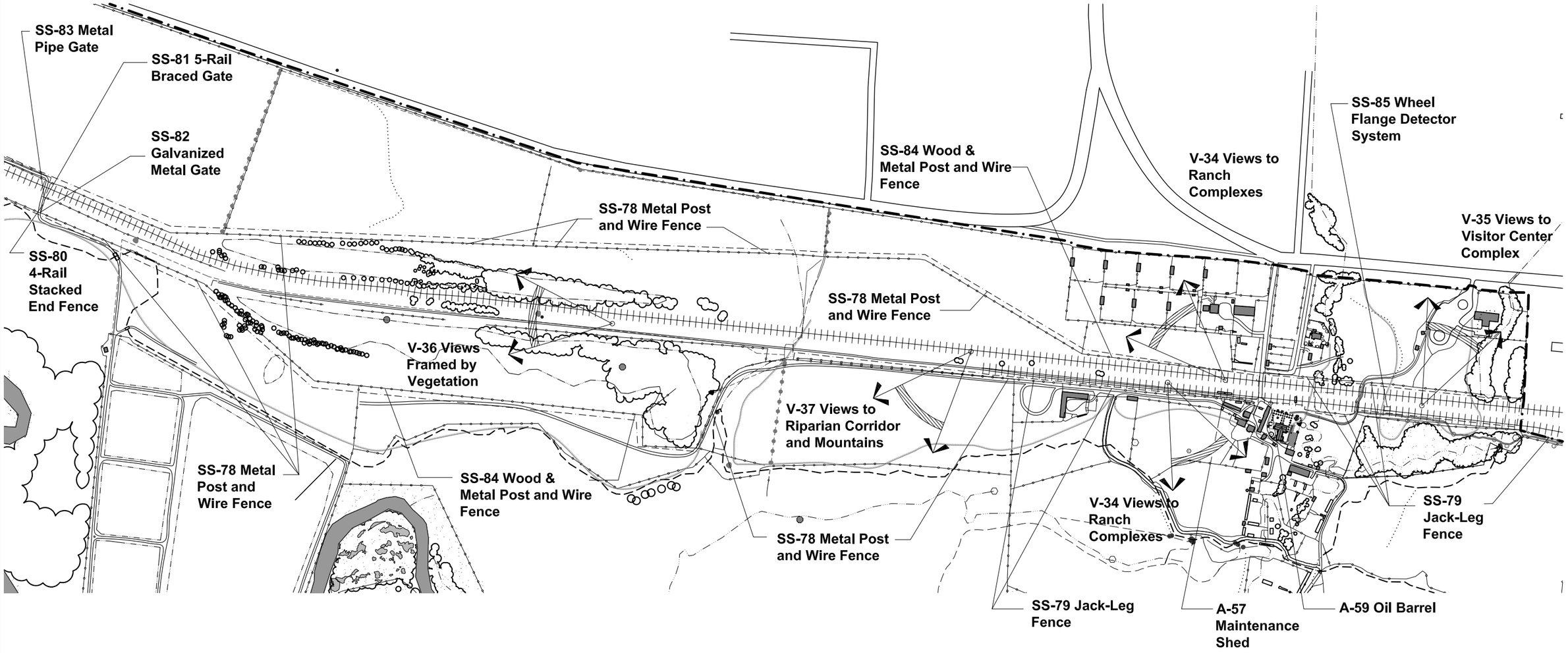
SUBCONTRACTOR
NAME: John Millner Associates, Inc.
CITY, STATE: Charlottesville, VA

DESIGNED:
DRAWN: JLB, WMW
TECH. REVIEW: KLS, RMM
DATE: JULY 2004

SUB SHEET NO.
EC-39

EXISTING CONDITIONS INVENTORY
RAILROAD CORRIDOR & BARROW PIT/WETLANDS
CIRCULATION, BUILDINGS & STRUCTURES, LAND USE, AND CONSTRUCTED WATER FEATURES
GRANT-KOHRS RANCH NATIONAL HISTORIC SITE

DRAWING NO.
PKG. NO.
SHEET
OF



Map Sources: Base mapping referenced to Grant-Kohrs Ranch National Historic Site 1994 aerial photographs and Montana 1:24,000 scale State Plane DRG quadrangles. GIS data was exported into Autocad format for production of base maps and further further detailed with additional data collected in the field.

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Scale: 1" = 600'

A/E FIRM PRIME NAME: Susan Maxman Architects CITY, STATE: Philadelphia, PA SUBCONTRACTOR NAME: John Millner Associates, Inc. CITY, STATE: Charlottesville, VA	DESIGNED: DRAWN: JLB, WMW TECH. REVIEW: KLS, RMM DATE: JULY 2004	SUB SHEET NO. EC-40	EXISTING CONDITIONS INVENTORY RAILROAD CORRIDOR & BARROW PIT/WETLANDS **VIEWS, OBJECTS, SMALL-SCALE, & MISSING FEATURES** GRANT-KOHRS RANCH NATIONAL HISTORIC SITE	DRAWING NO. PKG. NO. SHEET OF

Development Zone

Development Zone

[Existing conditions inventory maps and photographs follow this section].

Introduction

The Development Zone is located in the southwestern corner of the ranch. This area provides the primary visitor services, such as a contact station/bookstore, restrooms, and parking. A new collections and archival storage building and parking area were added in 2002. It is bounded by the elevated railroad corridor on the west, Business Loop 90 on the east, the Warren Residence landscape area on the north, and the park boundary on the south.

Natural Systems and Features

[see Map EC-41 at the end of this section]

The developed land within this area is generally flat and consists mostly of very deep and well drained Beaverell loams. This area drains to Johnson Creek, which passes through the southern edge of the visitor center area. Its small riparian zone (see Photo 3-9-1), consists of Gregson loams, which are very deep and somewhat poorly drained soils.

Vegetation

[see Map EC-41 at the end of this section]

The grasses in this area consist of mostly crested wheatgrass and smooth brome. The riparian zone of Johnson Creek consists primarily of cottonwoods and willows common throughout the other riparian woodlands. Spotted knapweed is an invasive exotic species prevalent throughout this area.[1]

Spatial Organization

[see Map EC-42 at the end of this section]

The core of the Development Zone landscape is comprised of the **Visitor Center Developed Area**. This area consists of the visitor contact station/bookstore, restrooms, parking areas, and the curatorial storage building. It is generally organized around the large visitor parking area that is accessed from Business Loop 90. The visitor center developed area is bounded on the north by the Stuart Pasture, and on the south by the Development Zone Field and Johnson Creek Riparian area. Jack-leg fencing reinforces these boundaries. The curatorial storage building and its parking area are located on the south side of the developed area.

The **Johnson Creek Riparian Area** is defined by Johnson Creek and the large cottonwood trees contained here. It is bounded on the east by Business Loop 90, on the north by Visitor Center Field and the curatorial storage building, on west by the railroad corridor, and on the south by the NHS boundary fence. Jack-leg fencing reinforces the boundaries on all but the northern side.

The **Stuart Homestead Field** is defined by the railroad corridor and jack-leg fencing to the west, Johnson Creek riparian area to the south, the curatorial storage building and parking area to the east, and the visitor parking area, interpretive trail, and jack-leg fencing on the north. This field is grazed.

[1] Rice and Ray, 1984, 24; Janet Hardin, "Plant Species & Locations, Grant-Kohrs Ranch National Historic Site Database, Final Inventory" (Missoula: University of Montana, Division of Biological Sciences, June 3, 2003).

The **Interpretive Trail Area** links the visitor center developed area with the Grant-Kohrs Residence via a railroad underpass. This area is defined by jack-leg fencing on all sides, as well as by the sloping topography.

Land Uses
[see Map EC-41 at the end of this section]

The uses within this area are associated with visitor services, interpretation, research, collections storage, and park administration. The Johnson Creek riparian area is preserved for conservation and flood management.

Constructed Water Features
There are no known constructed water features in this area.

Circulation
[see Map EC-42 at the end of this section]

The main **Visitor Entry Drive** (see Photo 3-9-2) connects Business Loop 90 with the visitor center parking lot. This entry road and parking area are paved with asphalt. The parking lot is a continuous oblong loop with 24 90-degree angle, double loaded, center-aisle parking spaces (see Photo 3-9-3). One single row of parking is located on the northern edge and contains two handicap-accessible spaces. Two circular grass traffic islands are positioned at either end to control traffic flow (see Photo 3-9-4).

The curatorial building is accessed via an **asphalt driveway** off the southern end of the visitor parking lot (see Photo 3-9-5). Its parking area is located to the west of the curatorial building and contains five parking spaces and a loading area.

A six foot wide **asphalt sidewalk** connects the parking area with the restrooms and visitor contact station (see Photo 3-9-6). It continues underneath the railroad trestles to the home ranch complex where it terminates at the Grant-Kohrs Residence (see Photo 3-9-7). Interpretive signs are placed along the trail to educate visitors about the historic landscape and activities associated with the Grant-Kohrs Ranch.

Views and Vistas
[see Map EC-42 at the end of this section]

Views from within the Development Zone are generally open and expansive within the developed area, and include views of the Warren pasture and residence, the railroad corridor, and the development along Business Loop 90 (particularly the fairgrounds). Views of the western foothills are also visible, although less prominent than from other area of the ranch. Views from within the Johnson Creek Riparian Area are generally filtered by the vegetation contained there, and generally enclosed because of the sloping topography found along the creek.

Buildings and Structures
[see Map EC-41 at the end of this section]

The **Curation Storage Facility (CSF)** (004), (see Photo 3-9-5) is located at the southeastern corner of the CLR study boundary, north of the Deer Lodge town limits, and east of the railroad tracks. The facility houses curated items in a temperature-controlled environment. The T-shaped,

metal pole-barn building has a short rectangular entrance ell leading into a longer, perpendicular ell which acts as a warehouse. The building has red, metal, vertical siding with a silver, standing-seam gabled roof. The main entrance, a white metal pedestrian door, is centrally located on the western end of the short office ell. This western elevation also contains two windows, a metal, roll-up garage door, a second pedestrian door, and three vents in the gable end. This entire elevation is recessed into a continuous extended wall and roofline.

The small, rectangular **Visitor Contact Station** (002), (see Photo 3-9-8) is located northwest of the CSF. The wooden, exposed-frame building has a gabled roof covered with wood shingles. The gable ends are filled with vertical wood siding. A vent pipe sits at the western end of the roof. The main entrance and a window are located on the southern elevation. A second window is located on the west elevation. A wood-decked stoop with hand rails leads to the main entrance while a wood ramp with rails runs parallel to the western half of the southern elevation. This structure was a former granary obtained from the old Kohrs "upper ranch" site. It was refitted as a temporary visitor contact station in 1975.

A small **Restroom** (001), (see Photo 3-9-9) of log construction, is located just east of the Visitor Contact Station. The round log walls are sealed with white lime mortar daubing. The gabled roof is covered with wood shingles and has horizontal board siding in the gable ends. The entrance consists of a single wood door offset on the southern elevation. Windows, consisting of four parallel, vertical, rectangular lights are located on the northern and eastern elevations. The building is set on cinder blocks at corners only. This structure was a log cabin, formerly used as a pig pen, and obtained from the old Kohrs "upper ranch". It was refitted as a temporary public restroom in 1975.

Descriptions of the railroad trestles are found in the Railroad Corridor/Barrow Pits component landscape section.

Objects and Small-scale Features
[see Map EC-43 at the end of this section]

Because the Development Zone landscape is highly visible and heavily used by tourists, fencing is interpretive and ornamental. It also serves the functional purpose of containing cattle.

The sole type of fencing is the **Jack-Leg fence.** Two wood posts are crossed at the top to form an X-shape. One horizontal rail rests in the crux of the X while 3 more rails are attached to the exterior of one post to form an angled fence. A fifth rail is attached to the lower side of the opposite pole for added strength and security. All wood members of the fence are un-milled and unfinished.

Three types of gates are used in conjunction with fencing in this landscape. The **Overhead Gate,** (see Photo 3-9-10) consists of two, tall vertical wood posts supporting a top-mounted, horizontal, wood beam. The **5-rail Braced Gate,** (see Photo 3-9-10) has a hinge-post almost twice the height of the gate and has a long, diagonal brace leading from the top of the hinge-post to the opposite corner of the gate. This brace prevents and corrects sagging. These two types of gates are used in various combinations; the overhead gate supporting the braced gate and the braced gate supported only by the adjacent fence. In addition, adjacent to the railroad tracks along the paved path to the ranch, two overhead gates are connected by two extra top beams to form a square structure. The path passes beneath from east to west while two braced gates are located on the north and south sides of the structure.

The third type of gate is the **Typical Ranch Gate** seen in several places throughout the CLR study boundary. This wooden gate consists of five milled boards attached horizontally to support posts at either end. The gate is braced on each side with a central vertical board and two diagonal boards. Although it is unpainted and unfinished, this type of gate is often painted red.

Other small scale features include several wooden entrance **bollards** located on either side of the visitor entry drive (see Photo 3-9-10). These bollards appear to be constructed of cut logs (approximately 4" in diameter) set directly into the ground. A small **wooden bench** is located along the interpretive trail. It is mounted on four wooden posts.

Several signs are located throughout the Development Zone area. These include the large wooden **entrance sign**, which is suspended by chains from an overhead gate (see Photo 3-9-10). This gate is constructed of two, tall vertical wood posts supporting a top-mounted, horizontal, wood beam. This sign is located on the southern side of the visitor entry drive. Other signs consist of the following:

The design of the **Deer Lodge Valley** sign mimics the historic overhead gates found throughout the ranch (see Photo 3-9-11). It is constructed of two, approximately 10 foot high square wooden posts supporting a top-mounted, horizontal square wood beam with notched ends. This feature is constructed of milled lumber and is intended to look rustic. A wooden sign describing "Deer Lodge Valley" is suspended from metal hooks. Present during the field visit, this sign was removed in 2003.

A small **mounted informational kiosk** (see Photo 3-9-12), is located directly in front of the visitor contact station building. It is mounted on two braced milled wooden posts, and is protected from the elements by a small gabled wood-shingled roof support. This feature is approximately 6 feet high.

A **large interpretive sign** (see Photo 3-9-13), is constructed of imbedded fiberglass and vertically mounted in a metal frame. It is measures approximately four feet high by six feet wide, and is located at the north end of the visitor parking lot. This sign welcomes visitors to the Grant-Kohrs Ranch and provides site orientation.

Small interpretive signs/waysides (see Photo 3-9-7), are located along the interpretive trail linking the visitor contact station with the home ranch complex. They appear to be constructed of fiberglass contained within a metal frame, and are mounted at an angle on a low profile wooden base.

Small informational signs (see Photo 3-9-14), communicate the rules and regulations of the park, such as no bike riding, no smoking, no dogs, etc. They are small metal signs of varying sizes and materials, mounded vertically on small wooden posts.

Wayfinding signs provide information concerning pedestrian and vehicular direction. These are typically metal signs mounted vertically on metal posts (see Photo 3-9-15).
A **metal plaque** marking the site's National Historic Landmark status is mounted on a brick and mortar base, approximately 11.5-inch square base (see Photo 3-9-16). The 15-inch by 16-inch

bronze sign is mounted at a 45-degree angle and is located along the interpretive trail. This feature was added by the NPS in 2000.[2]

Other small scale features are located in the center of the western traffic island. These include a **flag and flagpole**, as well as a small wooden **grain wagon** (see Photo 3-9-4). This latter feature is painted orange.

Two brown **metal trash cans** are located outside the restrooms. These features are square, and rest on a concrete pad (see Photo 3-9-9). Two small and one large **trash barrels** are located outside the visitor contact station (see Photo 3-9-12). These are wooden barrels with metal straps. A small wooden **picnic table** is also located to the east of the visitor contact station.

Several other small scale features are located around the perimeter of the restrooms. These include a **fire hydrant**, **manhole cover**, **transformer**, freestanding green **metal utility structure**, and **Travelers Information Station (TIS) pole**. A **fire box** is also located on the east side of the restrooms. It is constructed of wood and measures approximately four feet wide, three feet high, and two feet deep (see Photos 3-9-6, 3-9-17, and 3-9-18).

Missing & Archeological Resources
[see Map EC-41at the end of this section]

The historic home site of the **Stuart cabin** is located in this component landscape. This land was acquired by Conrad Kohrs in 1884. The 1883 Stoner bird's-eye drawing of Deer Lodge shows what appears to be a cluster of five buildings in this vicinity (the arrow indicating the direction of Deer Lodge is reversed). Research indicates that Conrad Warren tore the homestead down ca. 1935 so hobos from the railroad wouldn't camp out in it.[3]

An old/abandoned irrigation ditch is located on the present site of the Curation Storage Facility. The water source and use of this feature is unknown.

[2] Grant-Kohrs Ranch National Historic Site, "Reference No. GRKO-2000-3, Erect National Historic Landmark Plaque Wayside," Memorandum to Montana State Historic Preservation Office (On file at Grant-Kohrs NHS archives, June 27, 2000).
[3] W.M. Brown 1975, *Archeological Salvage Investigation Report* (On file at Grant-Kohrs Ranch NHS Archives).



JMA, October 2002

Photo 3-9-1 : (RG-06) Johnson Creek riparian zone within Visitor Center area.



JMA, October 2002

Photo 3-9-2 : (RA-15) Visitor Entry Drive off Business Loop 90.



JMA, October 2002

Photo 3-9-3 : (RA-21) Visitor Parking Area.



JMA, October 2002

Photo 3-9-4 : (RB-04) Grass traffic islands with flagpole and grain wagon.



JMA, October 2002

Photo 3-9-5 : (RG-04) Curation Storage Facility (004), access drive, and parking area.



JMA, October 2002

Photo 3-9-6 : (RB-09) Asphalt sidewalk and fire hydrant.



JMA, October 2002

Photo 3-9-7 : (RC-21) Pedestrian walk continues under railroad trestle to Home Ranch area. Small interpretive sign at left.



JMA, October 2002

Photo 3-9-8 : (RC-02) Visitor Center (002) and trash barrels.



JMA, October 2002

Photo 3-9-9 : (RB-14) Rest rooms (001) and trash cans.



JMA, October 2002

Photo 3-9-10 : (RA-12) Overhead Gate with 5-Rail Braced Gate, Entry Sign, and Entrance Bollards.



JMA, October 2002

Photo 3-9-11 : (RB-8) Square Wood Post and Beam sign (removed).



JMA, October 2002

Photo 3-9-12 : (RC-1) Mounted Information Kiosk.



JMA, October 2002

Photo 3-9-13 : (RB-16) Large Interpretive Sign



JMA, October 2002

Photo 3-9-14 : (RC-7) Small informational signs.



JMA, October 2002

Photo 3-9-15 : (RA-19) Wayfinding Signs.



JMA, October 2002

Photo 3-9-16 : (RD-6) Metal plaque and wood bench.



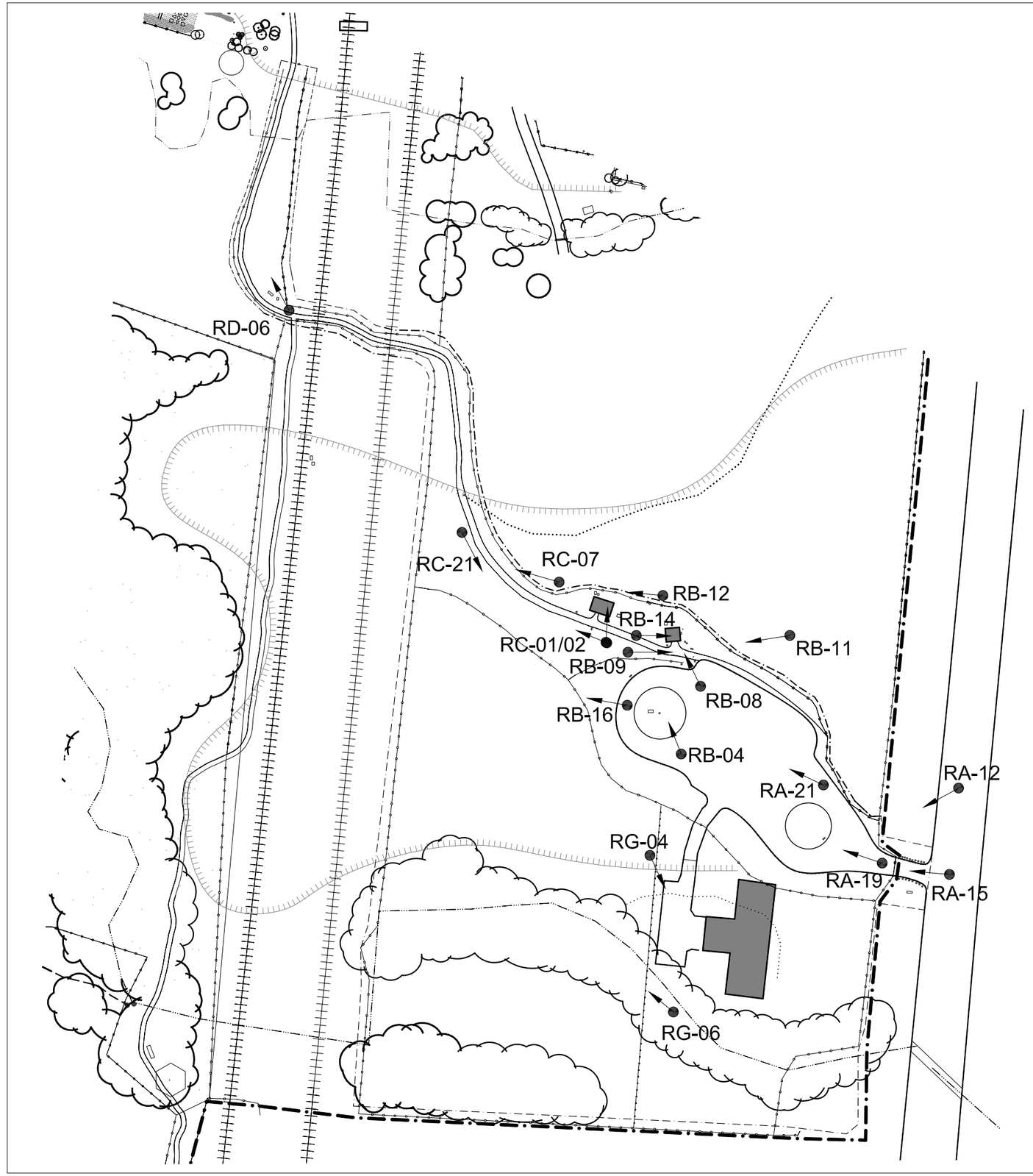
JMA, October 2002

Photo 3-9-17 : (RB-11) Fire box and transformer.



JMA, October 2002

Photo 3-9-18 : (RB-12) TIS pole, utility structure and picnic table.



Legend:

- Roads
- Railroad
- Lateral Ditches
- Vegetation
- Buildings/ Structures
- Component Landscape Boundary Line
- Bench
- Springs
- GRKO Boundary Line
- Fences
- Old Ditches
- Beaver Lodges
- Streams/Sloughs
- Main Ditches

Not to Scale

Map Sources: Base mapping referenced to Grant-Kohrs Ranch National Historic Site 1994 aerial photographs and Montana 1:24,000 scale State Plane DRG quadrangles. GIS data was exported into Autocad format for production of base maps and further further detailed with additional data collected in the field.

The following data was provided by the National Park Service, Grant-Kohrs Ranch National Historic Site GIS Program (shapefile format), which was compiled 1998 and updated/field-checked by OCULUS/JMA during the October 2002 site visit: fences and gates; boundary lines; utility lines; fire hydrants; irrigation ditches, headgates, pipes, and risers; culverts; river boundaries; roads; railroad tracks; unvegetated slickens and tailings; fields; trails; cottonwood trees; beaver lodges and dams; hydrology; and groundwater monitoring wells. Metadata for this data is avaliable from World Wide Web: [http://www.nps.gov/gis/metadata/grko/]. Wetlands, hypsography (topography), and Montana 1:24,000 scale State Plane DRG quadrangles were derived from Montana State Library Natural Resource Information System, metadata available from: [http://nris.state.mt.us/gis/datalist.html].

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PRIME
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DESIGNED:
DRAWN: ADF
TECH. REVIEW: KLS, RMM
DATE: JULY 2004

SUB SHEET NO. P-11

EXISTING CONDITIONS INVENTORY

DEVELOPMENT ZONE

PHOTO STATION POINT MAP

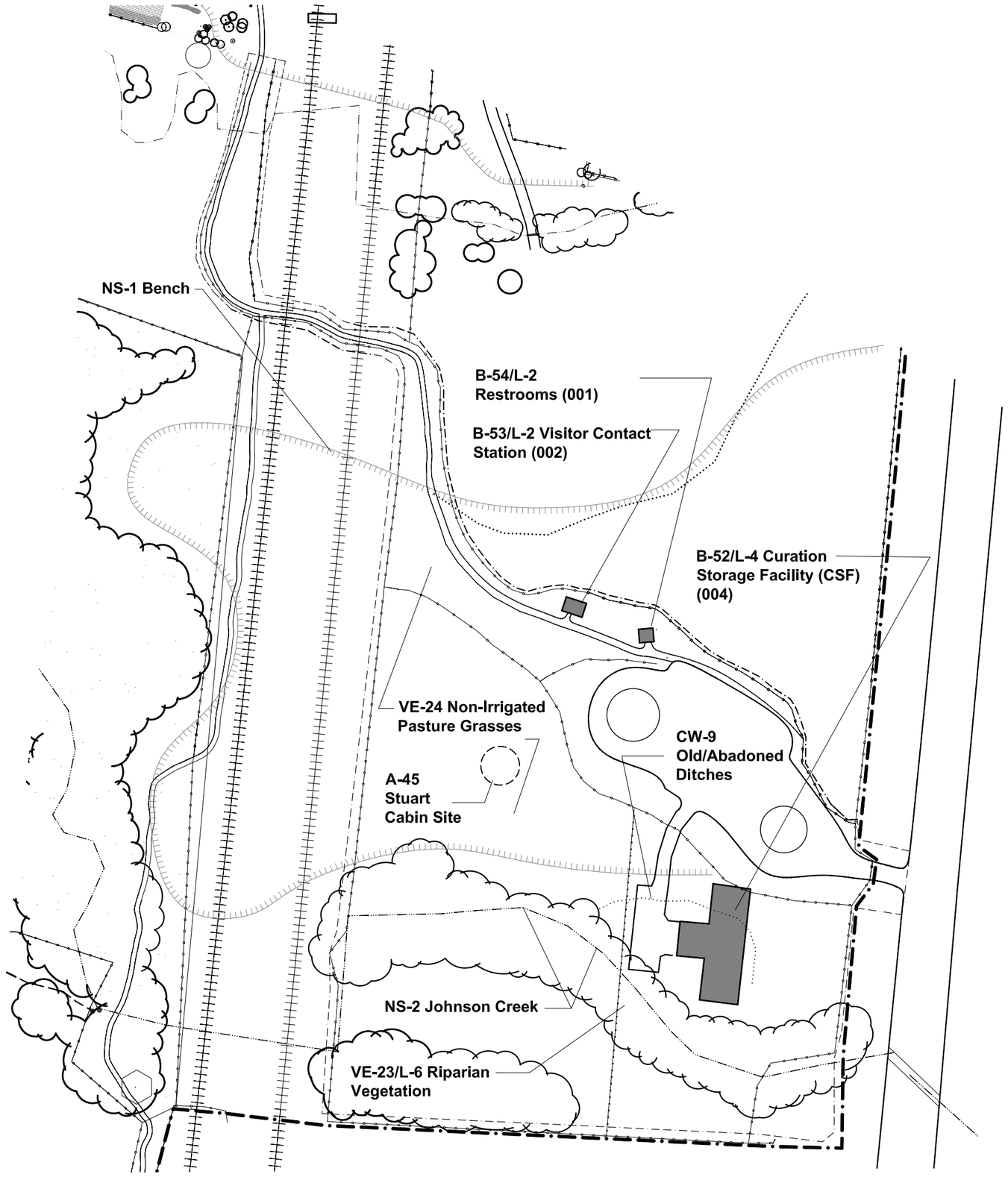
GRANT-KOHRS RANCH NATIONAL HISTORIC SITE

DRAWING NO.

PKG. NO.

SHEET

OF



Legend:

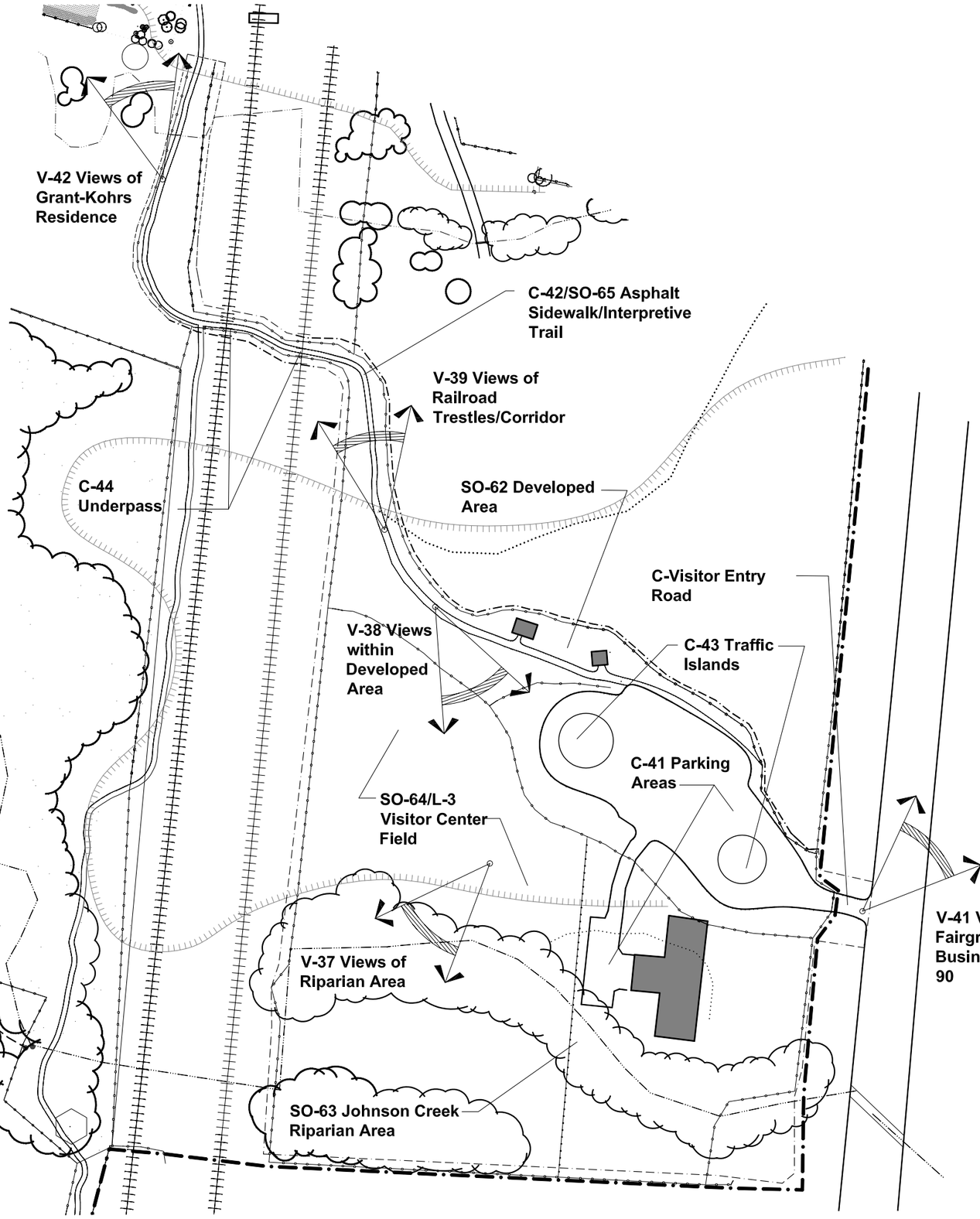
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- Beaver Lodges
- Streams/Sloughs
- Main Ditches

Not to Scale

Map Sources: McChristian, Douglas C. *Ranchers to Rangers: An Administrative History of Grant-Kohrs Ranch National Historic Site.* National Park Service, Rocky Mountain Cluster, 1977. Base mapping referenced to Grant-Kohrs Ranch National Historic Site 1994 aerial photographs and Montana 1:24,000 scale State Plane DRG quadrangles. GIS data wa maps and further further detailed with additional data collected in the field.

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A/E FIRM PRIME NAME: Susan Maxman Architects CITY, STATE: Philadelphia, PA SUBCONTRACTOR NAME: John Milner Associates, Inc. CITY, STATE: Charlottesville, VA	DESIGNED: DRAWN: JLB, WMW TECH. REVIEW: KLS, RMM DATE: JULY 2004	SUB SHEET NO. EC-41	EXISTING CONDITIONS INVENTORY DEVELOPMENT ZONE **NATURAL SYSTEMS, BUILDINGS, LAND USE, CONSTRUCTED WATER FEATURES, AND MISSING FEATURES** GRANT-KOHRS RANCH NATIONAL HISTORIC SITE	DRAWING NO. PKG. NO. SHEET OF



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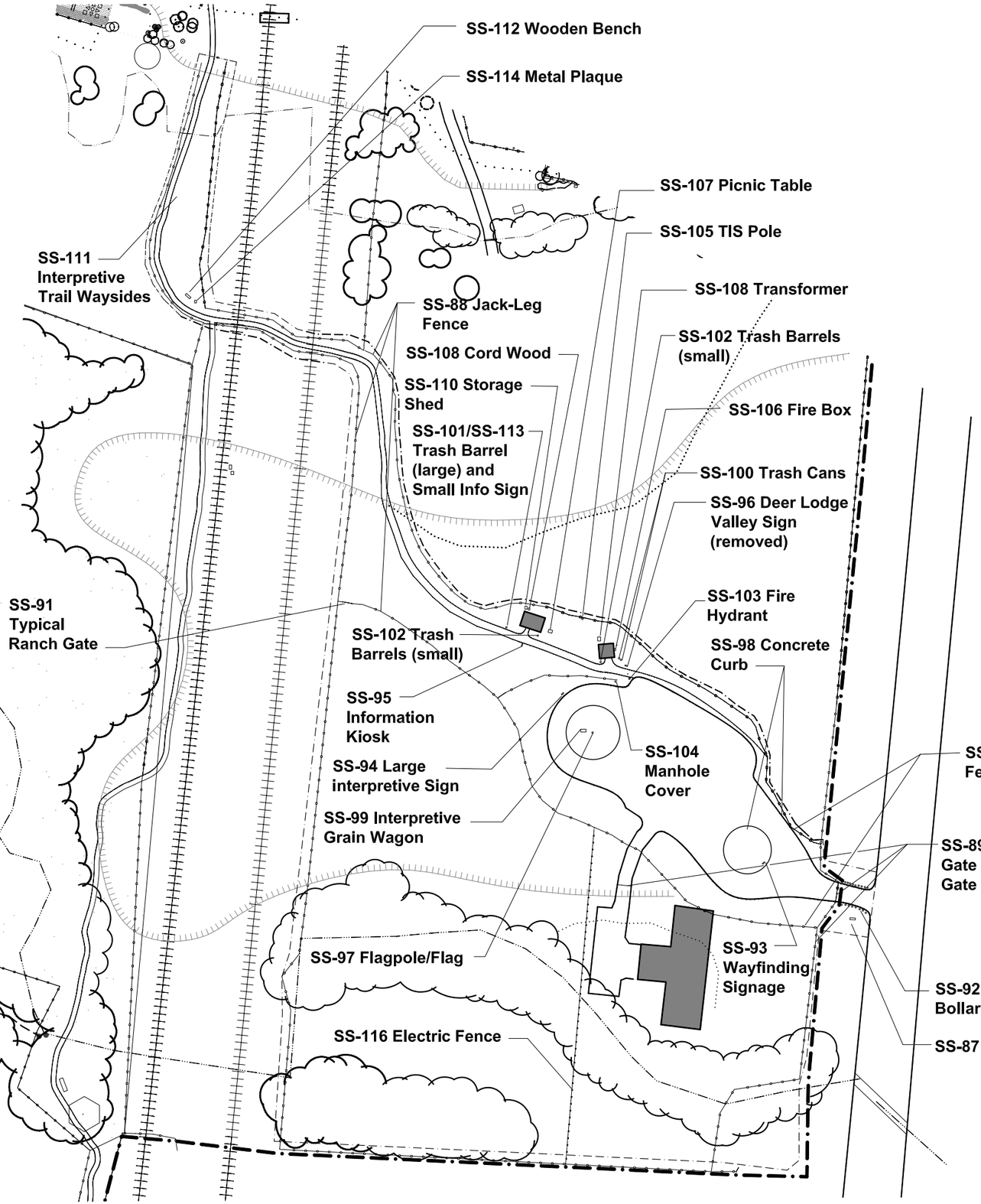
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A/E FIRM PRIME NAME: Susan Maxman Architects CITY, STATE: Philadelphia, PA SUBCONTRACTOR NAME: John Milner Associates, Inc. CITY, STATE: Charlottesville, VA	DESIGNED: DRAWN: JLB, WMW TECH. REVIEW: KLS, RMM DATE: JULY 2004	SUB SHEET NO. EC-42	EXISTING CONDITIONS INVENTORY DEVELOPMENT ZONE **CIRCULATION, SPATIAL ORGANIZATION, AND VIEWS** GRANT-KOHRS RANCH NATIONAL HISTORIC SITE	DRAWING NO. PKG. NO. SHEET OF



Legend:

- Roads
- Railroad
- Lateral Ditches
- Vegetation
- Buildings/ Structures
- Component Landscape Boundary Line
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- GRKO Boundary Line
- Fences
- Old Ditches
- Beaver Lodges
- Streams/Sloughs
- Main Ditches

Not to Scale

Map Sources: Base mapping referenced to Grant-Kohrs Ranch National Historic Site 1994 aerial photographs and Montana 1:24,000 scale State Plane DRG quadrangles. GIS data was exported into Autocad format for production of base maps and further further detailed with additional data collected in the field.

The following data was provided by the National Park Service, Grant-Kohrs Ranch National Historic Site GIS Program (shapefile format), which was compiled 1998 and updated/field-checked by OCULUS/JMA during the October 2002 site visit: fences and gates; boundary lines; utility lines; fire hydrants; irrigation ditches, headgates, pipes, and risers; culverts; river boundaries; roads; railroad tracks; unvegetated slickens and tailings; fields; trails; cottonwood trees; beaver lodges and dams; hydrology; and groundwater monitoring wells. Metadata for this data is avaliable from World Wide Web: [http://www.nps.gov/gis/metadata/grko/]. Wetlands, hypsography (topography), and Montana 1:24,000 scale State Plane DRG quadrangles were derived from Montana State Library Natural Resource Information System, metadata available from: [http://nris.state.mt.us/gis/datalist.html].

A/E FIRM PRIME NAME: Susan Maxman Architects CITY, STATE: Philadelphia, PA SUBCONTRACTOR NAME: John Milner Associates, Inc. CITY, STATE: Charlottesville, VA	DESIGNED: DRAWN: JLB, WMW TECH. REVIEW: KLS, RMM DATE: JULY 2004	SUB SHEET NO. EC-43	EXISTING CONDITIONS INVENTORY DEVELOPMENT ZONE OBJECTS AND SMALL-SCALE FEATURES GRANT-KOHRS RANCH NATIONAL HISTORIC SITE	DRAWING NO. PKG. NO. SHEET OF

Chapter Four: Landscape Analysis and Evaluation

CHAPTER 4: LANDSCAPE ANALYSIS AND EVALUATION

Introduction

The following chapter includes an evaluation of the significance of the Grant-Kohrs Ranch NHS based on the information contained in the site's National Register nomination, the NHL boundary study, and on the site physical history and context documented in Chapter Two. This evaluation explains the relationship of the landscape to National Register criteria, proposed historic contexts, and suggests a period of significance.

The analysis and evaluation section assesses integrity of the cultural landscape, and is based upon a comparative analysis of historic features and existing landscape features. Landscape features are assessed as contributing, supporting, or noncontributing to the significance of the cultural landscape. Missing landscape features dating to the period of significance are also identified. It is important to note that although National Register criteria generally do not apply to landscape features or characteristics (i.e., natural features and systems, topography, vegetation, circulations, spatial organization, etc.), this analysis considers these features in order to assess the holistic integrity of the landscape and the larger natural and cultural context within which the buildings, structures, objects, and sites reside.

Based upon this analysis, the historic integrity of the Grant-Kohrs Ranch is assessed based on integrity of location, design, setting, materials, workmanship, feeling, and association. Three additional criteria relating to biotic resources (species composition, biotic community organization, and land management techniques), which replace material, design, and workmanship, respectively, are also considered where appropriate. Integrity is assessed for the overall landscape, as well as for each of the component landscapes.

Statement of Significance

Summary of Previous Evaluations of Significance

Two recent documents, the National Historic Landmark Boundary Study (2001, Approved 2002) for Grant-Kohrs Ranch, and the National Register of Historic Places Registration Form (Listed 2003) for Grant-Kohrs Ranch/Warren Ranch Historic District evaluate significance for portions of the project area and identify contributing and noncontributing resources based upon National Register criteria. The relevant information contained in these documents is summarized below.

National Historic Landmark Boundary Study, Grant-Kohrs Ranch (2001, Approved 2002)

Grant-Kohrs Home Ranch was designated a NHL on December 19, 1960. The site was identified in a 1959 NHL "Westward Expansion: Cattlemen's Empire" theme study for its association with the lives of John Grant and Conrad Kohrs, and for its association with the growth and development of the open-range cattle industry. The ranch was found to be significant under National Historic Landmark Criterion 1 in the areas of Agriculture and Exploration/Settlement (see page 4-3 for a description of NHL Criteria).

The National Historic Landmark Boundary Study for the Grant-Kohrs Ranch was completed in 2001 and approved in 2002. This documentation defines the boundary of the National Historic Landmark District and identifies both contributing and noncontributing resources. The National

Historic Landmark District boundary encompasses approximately 1,600 acres and is identical to the current boundary of the National Historical Site with the following exception: approximately fifteen-acres along the National Historic Site's southeastern boundary, including the Warren Hereford Ranch and the park visitor contact station, rest room, curatorial storage facility, and parking area, are excluded from the National Historic Landmark District because they do not reflect the period of significance. The National Historic Landmark District was found to be nationally significant under Criterion 1 as "representative and harbinger of sweeping changes in the Great Plains cattle industry." The associated Themes for the National Historic Landmark District have been identified as Agriculture, and Developing the American Economy. The Areas of Significance for the National Historic Landmark District have been identified as Agriculture, and Exploration/Settlement. The period of significance for the National Historic Landmark District has been identified as 1862 – 1919.

The National Historic Landmark District reflects two broad types of cultural landscapes, rural and residential, and includes sixty-eight historic resources, twenty-three of which are identified as contributing, and forty-five as noncontributing due to their association with the later twentieth century Warren era. All sixty-eight of these historic resources are also included within the boundary of the Grant-Kohrs/Warren Ranch National Register District, many of which contribute to the National Register District at a state level of significance. The National Historic Landmark documentation identifies a residential landscape, including the original Grant-Kohrs ranch house building cluster, and a rural vernacular landscape including an extensive complex of supporting agricultural buildings, fencing, corrals, pastures, fields, and railroad beds, as nationally significant. The ranch buildings however, have not been evaluated as 'exceptionally' valuable for the study of a period, style, or method of construction and have not been nominated under National Historic Landmark Criterion 4.

National Register of Historic Places Registration Form, Grant-Kohrs Ranch / Warren Ranch Historic District (Listed 2003)
The Grant-Kohrs Ranch was administratively listed on the National Register of Historic Places in August of 1972 when it was designated as a National Historic Site. This designation identified 34 contributing buildings and 20 contributing structures but did not include a list of these resources. The nomination form, approved in 2003, redefined the boundary and amended the resource count for the National Register District, identifying both 72 contributing and 26 noncontributing resources contained within it. Of these 98 historic resources, some were previously listed on the National Register. Because the National Register District encompassed the National Historic Landmark District and all of its nationally significant resources associated with the Grant and Kohrs period of use between 1862-1919, the National Register documentation focused on the resources of the Grant-Kohrs Ranch National Historic Site that had a state (rather than national) level of significance, specifically focusing on those historic resources associated with Conrad Warren's management of the ranch between 1929-1958.

The National Register District boundary encompasses approximately 1,600 acres and includes all of the National Historic Landmark District. The National Register District also includes the Warren Hereford Ranch parcel and is identical to the boundary for the National Historical Site established in 1972 with the following exception: the park Visitor Contact Area, which includes the visitor contact station, rest rooms, curatorial storage building, and parking areas, is excluded from the National Register District because it does not reflect the period of significance.

The Grant-Kohrs/Warren Ranch District was nominated to the National Register of Historic Places at the state and national levels under Criterion A for its significant associations with the history of agriculture, and under Criterion C for its vernacular architecture (see page 4-5 for a

description of National Register Criteria).[1] The National Register District reflects two broad types of cultural landscapes, residential and rural vernacular, and includes ninety-eight historic resources, seventy-five of which are identified as contributing, and twenty-three as noncontributing.[2] The National Register of Historic Places Registration form identifies two residential complexes, including the original Grant-Kohrs and later Warren ranch house building clusters, and a larger rural vernacular landscape that includes an extensive complex of fencing, irrigation systems, fields, roads and railroad lines. The period of significance for the National Register District is identified as 1929-1958.

Evaluation of Significance by Criteria

A *Guide to Cultural Landscape Reports: Contents, Process, and Techniques* (1998) states that determining the significance of a property "involves relating findings from the site history and existing conditions to the historic context associated with the landscape." The CLR statement of significance that follows assesses individual landscape characteristics and features, as well as the landscape as a whole, within the context of their chronological periods and addresses their relationship to the Criteria and Considerations as set forth in the National Historic Landmark Program and the National Register of Historic Places. The ability of the landscape to convey its significance relates to its level of historic integrity.

Significance by National Historic Landmark Criteria
The National Historic Landmarks Program states that a property shall be designated a National Historic Landmark only if it is nationally significant as established by the qualitative framework provided by the following criteria:

Criterion 1: That area associated with events that have made a significant contribution to, are identified with, or that outstandingly represent, the broad national patterns of U. S. history and from which an understanding and appreciation of those patterns may be gained; or

Criterion 2: That are associated importantly with the lives of persons nationally significant in the history of the United States; or

Criterion 3: That represent some great idea or ideal of the American people; or

Criterion 4: That embody the distinguishing characteristics of an architectural type specimen exceptionally valuable for a study of a period, style or method of construction, or that represent a significant, distinctive or exceptional entity whose components may lack individual distinction; or

Criterion 5: That are composed of integral parts of the environment not sufficiently significant by reason of historical association or artistic merit to warrant individual recognition but collectively compose an entity of exceptional historical or artistic significance, or outstandingly commemorate or illustrate a way of life or culture; or

Criterion 6: That have yielded or may be likely to yield information of major scientific importance by revealing new cultures, or by shedding light upon periods of occupation over large areas of the United States. Such sites are those which have yielded, or which may reasonably be expected to yield, data affecting theories, concepts, and ideas to a major degree.

[1] Several of the historic resources listed on the National Register were found to contribute at both state and national levels of significance, while others were found to contribute at only a state level of significance.
[2] The twenty three noncontributing structures identified in the National Register District are mostly associated with NPS era new construction or historic re-construction.

Based on the research, analysis, and documentation conducted for preparation of this CLR, we agree with the existing National Historic Landmark Nomination and find that the Grant-Kohrs Ranch NHS cultural landscape possesses national significance according to National Historic Landmark Criterion 1 in the areas of Agriculture and Exploration/Settlement. This significance is summarized below.

The Establishment and Growth of the Home Ranch and the Development of the Ranching Industry on the Northern Plains, 1862-1919.
After several years of wintering his cattle in the luxuriant grass covered Deer Lodge Valley, Johnny Grant permanently settled at the confluence of the Deer Lodge River and Little Blackfoot Creek in 1859. By 1861, he had moved to a bluff overlooking the Clark Fork River, establishing what would subsequently become the Grant Kohrs National Historic Site Home Ranch. During the early 1860s, Grant had laid out the larger spatial relations at his home ranch that were to guide its future agricultural and ranching development through to the twentieth century. Beyond the domestic core, Grant established a vegetable garden, an irrigated field system within the rich bottom lands adjacent to the Clark Fork River, and an extensive fenced pasture land on both sides of the Clark Fork River. The incipient Open Range grazing system, a direct descendent of the cattle trade that flourished under the 'road ranch system' during the 1840s and 1850s, clearly benefited Grant and other regional pioneer ranchers of the northern plains. During his brief tenure in the Deer Lodge Valley, Grant continued to sell and trade horses and cattle with local residents, regional miners, American Indians, U. S. Military expeditions, and immigrants moving west. Grant's livestock trading activities, and the economic relationships he helped to establish, laid the foundation for the corporately dominated Open Range cattle industry that followed.

Conrad Kohrs first came to the Deer Lodge Valley in 1861. Within a few short years, he had purchased Johnny Grant's ranch and owned nearly all of the cattle in the region. Early on, most of the cattle owned by Kohrs supplied his chain of regional butcher outlets, which depended upon the business of gold miners. As the gold miners moved elsewhere by the late 1860s, Kohrs turned exclusively to ranching and cattle breeding. With the help of a number of associates and relatives, Kohrs was able to turn his butcher stock into a highly organized and productive beef ranch dependent on both Open Range, and fenced pasture and cropland.

Conrad Kohrs, and his partner and half-brother John Bielenberg, adopted several key practices that led to their success in livestock ranching. In 1872, Kohrs and Bielenberg purchased larger herds of Longhorn and Shorthorn cattle in an attempt to improve their own stock. By the late 1870s, Kohrs and Bielenberg also purchased thoroughbred and Clydesdale stallions, the former was acquired in an attempt to breed a better ranch horse. During the early 1880s, Kohrs and Bielenberg also imported Hereford and Angus cattle and over the course of a number of years made several breeding experiments. By the mid-1880s, Kohrs and Bielenberg had begun to sell both purebred cattle and horses to local and regional ranchers, thereby improving the overall product of the region wide ranching industry.

Kohrs and Bielenberg were quick to take advantage of any strategy that would benefit their ranch. During the early-to-mid 1880s, Kohrs and Bielenberg abandoned the long cattle drives of the past in favor of convenient railroad stock cars. Kohrs took advantage of the new rail transportation system that linked his ranch to the stockyards of Chicago. The resultant relationships established with Chicago merchants would aid Kohrs in the years to come. Likewise as ranchers began to realize that the Open Range could not support an ever increasing amount of stock, those with foresight adapted. As a result of overgrazing and the hard winter of 1886-1887, Kohrs and Bielenberg adapted by sending their herds farther afield for new range, turning to pooled herds, and adopting pasture ranching and expanding the amount of acreage they owned within and

beyond the Deer Lodge Valley. Simultaneously they also increased their purchase of grain seed and production of native hay. By the first quarter of the 20th century, the Open Range as many regional ranchers had known it had ceased to exist.

While the majority of day-to-day ranch activities were oriented towards the large-scale sale of beef cattle, the Kohrs-Bielenberg Ranch was well diversified, as were Kohrs and Bielenberg individually. The breeding and sale of working, thoroughbred, carriage, imported Clydesdales, Shires and Norman Coach horses, and purebred Shorthorn and Hereford bulls and herd-sires was an integral part of their business.

The physical features of the National Historic Landmark landscape directly reflect the efforts of Grant, Kohrs and Bielenberg in carrying out their ranching activities. The Grant-Kohrs ranch house served as home for Johnny Grant and Conrad and Augusta Kohrs and also doubled as office headquarters for the ranch, with nearby outbuildings supporting the business operations and domestic requirements. Immediately surrounding the residential complex are a number of vernacular barns, sheds, corrals and fencing that served the day to day needs of livestock management. The construction and materials used in these and other structures directly reflects the utilitarian needs and functioning of the ranch, and the successful livestock management strategies of Grant, and subsequently Kohrs and Bielenberg. Further afield are the numerous pastures, fields, fences, and irrigation systems that reflect the evolution and changing use of the larger ranch landscape. This rural landscape directly reflects the transformation from a nearly exclusive Open Range system of ranching, to one that depended more heavily on the development and irrigation of pasture and crop land.

Many of the challenges that Grant, and Kohrs and Bielenberg faced between 1861 and 1919 were identical to those sweeping the ranching industry in the larger northwest. Hard winters, cattle theft, disease, overgrazing and decimation of the Open Range posed problems for all cattle ranchers. In this sense, the Grant-Kohrs Ranch is representative of the cattle ranching industry of the greater northwest. However, in the long-term success of Grant and Kohrs and Bielenberg, the Grant-Kohrs Ranch is also an example of adaptation and the ability to meet the challenges of an increasingly changing industry. As operators of one of the largest ranches in Montana and the larger northwest, Kohrs and Bielenberg were leaders in local and state wide politics and as an advocate for the enhancement and expansion of the regional cattle ranching business.

Significance by National Register Criteria

The National Register of Historic Places states that to be eligible for listing, a property must meet one or more of the following criteria:

Criterion A:	Be associated with events that have made a significant contribution to the broad patterns of our history; or
Criterion B:	Be associated with the lives of persons significant in our past; or
Criterion C:	Embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
Criterion D:	Have yielded or be likely to yield information important in prehistory or history.

National Register Criteria

The National Register documentation identified the Grant-Kohrs/Warren Ranch District as possessing significance at a state and national level under Criterion A for its significant associations with the history of agriculture, and at a state and national level under Criterion C for its vernacular architecture. The National Register District predominantly focused on the Warren era historic resources that had a state level of significance, but also included all 68 historic resources (23 contributing, 45 noncontributing) that were previously identified as part of the National Historic Landmark District. Based on the research, analysis, and documentation conducted for the preparation of this CLR, we agree with the National Register documentation that the Grant-Kohrs Ranch NHS cultural landscape has been found to possess significance according to National Register Criterion A at a state and national level, and Criterion C at a state and national level, but also find that the Grant-Kohrs Ranch NHS cultural landscape possesses significance according to Criterion B at both a state and national level. The areas of significance associated with Grant-Kohrs Ranch National Historic Site include Agriculture, Architecture, and Engineering. This significance is summarized below.

Criterion A: Association with events, activities or trends that have made a significant contribution to the broad patterns of our history

Grant-Kohrs Ranch National Historic Site possesses significance at a state and national level for its association with events that have made a significant contribution to the broad patterns of our history. In addition to the theme 'Establishment and Growth of the Home Ranch and the Development of the Ranching Industry on the Northern Plains, 1862-1919' identified in the National Historic Landmark significance statement, we also recommend that the Grant-Kohrs Ranch National Historic Site be considered significant at a state and national level for its associations with modern ranching techniques and practices. These events are summarized below.

Modern Ranching: The application of scientific agriculture and advances in veterinary medicine, 1929-1982
After conducting historical research associated with the Cultural Landscape Report, the authors find that the Grant Kohrs Ranch National Historic Site may possess significance at both state and national levels for its associations with modern ranching techniques and practices. The authors recommend redesignation of the National Historic Site under this category at a state and national level. Between 1929 and 1982, Conrad Warren, the grandson of Conrad Kohrs, took on the management and operation of the Conrad Kohrs Co. Ranch. General ranch operations and the physical changes made to the cultural landscape during this period may be characterized as an application of modern scientific ranching practices in the fields of both agriculture and livestock management.

Like his grandfather, Conrad Warren was first and foremost a product of his generation. Sent to the University of Virginia in the mid-1920s to study medicine, Warren thrived but eventually left college to follow his true desire, ranching. Between 1926 and 1928, Warren spent summers at the Kohrs ranch as one of several ranch hands. By 1928 he had begun working at the ranch full time and in late 1931 had taken over as its manager. From 1932 on, Warren was to direct the ranch's development according to his own standards. Perhaps a result of his medical background at the University of Virginia, one of the hallmarks of Warren's herd management was the application of modern science and improved veterinary medicine to increase the overall productivity and economic value of his livestock and to maintain the general health of his herds. Warren's purebred registered herds of Belgians and Herefords required selective breeding, the constant maintenance of siring and birth records, and the selective isolation and feeding of bulls and cows,

and stallions and mares. Warren vaccinated his livestock and regularly tested for the presence of diseases such as tuberculosis, cholera, and brucellosis. As a successful breeding program was integral to the bottom line, Warren and his ranch hands also tested cows and mares for pregnancy and assisted where necessary in birthing and early nourishment of calves and foals. Shortly after World War II, Warren became interested in the manipulation and blending of feeds. During this period he conducted several scientific tests by feeding certain cattle on purchased grains and others on range grassland and hay. The results were compared in terms of both cost and end product. Understanding that he could not effectively compete with much larger cattle operations nationwide, Warren eventually joined the corporate ranching system after the dispersal of his Hereford herd in 1958. This was likely a natural move for Warren as the consolidation and streamlining of the nationwide cattle industry utilized many of the same ranching strategies that he did, including improvement of pasture grass and crop yields through irrigation and fertilization, and a greater reliance on grain feed to fatten cattle. Between 1958 and 1963, Warren engaged in the finishing business, fattening commercial feeder cattle. By 1963 he raised yearling steers and three years later was raising cows and calves.

The changes to the Warren Ranch landscape during this period reflect his approach to modern livestock management. The construction of the numerous bull barns and extensive corrals, pens, cow sheds, and feeding troughs are based in the philosophy of modern cattle management and the need to isolate breeding herds that Warren brought to the ranch.

Warren came to ranching in the second quarter of the twentieth century, a time which saw the implementation of a number of federal, state, and local programs that were designed to stimulate agricultural production by educating farmers nationwide on modern principles and practices, and the conservation and improvement of range and pasture soils. Warren took full advantage of these programs, using them to improve the productivity of his grazing and hay lands, to restore productivity in abandoned lands, and to adapt to the rapidly changing requirements of cattle production in the twentieth century. Like many other farmers, Conrad Warren adopted a rigorous schedule of crop rotation to get the most benefit from his fields, planting crops that did well in drought like conditions and ones that were also essential to the survival of his livestock. Because dry cropping was not economically feasible, irrigation played an important role in the ranch's expansion. Warren improved upon the earlier system of irrigation ditches provided by his grandfather. By the late 1930s he had created a new system of contour irrigation ditches on the west side of the Clark Fork River that relied upon intermittent drainages. This system was enhanced with the addition of a water pump in 1940, and subsequent to that, another one in the early 1960s. Warren also reclaimed the once productive bottom lands adjacent to the Clark River polluted by mine waste. During the 1940s he plowed these lands and added compost and other organic additives, slowly reviving his bottom lands. In addition, the second quarter of the twentieth century saw the widespread adoption of mechanization on farms of all sizes. As soon as Warren realized that the era of horse power on American farms had ended, he sold his herd of purebred registered Belgians. Warren immediately recognized the advantages of mechanization and new technology and applied them where appropriate at the Warren Ranch. Warren also took advantage of a U.S. Forest Service policy that allowed ranchers to graze their livestock on federally owned land. Warren applied for and received a U.S.F.S. grazing allotment on the east side. The allotment supplemented his own range and allowed him to increase the limited carrying capacity of his home ranch.

The physical features of the National Register landscape directly reflect the efforts of Warren in implementing his modern ranching practices. He molded the existing ranch infrastructure to his own needs, demolishing irrelevant and deteriorated structures, updating many with more modern facilities, and building new components that greatly enlarged the utilitarian landscape. The form

and materials used in much of the new construction, frame and concrete, directly reflect the business of a modern cattle breeding and selling complex. The changes to the larger landscape of fields and pasture during this period reflect Warren's application of both science and technology in the expansion and reclamation of agricultural fields. Nearly all of the irrigation ditches on the west side that are still in use today date from the late 1930s through the 1940s when Warren redesigned the existing irrigation system to incorporate new grading and contour ditching, while simultaneously increasing the flow of water throughout the system via pumps. Between the late 1930s and the mid-1950s, Warren also dramatically increased the acreage of irrigated fields and pasture. The productivity of the extensive fields and meadows lining the Clark Fork River now used for grazing and cultivation are a direct result of Warren's efforts at reclamation during the mid-twentieth century.

Due to an increasing bank debt, Warren made the decision to disperse his registered Hereford herd at auction in 1958. After the dispersal auction, Warren subsequently entered the business of feeding and selling (finishing via feedlot) commercial Herefords (feeder cattle) to stockyards, ultimately managing a herd of about 350. By mid-century, as large corporate feed lots began to dominate the cattle business, Con Warren continued to adapt to the times. In 1963, Warren sold his small herd of commercial feeder cattle and entered the yearling steer business. He continued raising yearling steers until 1966 when he shifted to raising cows and calves. Small ranching operations like the Warren Hereford Ranch could not meet the economies of scale demonstrated by corporate feed lots. Ultimately in 1982, Warren sold his remaining stock and ranching equipment and ceased active ranching.

The Warren Ranch is recommended as significant at a national level because it represents the modernization of cattle ranching and the growth of corporate feed lot ranching during the second and third quarters of the twentieth century, periods when sweeping changes dramatically impacted the cattle industry. In order for the Grant-Kohrs Ranch/Warren Ranch to be evaluated as nationally significant, the Keeper of the National Register and NPS National Historic Landmark staff have determined that such a finding would require a national theme study of twentieth-century cattle ranches. This theme study would evaluate the Grant-Kohrs Ranch/Warren Ranch within the broader national context of ranching and agricultural activities in the West, and would need to evaluate the Grant-Kohrs Ranch/Warren Ranch in terms of its significance and physical integrity, as compared to all other historic twentieth century cattle ranches. This process is identical to the theme study that resulted in the designation of Grant-Kohrs Ranch as a National Historic Landmark (for its associations with the open range era of cattle ranching) in 1960. The authors of this Cultural Landscape Report recommend that such a twentieth-century ranching theme study be completed, and believe that it may result in a recommendation of national significance for the Conrad Warren-era resources at the ranch.

Many of the challenges that Warren faced between 1929 and 1982 were identical to those faced by the ranching industry in the larger Northwest: the Great Depression, the region wide drought in the 1930s, the need for scientific management and monitoring of livestock, price caps for beef during the war years, and the influence of increasingly dominant corporate economies of scale. In this sense, the Warren Ranch and the physical features that compose the cultural landscape today are representative of the cattle ranching industry of the greater northwest. Like his grandfather, Warren too met these challenges and ultimately persevered, placing his own personal stamp on the ranching business. Warren's choice to use modern veterinary science to advance his ranching interests, to take advantage of state and federal programs that enabled him to expand his cultivated fields and pasture, and his ability to adapt to and succeed in an increasingly streamlined birth-to-market cattle industry make the Warren Ranch a nationally significant property.

Criterion B: Association with an Important Individual

The existing National Register documentation did not find that the Grant-Kohrs Ranch / Warren Ranch historic district possessed significance according to Criterion B. We believe that the Grant-Kohrs Ranch National Historic Site possesses significance at both a state and national level for its association with three important individuals significant to the cattle ranching industry. The significance of these individuals are summarized below.

Johnny Grant
Even though the Grant-Kohrs Ranch is designated as a NHL under Criterion 1, and listed on the National Register under Criteria A and C, the authors recommend that the site be further evaluated for significance at a state level for its association with the life of Johnny Grant. Like his father, Johnny Grant originally profited from trading fattened and rested cattle with emigrants traveling the Oregon Trail for their worn out livestock. Johnny Grant first came to the Deer Lodge Valley in 1857 when he wintered his growing herd of horses and cattle there. He eventually settled in the Deer Lodge Valley permanently in 1859 at the confluence of the Little Blackfoot Creek and the Deer Lodge River, only twelve miles north of the Grant-Kohrs Ranch NHS. After encouraging other trappers to settle in the Deer Lodge Valley, Grant eventually moved closer to the small but growing community called Cottonwood. In 1862, Johnny Grant formally established his ranch at Cottonwood with the construction of a Greek Revival style vernacular ranch house, surrounded by a cluster of agricultural outbuildings and livestock facilities. Grant's wealth enabled him to construct a ranch house acknowledged by many as one of the finest in the territory.

Johnny Grant must be considered a pioneer in many respects. He was the first European to graze his cattle on the luxuriant bunch grass present in the Deer Lodge Valley. He was also the first European to permanently settle in the Deer Lodge Valley. Circa 1859-1860, Grant became the first Montanan to drive a portion of his cattle herd westward for sale in a distant market. During the early 1860s, he had a strong relationship and carried on an extensive trade with a number of regional Indian tribes. With the advent of the gold rush circa 1862 in the Montana Territory, Grant supplemented his trading with extensive beef sales to local mining communities. Grant eventually sold his ranch to Conrad Kohrs and left the Deer Lodge Valley in 1866.

Conrad Kohrs
Even though the Grant-Kohrs Ranch is designated as a NHL under Criterion 1, and listed on the National Register under Criteria A and C, the authors recommend that the site be further evaluated for significance at a national level for its association with the life of Conrad Kohrs. Conrad Kohrs arrived in Montana in 1862 but only four years later could make the claim of being one of the largest cattle ranchers in the Territory. Kohrs' business prowess was a positive influence on cattle ranching in Montana and the larger northern plains during the late nineteenth and early twentieth centuries. Through his constant pursuit of breeding sturdier, more marketable cattle, Kohrs provided guidance to regional ranchers and actively shaped the direction of herd improvement and breed development throughout the larger region. Conrad Kohrs was also actively involved in the organization and supervision of the Montana Stockgrowers Association, established in 1884. The Montana Stockgrowers Association served to advance the interests of all Montana cattlemen at the state and federal levels and also provided information on day-to-day herd management problems such as disease prevention and minimizing losses on the Open Range. Kohrs was also a member of the first Montana Congress in 1884. This Congress was given the label 'Cowboy Congress' because of the number of representatives who were ranchers. With the increased numbers of Texas cattle arriving on Montana's Open Range throughout the 1880s Conrad Kohrs, like a number of other regional ranchers, became concerned about the

preservation of the grasslands and discussed ways in which the valuable pasturage could be conserved. While Kohrs cattle operation was centered in the Deer Lodge Valley, he was always knowledgeable of ranching beyond western Montana. Kohrs frequently purchased large herds of cattle from Texas, Idaho and other nationwide cattle centers to provide new genetic stock for his own herds. He also grazed his large herds in four states and Canada where the Open Range promised better opportunities. In addition, Kohrs took advantage of late nineteenth century rail access and was one of the first to ship his cattle directly to the Midwest, establishing a long-term and lucrative business relationship with the Chicago stockyards.

As a leader in the development and direction of the late nineteenth century ranching industry at both the regional and national levels, Kohrs should be recognized as a significant individual to the cattle ranching industry.

Conrad Warren
Even though the Grant-Kohrs Ranch/Warren Ranch is listed on the National Register under Criteria A and C, the authors recommend that the site be further evaluated for significance at a national level for its association with the life of Conrad Warren. Warren began working at his grandfather's ranch as a ranch hand in the mid-1920s, but by 1932 was in charge of its day to day operations. His impact was immediately felt as he actively began to acquire new lands adjacent to the ranch to support additional crop and pasture land. Inefficient or old ranching facilities were torn down and new ones erected.

Between 1932 and 1934, a new ranching cluster consisting of stock shelters, feeders and corrals was constructed adjacent to slough bridge, extending the ranching operations westward. By the early 1950s, Warren moved his purebred Hereford ranching operation east of the railroad tracks to higher ground. During this period he built modern cattle management facilities including cattle sheds, feed racks, corrals, and a new cattle barn and sales barn that facilitated his purebred Hereford operation.

Warren initiated the artificial insemination breeding of Belgian horses in the early 1930s. His successful efforts to breed and sell registered Belgian horses introduced this breed to Montana and the larger northwest, and from a strictly financial perspective carried him through the Depression. Ever adaptable, when Warren realized that tractors had come to dominate farming, Warren sold the majority of his Belgian herd, keeping only a few to work his own land. From a small remnant herd of Hereford and Shorthorn cattle, Warren also built up a purebred registered Hereford cattle herd during the fourth and fifth decades of the twentieth century. As a result, he became a major regional supplier of bulls and heifers. Warren was particularly important to ranching in Montana and the larger northwest because he adopted modern, scientific livestock management techniques. On a daily basis he closely monitored the feeding, general care and health of his purebred livestock, and also kept detailed records of siring and birth, practiced artificial insemination, and regularly inoculated his animals against the major health risks of the period including Black Leg and Bang's disease.

Beginning the late 1930s, Warren began to re-engineer land he had acquired on the West Side so that it could be irrigated through the pump and ditch system. In the process he graded and contoured the land and created lateral or contour ditches. Irrigation allowed him to increase crop fields and pasturage. Warren planted many of the West Side fields in grain. After his purchase of the Kohrs Ranch in 1940, Warren began a program of range and pasture improvements initiated by the federal Agricultural Conservation Program. At the Warren Hereford Ranch he reclaimed fields adjacent to the Clark Fork River by implementing soil conservation practices, adding

fertilizers, and planting cover crops. Lastly, by 1954 Warren also initiated a handline irrigation system to reclaim land adjacent to the railroad tracks.

After the sale of his purebred herd in 1958, Warren entered the stockyard system, providing fattened commercial livestock to larger corporate entities. Throughout the 1960s, Warren continued to raise both yearlings, and later cows and calves on his ranch. He ceased active ranching in 1982.

Over the course of his career as a Deer Lodge Valley rancher, Conrad Warren accomplishments proved that he was adaptable to changing conditions and readily adopted new techniques and practices that would advance his interests. Warren also actively promoted the interests of others providing veterinary services to local ranchers, serving as president of the Montana Stock Growers Association, serving on the State Sanitary Board, registering auction yards and brand inspectors, and ensuring Indian registration of brands.

Criterion C: Embodies the Distinctive Characteristics of a Type, Period, or Method of Construction, or Represents the Work of a Master.

In order for the Grant-Kohrs Ranch/Warren Ranch to be evaluated as a nationally significant, the keeper of the National Register and the National Park Service National Historic Landmark staff have determined that such a finding would require a national theme study of twentieth century cattle ranches. This theme study would evaluate the Grant-Kohrs Ranch/Warren Ranch within the broader national context of ranching and agricultural activities in the West, and would need to evaluate the Grant-Kohrs Ranch/Warren Ranch in terms of its significance and physical integrity, as compared to all other historic twentieth-century cattle ranches. This process is identical to the theme study that resulted in the designation of Grant-Kohrs Ranch as a National Historic Landmark (for its associations with the open range era of cattle ranching) in 1960. The authors of this Cultural Landscape Report recommend that such a twentieth-century ranching theme study be completed, and believe that it may result in a recommendation of national significance for the Conrad Warren era resources at the ranch. Two significant landscape types, residential and rural vernacular, are summarized below.

The Grant - Kohrs residential landscape
The Grant-Kohrs residential landscape possesses significance at a national level for because it embodies the distinctive characteristics of a type and period of construction. In 1862, Johnny Grant built two small log structures adjacent to one another just north of the town of Cottonwood. During the same year, the structures were described as being “a good sized log House, or rather two joined together.” At the end of 1862, he contracted with two workmen, Alexander Pambrun and McLeod, to have a more formal Greek Revival Style ranch house constructed on the same site. In 1865, the *Montana Post* described the grand residence as “by long odds, the finest in Montana …large and two-storied …as if it had been lifted by the chimneys from the bank of the Saint Lawrence and dropped down in Deer Lodge Valley. It has twenty-eight windows, with green painted shutters, and looks very pretty.” The ranch house was a log house, thirty by sixty-four feet in dimension. “The building is of poteaux en coulisse construction, a French phrase for a system of log construction that includes other terms such as ‘Red River Frame,’ piece-sur-piece, or mortise and tenon log construction. It is also sometimes known as ‘Hudson’s Bay Frame’ construction. …In the case of the Grant residence, the uprights were set on a sill plate and infilled with horizontal log mortise and tenoned into the uprights; the wall was then capped with a header

or top plate."[3] Conrad Kohrs purchased the Grant ranch in 1866. By 1890, several new additions complimented the original historic core including a formal front entry, four vestibules, and a two-story brick Victorian addition with full basement. By 1907 at the latest, a conservatory addition for Augusta Kohrs was added on the south side. The 1890 Kohrs brick addition is set on a rough dressed stone foundation with mortar infill. The ranch house appears today much as it did in 1890.

Between 1880 and 1890, the landscape surrounding the ranch house was further developed. By 1880 a formal grid-like pattern of cottonwood trees had been planted on the eastern or front side of the house. Late nineteenth century photographs document that the trunks of these trees were eventually painted white for pest control. Underlying the trees was an expanse of grass. The trees and grass received the benefit of a wooden flume irrigation system in the early 1880s that drew from Johnson Creek and emptied into a submerged wooden barrel. In addition a small informal flower garden with stone retaining wall had been established on the south side of the ranch house. Access to the garden was from the east. By the mid-1880s, a white picket fence surrounded the eastern, southern and part of the northern sides of the ranch house, formally demarcating the domestic area from the more utilitarian ranch. Two hitching posts and carriage steps were also added sometime during this period.

At the time of its construction in 1862, the ranch house was indeed an atypical structure for western Montana and was perhaps indeed was the largest and the 'finest' in the Montana Territory. While fairly typical in layout, the clapboard veneer painted trim ordered by Grant differed from other log structures both within and beyond Deer Lodge and established that the owner possessed somewhat more refined tastes in architecture. The creation of a more formal landscape surrounding the ranch house by Conrad and Augusta in the 1880s, and the subsequent structural enhancements and brick addition in 1890 transformed the residence into a beautiful example of Victorian refinement.

For the majority of its tenure, the ranch house not only served as a primary residence for Conrad and Augusta, but also served as the ranch's main office where the business of ranching took place. John Bielenberg was also a resident of the house and a partner in the ranching operation. In this sense, the ranch house was also significant as a base of operations for one of the largest cattle ranching operations in nineteenth century Montana.

The Warren residential landscape

The Warren residential landscape possesses significance at a state level because it embodies the distinctive characteristics of a type and period of construction. With funds provided by his grandmother, Augusta Kohrs, Conrad and Nellie Warren constructed a new frame and stucco 'cottage' and adjacent garage on property due east of the ranch house in 1934. The design for the cottage was produced by New York architect Lewis E. Welsh and was published in a 1933 *Woman's Home Companion* article. The one and a half story structure was an example of a colonial style rural ranch home designed in response to Progressive Era reform and the Domestic Economy movement of the early 20th century. The residence and detached garage, as defined by Welsh, combined the conveniences and necessities of city living in a country home. The Warren residence was enlarged and expanded in 1941 when the roof was raised to create a full second story and a porch on the east side was enclosed and expanded. In 1947, an article in the *Westerner* described the Warren residence as a "modern ranch home."[4]

[3] National Park Service, "National Register of Historic Places Registration Form, Grant-Kohrs Ranch / Warren Ranch," 7-17.

[4] Cultural Resources and National Register Program Services, "Conrad and Nellie Warren Residence, Historic Structure Report, Grant-Kohrs Ranch NHS," (Santa Fe: Intermountain Support Office, 2001), 5.

Shortly after its construction, Con and Nellie Warren began work on the landscape surrounding the new residence. A white picket fence enclosed the immediate yard area on all sides. Nellie added a garden on the west side, and in 1940 a chicken coop was constructed outside of the picket fence, immediately west of the residence. It was not until 1950 that Con also constructed a boat house southwest of the residence. Simultaneous with the construction of the residence, a well was also dug. The well provided water to the house but also irrigated the garden and surrounding vegetation including assorted native and non-native trees, and an expanse of grass. The resultant lush green space created a sheltered and comforting oasis within the larger arid ranch environment. A frame pump house was subsequently built over the well in 1952 and a barbecue pit graced the eastern side of the fenced enclosure by 1958.

The Warren residence is an example of a first quarter of the twentieth century progressive movement that placed a greater emphasis on convenience, health and comfort in the home. The residence appealed to both Con and Nellie. The house exterior possessed simple colonial style lines, however, the interior was designed with modern conveniences including electricity, plumbing and heating and had craftsman-like features such as exposed beams in the ceiling. As reported in 1934, the 'modern improvements' contained in the house would have fit in with the progressive social norms for modernization sweeping rural America.[5]

The Grant-Kohrs Ranch rural vernacular landscape

The Grant-Kohrs Ranch vernacular landscape possesses significance at a state and national level because it embodies the distinctive characteristics of a type and period of construction. The rural vernacular landscape of the 1870s Grant-Kohrs Ranch was designed upon the needs of the ranching industry. Because the Open Range was still a viable if not diminishing option that was utilized by many ranchers through the late nineteenth century; the home ranch's own development was comparatively limited during the 1860s and 1870s. The ranch house and surrounding domestic landscape was clearly separated from the surrounding ranching complex. A few large irrigation ditches watered pastures for grazing--and later haying--on the floodplain lowlands; jack-leg fencing utilizing the plentiful lodge pole pine was erected throughout the ranch to keep cattle in or out of fields, pastures, and other areas; and a limited number of stock shelters, barns, corrals and other livestock support structures were built out of local materials, utilizing log, post and pole, or frame construction, west and north the ranch house. As the loss of a viable Open Range transformed ranching during the last decade and a half of the nineteenth and first two decades of the twentieth century, the development of the home ranch changed in response. From the 1880s onwards, Kohrs and Bielenberg began to place a greater emphasis on growing more hay and other grains and/or purchasing what they needed for winter feed. This directly translated into a greater dependence on irrigated lands and an increase in the amount of cultivated fields and irrigated pasture. By the 1890s and through the first two decades of the twentieth century, the home ranch grew in size as adjacent lands were purchased. Likewise, the quantity of fenced land grew and the type of fencing changed. By 1904, the entire Grant-Kohrs Ranch had been fenced with barbed wire. By the turn of the nineteenth century new structures that represented the changing ranching practices, including granaries, feed racks and cow sheds, began to be constructed with greater frequency at the home ranch.

While Conrad Warren clearly developed and expanded upon the Grant-Kohrs Ranch vernacular landscape, much of the original late nineteenth century spatial relations including the system of irrigation ditches, fields, pastures, building clusters, pedestrian and vehicular circulation routes, and viewsheds remain the same.

[5] Cultural Resources and National Register Program Services, "Conrad and Nellie Warren Residence, Historic Structure Report, Grant-Kohrs Ranch NHS," 2.

The Warren Hereford Ranch rural vernacular landscape

Even though the Warren Hereford Ranch is listed on the National Register under Criterion C, the authors recommend that its vernacular landscape be further evaluated for significance at a national level. The success of Conrad Warren's ranching tenure was dependent upon his ability to improve the existing facilities of the home ranch and adapt them to changing socio-economic conditions, expand the amount of pasture and crop land he had access to, and overhaul the aging irrigation system. The built environment of the larger cultural landscape, including the vernacularly designed and constructed barns, sheds, feeding houses and troughs, fences, corrals, and circulation and irrigation systems reflect the modern ranching practices adopted by Warren in style, materials, spatial organization, and function. Between 1932 and 1958, Conrad Warren's ranching operations focused nearly exclusively on the home ranch and the management of purebred and registered Hereford and Belgian herds. Because of this, Warren required a larger, more complex system of livestock shelters, feed lots, corrals, and circulation and irrigation systems than his grandfather. The adaptations he made to pre-existing buildings, structures and other landscape features and the extensive new construction carried out during his tenure directly reflected the needs of a mid-twentieth century modern cattle raising and sales operation. Warren utilized the existing building clusters and spatial relationships established in the previous century, but also expanded upon them establishing new circulation routes and building new ranching clusters. Many of Warren's physical improvements utilized modern technology and materials such as concrete, metal, and powerful water pumps--items previously unavailable to a former generation of cattle ranchers. The circulation systems and field patterns in the West Side and along the Clark River bottomlands developed by Warren during the 1930s through 1950s also reflect a renewed emphasis upon the expansion of irrigated acreage and increased production of feed crops and native hay through the efficient re-engineering of an outdated irrigation system and the reclamation and reuse of abandoned and poisoned fields and pastures. The current productivity of these areas must be credited directly to the developments initiated by Con Warren during this period.

Periods of Significance

According to the *National Register Bulletin: How to Prepare National Historic Landmark Nominations*, a period of national significance is defined as "the length of time when a property was associated with nationally significant events, activities, and persons, or attained the national characteristics which qualify it for designation as a NHL."[6]

National Register Bulletin 30: Guidelines for Evaluating and Documenting Rural Historic Landscapes offers further guidance:

> "Period of significance is the span of time when a property was associated with important events, activities, persons, cultural groups, and land uses, or when it attained important physical qualities or characteristics.
>
> The period of significance begins with the date of the earliest land use or activity that has importance and is reflected by historic characteristics tangible today. The period closes with the date when the events, activities, and construction having historic importance ended. Properties that have evolved and achieved importance during separate periods, some spanning several hundred years, should be given several periods of significance."[7]

Based on an evaluation of the CLR's physical history and historic context, the authors recommend a period of significance of between 1862 and 1982 for the Grant-Kohrs Ranch National Historic Site. The 1862-1982 period of significance includes two sub-periods. The first period of significance, as identified in the National Historic Landmark Boundary Study, begins with the establishment of the Johnny Grant ranch in 1862 and ends with the dissolution of Kohrs and Bielenberg cattle empire in 1919. The second period of significance, as identified in the National Register documentation, begins with Conrad Warren's arrival at the Kohrs Ranch in 1929 and ends with his retirement from active ranching in 1982. This end date of the period of significance extends the end date of the period identified in the National Register documentation (1958) to include the ranching adaptations that Warren made to adjust to economic conditions until his retirement in 1982. These ranching adaptations made by Warren, and the physical features of the Warren Ranch cultural landscape that supported them, are characteristic of small rancher responses to increased corporate control and the implementation of the feedlot system nationwide. During a period of sweeping change in the ranching industry in the greater northwest, the actions of Conrad Warren and the physical features of the Warren Ranch cultural landscape are representative of the larger region and nationwide context of ranching during the mid-twentieth century.

Criteria Consideration G

Because a limited number of contributing resources within the Grant-Kohrs Ranch/Warren Ranch Historic District have achieved significance within the last fifty years, it is our opinion that the standards of Criterion Consideration G need not be met. Criterion Consideration G states that a

[6] Patty Henry, et al., *National Register Bulletin: How to Prepare National Historic Landmark Nominations* [online document]. Washington, D.C. (US Department of the Interior, National Park Service, 1999) (Accessed March 31, 2003). Available: http://www.cr.nps.gov/nr/publications/bulletins/nhl/.

[7] Linda Flint McClelland, et. al., *National Register Bulletin 30: Guidelines for Evaluating and Documenting Rural Historic Landscapes*. [online document] (U.S. Department of the Interior, National Park Service, 1999) (Accessed March 31, 2003). Available: http://www.cr.nps.gov/nr/publications/bulletins/nrb30/.

property achieving significance within the last fifty years is eligible only if it is of exceptional importance. As defined in the National Register Bulletin 'How to Apply the National Register Criteria for Evaluation,' a property does not need to meet Criteria Consideration G if:

> A historic district in which a few properties are newer than fifty-years old, but the majority of properties and the most important Period of Significance are greater than fifty-years old.

Comparative Analysis of Historic and Existing Conditions by Landscape Characteristics

Introduction

In order to better understand the relationship between the existing Grant-Kohrs Ranch NHS landscape and its character during its periods of significance, this chapter includes a comparative analysis of historic and existing conditions. The focus of this section is on identifying the broad patterns and specific features associated with the historic periods, and assessing to what degree they survive today.

Based upon guidance provided in National Register Bulletin 30, *Guidelines for Evaluating and Documenting Rural Historic Landscapes:* "Buildings, structures, objects, and sites are classified as contributing or noncontributing based on their historic integrity and association with a period and area of significance. Those not present during the historic period, not part of the property's documented significance, or no longer reflecting their historic character are noncontributing.[8] It is important to note that although National Register criteria are generally not applied to landscape features or characteristics, this report considers these features in order to assess the holistic integrity of the landscape and the larger natural and cultural context within which the buildings, structures, objects, and sites reside. As such, there are some identifications of contributing features that are not presently documented as contributing within the National Register or National Historic Landmark nominations. These designations should be considered recommendations.

For the purposes of this report and in association with the scope of work and guidance offered in the NPS Guide to Cultural Landscape Reports: Contents, Process and Techniques (1998), landscape features have been evaluated to determine whether they are:

- Contributing features (C)
- Noncontributing features (NC)
- Supporting features (S)
- Features missing from the periods of significance (M)
- Features whose period of origin could not be determined (ND)

Contributing features are those landscape elements that have been shown to survive from the period of significance, in this case the 1862-1919 Grant-Kohrs Ranch operations, and the 1929-1982 Warren Hereford Ranch operations, and that retain sufficient integrity to represent their historic appearance and function at that time, and which convey the character of the landscape during the period of significance. Noncontributing features are those landscape elements that have become part of the landscape since the periods of significance, or are features surviving from the periods of significance that no longer possess integrity. Supporting features are those resources that post-date the period of significance, but support the historic character because they have been constructed with the same or similar design intent as those features dating from the period of significance. Missing features are those elements of the landscape that existed during the periods of significance but have since been lost or destroyed, or that are not longer recognizable in their current form. Those features whose period of origin could not be

[8] McClelland, Linda Flint, et. al., National Register Bulletin 30, "How to Apply the National Register Criteria for Evaluation."

determined are identified as such. Readers should refer to the inventory tables found at the end of this chapter for a summary list of contributing, noncontributing, supporting, missing, and unidentified features.

Natural Systems

At a large scale, the general location and character of major natural systems, such as the Clark Fork River, Cottonwood Creek, Johnson Creek, Taylor Creek, and other creeks, gulches, springs, and sloughs appear much the same as they were at during both periods of significance and are considered contributing features. While the alignment of the Clark Fork River has shifted slightly over time, due to the inherently dynamic nature of this hydrologic feature, as well as accelerated bank erosion and channel migration due to heavy metal contamination, the river has remained in its floodplain throughout the ranch's history.

The most significant difference in the river's channel alignment is the area directly to the north of the Clark Fork River Bridge. In an 1869 survey of this area, the river is depicted as two distinct channels, one on either side of the river's floodplain. These channels came together over time, sometime before 1947. Small sloughs remain in the floodplain that likely depict the historic location of the forked riverbed. The channel of Cottonwood Creek has also appeared to shift approximately 1000' further to the north since the 1869 survey. It is not known if this is the result of natural processes, urbanization, or inaccurate mapping.

Other changes to the floodplain are the result of the large sewage treatment pond that was constructed in 1958-1960 after this land was purchased by the City of Deer Lodge. This feature does not contribute to the historic significance of the landscape. Around 1982 this treatment pond was replaced by four smaller cells further to the north. These latter features are also considered noncontributing.

At a large scale, topography within the Grant-Kohrs Ranch NHS also remains much the same as it was during both periods of significance and serves as a character defining feature for the NHS. The 1869 survey depicts the western foothills as well as the benches which delineate the upland and lowland areas. This topography played a significant role in influencing land use and settlement on the ranch. Smaller scale topographical changes were made to the western hayfields during the 1930s when Con Warren regraded the land to improve contour irrigation in this area. While these changes do not contribute to the Grant-Kohrs period of 1862-1919, they do contribute to the Warren-Hereford Ranch period of 1929-1982.

Topographical changes brought on by the construction of the railroad, such as grading of the railroad beds and excavation of the barrow pits also altered the landscape. As these changes occurred before 1919 and influenced the development of the ranch, they contribute to both periods. The wetlands that are found there also contribute to the historic significance of the site.

Soils throughout most of the ranch have remained essentially the same throughout both periods of significance. Exceptions to this are the heavy metal deposits along the Clark Fork floodplain and the historically-irrigated fields and ditch system, which have changed the composition of soils in this area. These changes are considered noncontributing.

Although beaver are considered pests and negatively impact ranching operations, they are believed to have been present throughout the ranch's history. As J.H. Gerhmann reflects back to 1904, "Now back in here around these creeks, or in the creek, there was a beaver dam. And we

had to go back there every so often and break it up. Otherwise, it would flood these fields."[9] In general, evidence of beaver inhabitation contributes to the historic significance of both periods, as does beaver trapping and control.

Vegetation

At a park-wide scale, the natural vegetation found within the Grant-Kohrs Ranch NHS generally reflects the patterns of vegetation found during both historic periods. The riparian zone along the Clark Fork River and other natural waterbodies are more heavily vegetated than the rest of the ranch, and contain native shrubs, trees, and grasses that would have been present during the ranch's early development. Drier upland areas are devoid of shrubs and trees, and contain only grasses. However, species composition of these areas has changed over time as land has been placed in cultivation, heavy metals have been introduced to the floodplain, and non-native plants have out-competed native species.

References dating to the early and mid-19th century note that riparian areas were vegetated with willow, aspen, birch, alder, and wild rye grasses, as well as occasional clusters of currant and gooseberry bushes.[10] Assuming that cottonwoods may have been identified as aspen (which shares the same genus), all these species (except wildrye grass) were present within the riparian zone during the 2002 Rice/Hardin inventory. Geyer willow, sandbar willow, water birch, black cottonwood, and gray alder, as well as Canadian gooseberry and golden currant, are noted within the plant species inventory. All these species are native to the region.[11] However, the native plant communities associated with these species no longer comprise the majority of the riparian woodland.

A great deal of research has been conducted in order to gain a better understanding of what type of vegetation may have been present within the riparian zone before toxic metal contamination began in 1884. In a 2002 study conducted by Peter Rice, desirable vegetation was identified for future restoration efforts within the Clark Fork River riparian area. Desirable vegetation is considered to be the baseline native plant species and plant communities that would be present under natural conditions, absent of toxic metal contamination. Based on the information provided in this study, it was found that there are 17 plant communities that comprise the baseline composition goals. When compared to current conditions, it was found that these desirable communities account for only 40.1% of the riparian zone, and that the majority of the riparian area is not occupied by plant communities that are considered desirable.[12] Exotic grass communities, such as those defined by smooth brome and redtop bentgrass, constitute a significant percentage of the non-native/undesirable vegetation. These exotics are also prominent along riparian zones of the smaller creeks and tributaries.

Although these exotic species were present within the riparian zone during the 1984 Rice/Ray study, and it can be assumed that these species have been present within the riparian zone for several decades as smooth brome was seeded-in by Warren in the 1950s, these non-native species are considered noncontributing resources. Preservation guidance provided in the NPS Research/Resources Management Report SER-82, states that "natural resources in historic districts should be preserved in their pristine condition. No attempt should be made to replicate

[9] Eckberg, 4.
[10] Eckberg, 4.
[11] Rice and Hardin, 2002.
[12] Peter Rice, "Baseline Vegetation Types & Restoration Goals for Grant-Kohrs Ranch" (Missoula: University of Montana, March 2002). Refer to this study for specific inventories of desirable native plant communities and species, and study methodology.

the chance, usually destructive impacts of man's historical presence."[13] Based upon this guidance, non-native species found in natural plant communities that were present, but not intentionally introduced during the historic period, do not contribute to the historic significance of the site.

In contrast to the riparian woodland, the low-lying areas along the river have been deliberately altered by cultivation of grains and hay. References indicate that as early as 1863, Grant was cultivating "a couple of acres of oats" on his ranch. When Grant sold the ranch to Kohrs, he was harvesting hay from wild hay meadows along the riparian area, as well as using it as natural pasture for livestock.[14] In 1868 Conrad Kohrs was also raising hay in the bottomland area between the ranch home and the river, and plowing the adjoining benchland for grain.[15] It can be assumed that these plowed upland areas containing grain existed along creeks and tributaries.[16] Following the winter of 1872-1873, Kohrs also planted excelsior oats to stock more winter feed for the cattle.

In the 1890s and early 1900s, Kohrs was cultivating non-native hay crops, including timothy, red clover, wheat, alfalfa, and potatoes, as well as oats. Except for timothy, red clover, and alfalfa, which are still present in the hay fields and contribute to the Grant-Kohrs period, the remainder of these crops are no longer cultivated on the ranch.

When Con Warren took over the ranch, he increased the diversity of these crops. Throughout the 1930s and 1940s he cultivated potatoes, barley, peas, oats, wheat, mangels, alfalfa, and intermediate wheatgrass, in addition to native hay, timothy, and clover. In the early 1950s he reseeded his pastures with alsike clover, alfafa, brome grass, timothy, meadow fescue, ladino clover, orchard grass, and strawberry clover. By the late 1950s, however, Warren abandoned the cultivation of grains, and hay became the predominant crop cultivated in the fields. This remains the case today.

In the 1984 Rice/Ray study, smooth brome, meadow foxtail, redtop bentgrass, Kentucky bluegrass, and white clover were the primary species observed in the hayfields. It is highly likely that these species were present at the end of the period of significance. As all these species are still cultivated in the irrigated hayfields, they contribute to the Warren period of significance. Timothy, red clover, and intermediate wheatgrass, which are also predominant species found in the pasture/hay fields are also considered contributing features as they were cultivated during the period of significance. Non-native species, such as Canadian thistle have also been found in these areas. As this species was not intentionally planted, it is considered noncontributing.

Dry upland grass species in the upland pasture area have changed slightly from the time Johnny Grant first began ranching the land and therefore contribute to the historical significance of the site. Con Kohrs commented that when he first saw Deer Lodge Valley, bunchgrass was abundant throughout the upland area.[17] Since much of the upland pasture area has been primarily used for

[13] Ian Firth, "Research/Resources Management Report SER-82, Biotic Cultural Resources: Management Considerations for Historic Districts in the National Park System, Southeast Region" (Atlanta: National Park Service, Southeast Region, 1985), 4.
[14] Anonymous, Residence of John F. Grant, purchased by Hon. Conrad Kohrs in 1866, Taken in 1866, Grant-Kohrs Ranch National Historic Site archives, Accession no. GRKO 6269; Eckberg, 2.
[15] Eckberg, 2.
[16] Eckberg, 3, "…that which is most convenient for irrigation is taken up…and very much of it is under fence. The most beautiful and productive of the ranches for grain are those which lie in the recesses of the hills along up the valley where little side streams come down from the mountains, and viewed from the opposite side look like emerald gems set in the niches of the hills," quoted from Stuart, Granville, *The New North-West*, 6/1/1872.

[17] Eckberg, 1-2.

grazing, it retains much of the character of natural grassland communities (comprised of native bluebunch wheatgrass (*Agropyro spicatum*), western wheatgrass (*Agropyron smithii*), and Sandberg's bluegrass (*Poa secunda*) communities).[18] A few non-native and invasive species are also found in this area, including the spotted knapweed (*Centaurea biebersteinii*), smooth brome, and intermediate wheatgrass (*Agropyron intermedium*).[19] The latter two species were seeded in the hay fields by Warren and have likely spread to the dry ranges. As the exotic species found within the dry ranges are not believed to have been intentionally planted, they are considered noncontributing features.

Vegetation surrounding the Warren residential complex has changed since Con Warren retired from ranching in 1982. Based upon research and analysis of historic aerial photos, the cottonwoods that historically lined the entry lane were removed sometime between 1983 and 1990. These trees are considered missing features. In 1994 an inventory of vegetation within and around the fenced lawn area documented several more trees and shrubs, particularly around the foundation of the house. Assuming that these plants (and several documented stumps) would have existed in 1982, the following vegetation is missing from the Warren period: additional spruce trees, cottonwood trees, Siberian peas, ponderosa pine, juniper shrub, weeping birch, lilac shrubs, currants, mountain alder, maple, lodgepole pine, bishop's weed, clematis, and peonies. Also missing is the small flower and vegetable garden that was located somewhere to the west of the house. The vegetation that remains on the site contributes to the period of significance.

Based upon research conducted for the Cultural Landscape Inventory (CLI), the primary vegetation features within the Grant-Kohrs Residence landscape include a formal arrangement of cottonwood trees, specimen tree and shrubs, turf grass and ornamental garden plantings. These plantings have evolved over the years. Due to NPS preservation and restoration efforts there are many contributing and supporting features within this landscape.

Although none of the original black cottonwoods (*Populus trichocarpa)* found in the front lawn of the ranch home survive from the period of significance, the NPS planted the same species of trees in the historic grid pattern (approximately 15 feet on center) to reflect the original pattern that dates back to the 1870's. A single row of trees edges each side of the walkway and side yard. A double row edges the front. Three green ash (*Fraxinus pennsylvanica)* were also planted just east of the fence, as part of the 2002-2003 restoration efforts.[20] These trees support the historic significance of the landscape.

In addition to the geometric patterning of cottonwoods in the front lawn, plantings of specimen tree and shrub species were interspersed throughout the Ranch House landscape during the period of significance. Stumps of honeysuckle *(Lonicera spp.),* reportedly planted during the Grant years, as well as a weeping birch stump *(Betula pendula)* in the northeast corner of the property offer clues as to the types of ornamental vegetation cultivated.[21]

Two specimen trees of note include the large black willow (*Salix scoulerana)* and a blue spruce (*Picea pungens)* north of the main house. The willow was planted by Conrad Warren for his grandmother, Augusta Kohrs, in 1935. The spruce tree was reportedly planted by John

[18] Rice and Hardin, 2002.
[19] Janet Hardin, "Plant Species & Locations, GRKO Database, Westside Ranges" (Missoula: University of Montana, Division of Biological Sciences, June 3, 2003).
[20] Shapins 2003, 33.
[21] Shapins 2003, 33.

Bielenberg, who "dug it up and brought it back from afar in the "California cart.' "[22] Both these trees contribute to the historic significance of the landscape.

The cluster of junipers *(Juniperus occidentalis)* in the southeastern corner of the property are considered contributing features because they historically framed a path leading from the lawn to the planting beds within the lower garden.[23] The double row of lilacs and other specimen plantings contained within the lower garden also date from the period of significance and are considered contributing features. The barberry shrubs flanking the steps leading to the lower garden were planted in 1934 by Con Warren. These plants are also considered contributing features.

Although a variety of flowers and vegetables were grown within the lower garden, it is not known if all of the species currently represented there contribute to the historic significance of the landscape. Those that have been documented as being cultivated by Augusta Kohrs during the period of significance, and which are currently found in the garden, include peonies, sweet peas, monkshood, daffodils, hyacinths, tulips, crocuses, and roses.[24] As these plants are known to date to the historic period, they are considered contributing features. Some ornamental plants, such as Granny's Bonnet (Aquilegia), Johnny Jump Ups (Viola tricolor), Heart's Ease (Viola x wittrockiana), and several varieties of roses are known to be missing, as are the vegetables that were planted west of the sweet pea trellis.[25] Other plants currently found in the garden have an undetermined association.

Spatial Organization

The spatial organization of the landscape has evolved substantially since the ranch was first settled by Johnny Grant in 1862. Defined by only a few roads, buildings, and fences, this landscape is now a complex system of spaces defined by building complexes, irrigation ditches, railroad corridors, paved and unpaved ranch roads, pastures, and most importantly, fences. By the end of the Grant-Kohrs Ranch operations in 1919 the bunkhouse yards (spaces defined by the buildings and fences located north of the bunkhouse) were already well established. Although a few structures were added (HS-6, HS-9, HS-35, and HS-36), some removed (chicken house and turkey house), and fences likely rearranged, this space has remained much the same since the close of the Grant-Kohrs period. Other spaces that have remained essentially the same throughout the latter part of the Grant-Kohrs period and throughout the Warren period are the Lower House Yard, defined by the buggy shed, stallion barns (HS-19 and HS-16) and the thoroughbred barn (HS-15); and Johnson Creek Field, (defined by fencing, riparian vegetation, and Johnson Creek road on the south side). As these spaces have changed little--except for the addition of a few buildings on the perimeter of the Lower House Yard, which include the Blacksmith Shop (HS-3), Coal Shed (HS-4), Chicken Coop (HS-22), and Brooding House (HS-21), they contribute to the historic periods. The fencing and gates surrounding the Chicken Coop Field were first built by the NPS in 1976, and rebuilt in 1981. Originally this field was surrounded by an all board fence.

As little information is available regarding the location and type of historic fencing throughout the remainder of the home ranch area at the close of the Grant-Kohrs period, it is not known what other fields may have been well-defined by fences during this time. Based upon analysis of the 1907 drawing of the Deer Lodge Townsite, it is likely that the Lower Yard area was enclosed by

[22] Shapins 2003, 33.
[23] Shapins 2003, 34.
[24] Shapins 2003, 35-36.
[25] Shapins 2003, 35.

fencing and defined by ranch structures, the bench, and the Kohrs-Manning Ditch. It is likely that the L-Barn South Field was also enclosed during this period, as HS-13 dates to 1908.

It is also likely that the West Corrals were historically defined by fencing, Johnson Creek, and the Kohrs-Manning Ditch, and enclosed an area serving the stallion and thoroughbred barns. These corrals became more developed during the Warren period with the addition of the feed bunks, feed storage house, and squeeze chute (HS-45, 46, 31, and 47 respectively), as well as a cow shed and several feed racks (A-12-16) that are no longer extant. The conditions currently present within this area more closely reflect the historic conditions found at the end of the Warren period, and as such, contribute to the historic significance of the site.

Additional changes to these spaces during the Warren period include the construction of the Clark Fork River Bridge Road and the Kohrs-Manning Ditch Road—both of which further enclosed and defined the West Corrals and the Lower Yards. Since these changes occurred before the close of the 1982 period of significance and little changes in spatial organization have occurred since, the Lower Yards and the West Corrals contribute to the period of significance. While the West Feedlot was not present during the Grant-Kohrs period, it was constructed by Warren and has changed little since 1982. It too contributes to the significance of the ranch.

The ranch house domestic yard and garden was enclosed by the picket fence, and the lower garden, front yard, and side yards were well defined by the close of the Grant-Kohrs period. By the end of 1982, spatial organization surrounding the ranch house had changed some; the fence was expanded to include the service area in 1934. The most significant change occurred in the front and side yards in early 1950s when the grid of cottonwood trees had been removed and the spaces became less enclosed by their dense overhead canopies. Some additional changes were made up until the 1970s. As the NPS has actively pursued restoration of the domestic yard in recent years, current spatial organization of the ranch home reflects the landscape conditions found in 1919, rather than those of 1982. Current conditions support the significance of this earlier period.

Little has changed regarding the spatial organization of the Warren Hereford Ranch since 1982. The spaces defined by the corrals, alleys, and circulation systems, to include the railroad corridor and its associated barrow pits, all contribute to the period of significance. Likewise, the domestic yard and fields surrounding the Warren residence reflect 1982 conditions and are considered contributing features. As the Visitor Center area and the spaces associated with it are not part of the property's documented significance, and have been altered due to the circulation system and visitor services provided there, they do not contribute to the historic significance of the landscape. An exception to this is the Johnson Creek riparian area, which likely remains in much the same condition as during the historic period.

Pastures and hay fields located on the east side of the Clark Fork River, particularly the Lower Yard Fields, L-Barn Fields, Stuart Field, and North Meadows have remained essentially the same in terms of use and configuration through both the Grant-Kohrs and Warren periods. These spaces are considered contributing features. Minor changes, such as the fencing of the riparian area in 1994, have reinforced the edges along this zone. The only significant change to the east side of the ranch since the Grant-Kohrs period has been the reduction of the size of Front Field, as the southern boundary of this area was developed for the establishment of the Warren Residence, Warren Hereford Ranch, and later the Visitor Center area. That which remains of Front Field has been further subdivided by cross-fencing installed by the NPS in 1999, which does not contribute to the historic significance of the Warren period.

The spatial organization of pastures and hay fields on the west and north sides of the ranch have evolved since the time Con Warren took over operations of the ranch in 1929. The Western Hay Fields were expanded in 1930s when Con Warren realigned the country road approximately 1000 feet to the west. However, as these conditions remain the same today, they are considered contributing features. The cross-fencing that currently subdivides the western hay fields was installed by the NPS in 1997 to control cattle grazing. This field subdivison does not contribute to the historic significance of the landscape.

Between 1958 and 1960, the City of Deer Lodge constructed the sewage treatment pond located along the Clark Fork River. This pond was abandoned sometime around 1983 when four smaller effluent ponds were built on the northern edge of this feature. As these newer ponds were constructed within the boundaries of the older pond, they did not alter the spatial organization of the fields surrounding them. Therefore, the organization of Olson Field East, Olson Field West, and Treatment Pond Field contributes to the historic significance of the landscape.

Although little information is available regarding the spatial organization of the fields and ranges located within the Upper Pasture area, the current organization is most directly influenced by the historic topography and irrigation ditches which were regraded in the 1930s when Con Warren acquired the lands associated with this area. As such, the spatial organization of these fields and ranges have likely changed little since the close of the period of significance. Some of the fencing that surrounds these sub-spaces, however, such as the cross-fence that parallels the Hartz and West Side ditches and crosses between Little Gulch field and Lower Taylor Field, was installed by the NPS in 1998. The ca. 2002 electric fence contained within this area also alters the spatial organization of the area. These fences do not contribute to the historic significance of the landscape.

The spatial organization of the riparian zone has changed slightly over time. Although it is not known for certain if the riparian woodland was fenced during the Grant-Kohrs period, it is assumed that cattle had been allowed to freely access this area. No fencing appears in the 1947 aerial photograph, or in historic photographs of the Western Hay Fields dating to the 1930s. As such, the riparian woodland extended beyond the bounds of the current fenceline, particularly within the northern half of the ranch. Some fencing on the west side of the Clark Fork River, and through the middle of the riparian area, is evident in the early 1980s. This fenced area increased to include the east side, along the west edge of both Stuart Field and the Lower Yard Fields, in the mid-1980s. Complete fencing of the riparian area, north of the L-Barn and Lower Yard Fields, occurred in 1994 due to contamination concerns for staff, visitors, and livestock. This eastern and northern fencing of the riparian area altered the spatial organization of the riparian zone, and does not contribute to the landscape's historic significance.

Land Use

Land uses within the Grant-Kohrs Ranch have changed little over time. Originally begun as a ranch sustaining both cattle and horses, the NPS actively continues these operations, although on a much smaller scale. Use of the low-lying lands along the east side of the Clark Fork River for the production of hay and pasture has continued since the Grant-Kohrs period. Likewise, the bench lands above the Kohrs Ditch and Kohrs-Manning Ditch continue to be used for pasture. As these lands are used for the same purposes today, they contribute to the site's historic significance.

As mentioned earlier, the lands directly to the west of the Clark Fork River were not fully irrigated and cultivated for hay until the Warren period. During the 1940s, Warren began

plowing, fertilizing, and rotating his crops to increase yields. As these lands have continued to be used for hay production or pasture since the close of the historic period, they contribute to the significance of the site.

The hay and pasture lands of the Upland Pasture area are believed to reflect the uses during both the Grant-Kohrs and Warren periods. As construction of the Westside Ditch dates to 1887, it is assumed that some portions of the Upland Pasture area were irrigated shortly after this time. As this ditch would have provided irrigation to Little Gulch, Big Gulch, and Lower Taylor Field, it is believed that these fields, although not owned by Kohrs at the time, were under cultivation. These fields, as well as the Western Hay Fields, were improved for hay production by Warren in the 1930s when he regraded the lands for contour irrigation. Although the NPS does not typically plow or rotate crops today, some fields (such as Upper Taylor Field) have been re-established by plowing, tilling, and planting of hay. The irrigation and use of these fields contribute to the period of significance.

In the early 1980s, the park began to address the problem of pests and exotic and invasive weeds found in the fields and pastures. These included spot counts of Columbian ground squirrels, application of poisoned baits, and the removal of beavers from the ranch. Studies also began to identify invasive exotic weeds, such as spotted knapweed and leafy spurge. As natural treatment methods were tested, such as the introduction of Gall flies, fungus, seed head weevils and moths, etc., as well as manual removal, and found to be ineffective, the NPS introduced chemical treatment of impacted areas beginning in the 1980s. Chemical treatment is more effective in managing the species composition of the hayfields and grassland plant communities. As historical evidence indicates that Warren sprayed the ranch for noxious weeds as early as 1955, this management practice contributes to the period of significance.

Historical evidence also suggests that beaver dams and lodges that interfered with ranching operations--such as those impeding irrigation--were removed by hand and dynamite.[26] According to Gerhmann, Con Warren dynamited beaver dams once the young were old enough to survive without the ponds they created.[27] Currently, the NPS authorizes trapping by special use permits authorized to control beaver populations. Other management practices have also been employed by the NPS (such as culvert installation, elevation of roadways, fencing of important trees, etc.). Although it is not known if live trapping and relocation of beaver reflects historic land management traditions, control of beaver populations certainly reflects historic management needs.

Although there is historical evidence suggesting that reduction of rodents through the distribution of poison grain baits corresponds with tested animal control methods during the Warren period, the use of poison was discontinued after it started to infiltrate the food chain and result in unintended consequences. According to Con Warren II, it was his job to control the populations of gophers, skunks, porcupines, rabbits, magpies, pigeons, cats, and dogs, which used to prey upon the livestock. His method of choice was a .22 rifle.[28]

During the period of significance, there was much diversity in livestock maintained on the ranch. During the Grant-Kohrs period, Conrad Kohrs and John Bielenberg raised longhorn cattle, shorthorn cattle, Hereford cattle, thoroughbred horses, Clydesdale horses, Percheron-Norman draft horses, Yorkshire hogs, Holstein cows, and chickens and turkeys. Documentation also

[26] NPS comments, 75% draft CLR review.
[27] Lyndel Meikle, NPS comments, 95% draft CLR review.
[28] Chris Ford, NPS comments, 95% draft CLR review.

suggests that Angus bulls, Ayrshire dairy cows, merino rams, and sheep may also have been kept on the ranch. Con Warren maintained this diversity until the 1950s, raising both registered and commercial Hereford cattle, Durham and Holstein dairy cows, Belgian horses, hogs, chickens, milch cows, and a mule. In the mid-1950s he expanded the Warren Hereford Ranch to the east of the railroad tracks and began raising primarily purebred and commercial Herefords.

After the NPS took over operations of the ranch in 1972, the Park permitted Warren to lease portions of the home ranch for grazing his cattle, and for general ranching activities that supported the care and maintenance of his stock. Before Con Warren retired from ranching in 1982, he grazed 150 head of cattle (multiple mixes and breeds) on the land leased from the Park. During this time, the Park also grazed their own small herd of 19 cattle and 10 horses.

In 1989 the NPS began an Agricultural Use lease program. Special use permits for grazing privileges are issued by the ranch to private individuals on a competitive basis for a fee, based upon Animal Unit Months (AUMs) allocations. Although the numbers of livestock fluctuate from year to year, the ranch currently maintains approximately 94 head of cattle (or animal units, based upon an allocation of 1128 AUMs for the calendar year), including the breed yearlings born each spring. Breeds include Hereford, English Shorthorn, Longhorn, and Angus, as well as cross-breeds of the four types.[29] These livestock breeds and land uses contribute to the historical significance of the landscape.

The NPS also maintains nine horses on the ranch, to include Quarter horses and Belgian draft horses (NPS), as well as five USFS horses that lease pasture from the Park. The NPS horses are pastured within the Home Ranch complex, and the USFS horses are pastured in the Warren Hereford Ranch complex. The care of cattle and horses on the ranch contribute to the historic significance of the landscape.

Although NPS interpretative and administrative uses of the Grant-Kohrs Ranch began in the mid-1970s (shortly after the creation of the NHS), these uses of the site do not contribute to the landscape's historic significance. Missing uses associated with the Grant-Kohrs and Warren periods include residential occupation of the Kohrs and Warren homes, as well as the use and occupation of the bunkhouse by ranch hands.

Constructed Water Features

The beginning of the elaborate irrigation system found within the Grant-Kohrs Ranch NHS dates back to Johnny Grant's efforts to improve the land for the cultivation of crops. These efforts included the construction of irrigation ditches sometime between 1862 and 1866. Although the extent and location of these ditches is unknown, it is believed that these features were incorporated into the Kohrs-Manning Ditch in 1872.

Water rights to Johnson Creek date to 1874.[30] It is assumed that the Johnson Ditch (which feeds into the Kohrs-Manning Ditch) was constructed around this time. Likewise, the West Deer Lodge Ditch (known as the Westside Ditch) was excavated ca. 1889-1891 by CA. J. Kading. These ditches are believed to have remained in use throughout both the Grant-Kohrs and Warren periods. As they are believed to remain essentially the same today, they contribute to the site's period of significance.

[29] NPS Comments, 75% CLR draft review; Email correspondence with Ben Bobowski, December 17, 2003.
[30] National Park Service (author unknown), "Landscape Features by Date/Era" (unpublished spreadsheet maintained by the Grant-Kohrs Ranch NHS archives, August 1997).

Historical research conducted to date has not established dates of construction for the Kohrs "Big Ditch" located along the edge of the western benchland. However, water rights to Taylor Creek were appropriated for the "Kohrs-Manning" Ditch in 1885.[31] It may be assumed that since the Kohrs Ditch is sourced by Taylor Creek, it was this ditch, rather than the "Kohrs-Manning Ditch," that was constructed sometime shortly after this date. While the date of construction of the Hartz/Kading Ditch is also unknown, it can be also be assumed that this ditch was constructed around the same time as the Westside Ditch (ca. 1890), as it too is associated with C.J. Kading and his property. As both ditches have remained in use through both the Grant-Kohrs and Warren periods, they contribute to the site's historic significance.

In the 1930s Con Warren acquired the Kading and D'Alton properties contained within the Upland Pasture area, which included the ditches and water rights located there. Shortly after he began regrading the fields and contouring the lands to improve irrigation. This process included the construction of the many lateral ditches contained in this area, as well as the filling in of old ditches. Current ditch alignments generally reflect those visible in the 1947 aerial photos, though the precise location of laterals may have been changed since that time as they are traditionally repaired or rebuilt after a number of harvests. The Warren Ditch, located along the far northwestern edge of the NHS boundary is also believed to date to this period. All these ditches contribute to the site's historic significance, as do both water pumps constructed by Warren in 1960, which are housed within historic structures HS-86 and HS-87.

Ditches that have an undetermined date of origin include the Salmonson Waste Ditch along the southern edge of the NHS boundary, the Taylor Ditches found in lower Taylor Field, and other abandoned ditches dispersed throughout the site.

Aside from the Kohrs-Manning Ditch Flume (HS-51), which was constructed in 1974 to replace the original flume (HS-50, no longer extant), the date of origin of most all other associated irrigation structures--diversion dams, pipes, headgates, culverts, pumps, and flumes--is undetermined. However, it can be assumed that the majority of these features have been repaired or replaced over the years with features of same or similar function (most of the headgates were replaced by the NPS ca. 1990), and thus support the historic significance of the site.

The hand line system that provides irrigation to the effluent fields was installed by the NPS in the mid-1990s. It was intended to improve water quality of the Clark Fork River, as well as to re-irrigate pastures that had been historically irrigated by Con Warren. This historic system, installed by Warren in 1954, consisted of a diversion point out of the Kohrs-Manning Ditch, a 40 horsepower Connel pump, a wooden pump house (HS-86), buried 6-inch and 8-inch mainline, 4-inch risers, 4-inch hand line sets, and various valves and hardware. Water was diverted from the Kohrs-Manning Ditch with a gate. From there, it flowed through an underground pipe to a hole, and was lifted from the hole by the pump into the mainline. Lateral hand line sets ran out from mainline risers.[32] Although the modern water source (effluent ponds) differs from the historic source (Kohrs-Manning Ditch), the NPS irrigation system is considered a supporting feature because it provides water to two pastures (Front Field and North Field) that were historically irrigated by hand-line for livestock grazing in the 1950s. The blue water troughs are considered noncontributing features.

[31] National Park Service (author unknown), "Landscape Features by Date/Era" (unpublished spreadsheet maintained by the Grant-Kohrs Ranch NHS archives, August 1997).
[32] Grant-Kohrs Ranch National Historic Site, "Info on Hand Line," Portion of report prepared to describe impacts associated with installation of hand line system (On file at the Grant-Kohrs Ranch NHS archives, No date).

The historic irrigation system serving the ranch house (HS-1) and garden is no longer extant—it was abandoned in 1934 and the land regraded. The only known surviving contributing feature associated with this system is the siphon (HS-57), which passes under the railroad corridor.

Circulation

Circulation features within the Grant-Kohrs Ranch NHS have evolved along with the expansion of ranching operations. Two of the earliest roads still extant within, or adjacent to, the ranch are Business Loop 90 (formally US Highway 10 and the Road to Hell Gate), and the entry road referred to as Kohrs-Warren Lane. Both these features appear on the 1869 Government Land Office (GLO) survey and contribute to the historic significance of the landscape. The western segment of the Kohrs-Warren Lane, west of the railroad tracks, was removed shortly after the new NPS Service Entry road was constructed ca. 1973 for safety reasons. This segment connected the lane with the road passing between the bunkhouse and the ranch home, and is considered missing.

Other early roads that were likely constructed ca. 1862-1880 were those associated with the complex of barns located north of the bunkhouse complex. Although the exact configuration of these roads is not known, it is likely that they connected to the entry lane to each of the structures located here and were subsequently reconfigured as new buildings, fences, and gates were added to the complex. The roads currently existing within this area--Bunkhouse Road and Dairy Loop Road--appear to reflect conditions present in the 1947 aerial photograph, and therefore contribute to the historic significance of the site. Based upon historic photographs, it appears as though Bunkhouse Road traversed behind the coal shed ca. 1900, and then was closed off sometime around 1937-1938. The current conditions reflect those of the earlier period.

Other Grant-Kohrs period roads that remain essentially the same today include the Lower House Yard Road and parking area for the Buggy Shed (HS-17) and the extension of this road (Johnson Creek Road), which continues past the Throughbred Barn (HS-15) and over Johnson Creek. Both these roads likely date to ca. 1870s when Kohrs began developing structures to house his horses. These roads remained essentially unchanged throughout the Warren period. They are considered contributing features.

A shorter and earlier version of the current Warren Pumphouse Road was likely constructed ca. 1890, connecting the bunkhouse area to the Machine Shed (HS-12). The 1947 aerial photo depicts this road ending in the North Fields, approximately 900 feet past the L-Barn (HS-13). It was likely lengthened and realigned in 1960 to service the pumphouse. This road contributes to the period of significance. The ca. 1879 Utah Northern Railroad corridor and the ca. 1908 Milwaukee Railroad corridor are also considered contributing features.

Soon after Con Warren took over ranch operations in 1929, he extended the Johnson Creek Road west, past the West Corrals and Stuart Field. This road crossed the Clark Fork River and connected the east and west sides of the ranch. This road remains essentially the same today and is considered a contributing feature. In the late 1930s Warren also moved the county road located along the Clark Fork River approximately 1000 feet further to the west. Over time, this county road became obliterated and incorporated into the Western Hay Fields. It is considered a missing feature. The new road (now referred to as the Kohrs “Big Ditch” Road) has remained essentially the same since its construction and therefore contributes to the Warren Period. It is assumed that the South Park Entry Road, connecting to MTSR 4691, was also constructed at this time, if not earlier.

Little information is known about the unimproved roads located within the Upper Pasture area, to include Ridge Road, Little Gulch Road, Big Gulch Road, and Upland Pasture Road, although they likely date to the Kading and D'Alton time periods (ca. 1890). Portions of these roads can be seen in the 1947 and 1979 aerial photographs, although their configurations have likely changed over time. These roads are considered contributing features. The South Warren Pumphouse Road, also located in the area, dates to 1960. It too contributes to the period of significance. Roads accessing the Kading and D'Alton homesites have not been identified.

In the late 1950s, the City of Deer Lodge began excavating gravel in the southwest portion of the ranch. A road was constructed off of the Kohrs "Big Ditch" Road to access this area. Although the gravel operations have ceased, this road remains today and is considered a contributing feature.

All the circulation features associated with the Warren Residence and Warren Hereford Ranch are considered contributing features. These include both the driveway and sidewalk leading to the house (ca.. 1934), the alleys associated with the corrals (ca. 1952), the gravel parking area located near the Sales Barn and Warren Barn (ca. 1954), and the Stuart Pasture Road (accessing the pasture area south of the Warren Residence). One exception is the new NPS gravel parking area located in the historic Whiskey field. This is considered a noncontributing feature.

Several new circulation features were constructed by the NPS in the mid-1970s. These include the NPS Service Entrance (located between Highway 10 and the bull barns, connecting to the historic Bull Barn Road developed by Warren in the 1950s). The NPS road was constructed ca. 1973 to provide staff access to the rest of the ranch without having to travel in front of the Warren Residence. The Kohrs-Manning Ditch Road was also constructed during this time. These roads are not considered contributing features. Other noncontributing features include the NPS parking areas in the Visitor Center area (ca. 1975 and 2002), the access trail and underpass (ca. 1978), and Cottonwood Trail (1993).

Missing circulation features include several unimproved roads that appear on the 1947 aerial photograph. These access the Lower Yard Fields and the North Meadows. The date of origin of these roads is unknown. Both were obliterated before 1960.

Within the Grant-Kohrs Residence landscape, several historic circulation features have been maintained by the NPS. These include the historic drop off area in the front of the house, as well as the road leading between the ranch house and the bunkhouse. These circulation features contribute to the period of significance. The historic approach road from Business Loop 90 was removed ca. 1973 when the park built the NPS Service Entrance through the Warren Hereford Ranch. This historic axial access road is considered a missing feature. The service area historically located to the northwest of the residence was also removed in the 1930s by Con Warren. This too is considered a missing feature.

The original pathway system, established shortly after Kohrs purchased the Ranch, consisted of three-foot wide wooden planks set flush in the ground. The early boardwalks led guests from the gate in the picket fence to the front door. Additional paths extended north and south along the house providing connections to both the service area and the southern portion of the property. The boardwalks were later replaced with brick pavers dry-laid in sand (ca. 1905). The NPS has since replaced the brick pavers on the front yard with a reproduction of the wooden boardwalks in 1975 and 1986.[33] These changes support the historic significance of the landscape.

[33] Shapins 2003, 38.

Access to the garden has changed significantly over time. Originally, a stone path led from the porch east across the slope to the garden. The path gradually descended through the open lawn, into a grove of junipers before emerging in Augusta's garden. This circulation pattern changed in the 1930s when Warren built a set of stone stairs in the middle of the lilac rows. The stairs descended to the flower beds, providing a more direct route from the house to the lower garden.[34] This stairway was rehabilitated by the NPS in 1987 and supports the historic significance of the landscape. Additional stone stairs were constructed by Warren in 1934 to connect the access drive with the pathway leading to the kitchen vestibule.[35] These stairs remain and contribute to the period of significance.

Modifications to the then-existing dirt pathways were made between 1997 and 1998 with the construction of a new flagstone pathway leading south from the southwest porch stairs. Another path was constructed to link the new garden paths to the blacksmith garage. These new garden paths replaced an earlier path that had become a safety hazard. Another pathway was rebuilt by the NPS to connect the Kohrs addition to the top of the stone stairs in the service area. All these paths are considered supporting features.

The asphalt sidewalk built in the 1970s to connect the visitor center complex with the home ranch is considered a noncontributing feature, as it does not reflect the historical significance of the site.

Views and Vistas

Information that exists regarding historic views and vistas is derived from drawings dating from latter part of the 19th-century. In the 1865 Granville Stuart drawing, the 1866 (anonymous) drawing of the ranch home, and the ca. 1880 Leeson drawing, the western foothills and Flint Creek Mountain ranges figure prominently, as does the vegetated riparian corridor. As this land remains open and undeveloped, these expansive views remain much the same today as they did throughout both the Grant-Kohrs and Warren periods. As a result, they play an important role in establishing the character of the Grant-Kohrs Ranch, and are considered contributing features. It is important to note that although some of middleground views characterized by the western viewshed are within the park boundary (the Upland Pasture Area), much of this viewshed is not in park ownership. The acquisition of scenic easements for this land has been recommended in several park planning documents.[36] Degradation of these views would have significant negative impacts on the park's visual resources and their ability to interpret the historic character of the ranch.

Of additional importance is the forested backdrop of Mount Powell and Deer Lodge Mountain. Park planning documents also acknowledge the importance of sustaining this forested mountain backdrop by establishing the need to work with the Montana State Prison and US Forest Service regarding timber harvest plans and silviculture practices to maintain this important landscape.[37]

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[34] Shapins 2003, 38-39.
[35] Shapins 2003, 39.
[36] National Park Service. "Cultural Landscape Analysis, Grant-Kohrs Ranch National Historic Site." (Denver: National Park Service, Rocky Mountain Region, 1987); Koehan; and U. S. Department of the Interior, National Park Service Rocky Mountain Region, *Grant-Kohrs Ranch National Historic Site Environmental Impact Statement for a General Management Plan and Development Concept Plan* (Grant-Kohrs Ranch National Historic Site, Deer Lodge, Montana, March 1993).
[37] U. S. Department of the Interior, National Park Service Rocky Mountain Region, *Grant-Kohrs Ranch National Historic Site Environmental Impact Statement for a General Management Plan and Development Concept Plan*. (Grant-Kohrs Ranch National Historic Site, Deer Lodge, Montana, March 1993).
GMP, 6-7, 14; and Amphion, 28.

Based upon historic drawings and photographs, other visual resources that contribute to historic views include the pastures and hayfields found along either side of the Clark Fork River, a variety of ranch structures, fencing types (defining corrals and pastures), as well as the livestock contained within these areas. While buildings and structures have been added to the landscape over time, and the location of fencing has changed over the years, all these features continue to figure prominently within contemporary views and help define the character of the ranch. Certainly the presence of livestock contributes to the historic significance of the landscape.

Views of the Hillcrest Cemetery located to the south of the ranch also contribute to the historic significance of the landscape. The grave sites of the Kohrs, Bielenberg, and Warren families are found here. White birch and fir trees are planted throughout the cemetery and are the dominant landscape features that can be seen from miles around.[38]

While views of modern commercial and residential development located to the west and east of the Ranch (along Business Loop 90), would not have been prevalent during the Grant-Kohrs period, much of this development (particularly the fairgrounds) was already constructed by the end of the Warren period and therefore contribute to the site's historic significance. An exception to this is the new commercial development located directly east of the Warren Hereford Ranch, along the curve of Business Loop 90, directly north of the fairgrounds. Based upon aerial photo analysis, this area was developed in the early 1990s and does not contribute to the significance of the period.

[38] Amphion, 27.

Buildings and Structures

There are 72 contributing, 20 supporting, and six noncontributing historic buildings and structures located within the Grant-Kohrs Ranch NHS. Together these buildings and structures represent all the structures necessary for the operation of a cattle ranch and the raising of horses. They include living quarters, barns, storage sheds, outhouses, stock shelters, feed bunks, and squeeze chutes, and illustrate the continuum of cattle ranching operations from the mid-19th-century through the latter part of the 20th-century. It is important to note that this list of contributing buildings and structures contains all the buildings, structures, and objects listed as contributing resources within the Grant-Kohrs Ranch/Warren Ranch National Register Historic District. It does not include landscape features, such as the railroad lines, domestic yard, or ditches that are evaluated separately under different landscape characteristics (i.e. constructed water features, circulation features, etc.). There are also some features that are considered structures within the CLR, which are not listed in the National Register documentation (such as landscape retaining walls, railroad trestles, etc.). Based upon the scope of work this document, unlike the National Register documentation, also evaluates supporting features.

Contributing, noncontributing, and supporting buildings and structures are summarized on the following table. These resources are cross-referenced to numbers found on component landscape existing conditions and contributing resources inventory maps. Generally, supporting features are post-1982 reconstructions of historic structures that reflect the same or similar design characteristics as those features dating from the period of significance.

Building/ Structure Number	Name	Component Landscape	C/NC/S	Date of Origin	Historic Structure Number
B-1	Bunkhouse Row	HR	C	1862-1907	HS-2
B-2	Ice House	HR	C	1880	HS-5
B-3	Coal Shed	HR	C	1915	HS-4
B-4	Blacksmith Shop/Garage	HR	C	1935	HS-3
B-5	Granary/Roller Mill	HR	C	1935	HS-6
B-6	Draft Horse Barn	HR	C	1870	HS-7
B-7	Privy	HR	C	1934	HS-8
B-8	Dairy	HR	C	1932	HS-9
B-9	Oxen Barn	HR	C	ca. 1870	HS-10
B-10	Bielenberg Barn	HR	C	1880	HS-11
B-11	Machine Shed	HR	C	1890	HS-12
B-12	Cow Shed	HR	C	1908	HS-13
B-13	Thoroughbred Barn	HR	C	1883	HS-15

B-14	Stallion Barn	HR	C	1870s	HS-14
B-15	Stallion Barn	HR	C	1870s	HS-16
B-16	Stallion Barn	HR	C	1870s	HS-19
B-17	Stallion Barn	HR	C	1870s	HS-30
B-18	Not Used	NA	NA	NA	NA
B-19	Feed Storage House	HR	C	1932	HS-31
B-20	Buggy Shed	HR	C	ca. 1883	HS-17
B-21	Privy	HR	C	ca. 1890	HS-20
B-22	Granary	HR	C	ca. 1890	HS-18
B-23	Brooding House	HR	C	1935	HS-21
B-24	Chicken House	HR	C	1935	HS-22
B-25	Metal Granary	HR	C	ca. 1910	HS-23
B-26	Feed Storage House	HR	C	1933	HS-28
B-27	West Feedlot Storage Shed	HR	C	ca. 1930	HS-34
B-28	Not Used	NA	NA	NA	NA
B-29	Not Used	NA	NA	NA	NA
B-30	Warren Barn	WHR	C	1952	HS-64
B-31	Bull Barn	WHR	C	1952	HS-62
B-32	Bull Barn	WHR	C	1952	HS-63
B-33	Sales Barn	WHR	C	1954	HS-65
B-34	Resource Building/Office	WHR	NC	2000	BLDG 003
B-35	Scale House	WHR	C	1952	HS-66
B-36	Cow Shed	WHR	C	1952	HS-70
B-37	Cow Shed	WHR	C	1952	HS-71
B-38	Cow Shed	WHR	C	1952	HS-72
B-39	Cow Shed	WHR	C	1952	HS-73
B-40	Cow Shed	WHR	C	1952	HS-74
B-41	Cow Shed	WHR	C	1952	HS-75
B-42	Cow Shed	WHR	C	1952	HS-76

B-43	Cow Shed	WHR	C	1952	HS-77
B-44	Grant-Kohrs Residence	GKR	C	1862-1890	HS-1
B-45	Warren Residence	WR	C	1934	HS-58
B-46	Garage	WR	C	ca. 1934	HS-61
B-47	Warren Residence Pump House	WR	C	1954	HS-88
B-48	Chicken Coop	WR	C	1940	HS-59
B-49	Boat House	WR	C	ca. 1950	HS-60
B-50	Pump House South	RW	C	1960	HS-87
B-51	Warren Pump House	RR	C	1960	HS-86
B-52	Curation Storage Facility (CSF)	DZ	NC	2002	BLDG 004
B-53	Visitor Contact Station	DZ	NC	1975	BLDG 002
B-54	Restroom	DZ	NC	1975	BLDG 001
B-55	Hazmat Building	WHR	NC	2003	BLDG 005
S-1	Cattle Scale	HR	C	1935	HS-35
S-2	Feed Rack	HR	S	1984	HS-36
S-3	Feed Rack	HR	S	1984	HS-37
S-4	Feed Rack	HR	S	1984	HS-38
S-5	Manure Pit	HR	C	1932	HS-39
S-6	Beef Hoist	HR	C	1982	HS-40
S-7	Squeeze Chute	HR	S	1984	HS-41
S-8	Feed Rack	HR	S	1998	HS-42
S-9	Feed Rack	HR	C	1982-83	HS-43
S-10	Feed Rack	HR	C	1982-83	HS-44
S-11	Feed Bunk	HR	S	1991	HS-45
S-12	Feed Bunk	HR	S	1991	HS-46
S-13	West Corrals Squeeze Chute	HR	C	1984	HS-47
S-14	Stock Shelter	HR	C	1933	HS-24
S-15	Stock Shelter	HR	C	1933	HS-27
S-16	Stock Shelter	HR	C	1933	HS-29

S-17	Stock Shelter	HR	S	2000	HS-25
S-18	Hay Storage	HR	S	2000	HS-26
S-19	Feed Bunk	HR	S	1987	HS-48
S-20	Feed Bunk	HR	S	1987	HS-49
S-21	Active/Irrigation Flume	HR	C	1974	HS-50
S-22	Kohrs-Manning Ditch Bridge	HR	S	1982	HS-55
S-23	West Feedlot Stock Shelter	HR	C	1934	HS-32
S-24	West Feedlot Stock Shelter	HR	C	1932	HS-33
S-25	West Feedlots Squeeze Chute	HR	S	1984	HS-53
S-26	West Feedlots Feed Bunk	HR	S	1987	HS-52
S-27	Slough Bridge	RW	C	1930	HS-90
S-28	Not Used	HR	NA	NA	NA
S-29	Feed Rack	HR	ND	ND	
S-30	Loading Chute	WHR	C	1952	HS-69
S-31	Squeeze Chute	WHR	S	1990s	HS-67
S-32	Feed Rack	WHR	S	1998	HS-68
S-33	Feed House	WHR	C	1952	HS-78
S-34	Feed House	WHR	C	1952	HS-79
S-35	Feed House	WHR	C	1952	HS-80
S-36	Feed House	WHR	C	1952	HS-81
S-37	Feed House	WHR	C	1952	HS-82
S-38	Feed House	WHR	C	1952	HS-83
S-39	Feed House	WHR	C	1952	HS-84
S-40	River Cobble Wall	GKR	C	ND	
S-41	Stone Terraces	GKR	S	ND	
S-42	Cut Stone Retaining Wall	GKR	C	1934	
S-43	Jensen Hay Stacker	PHF	S	ND	
S-44	Clark Fork Bridge	RW	C	1930	HS-89
S-45	Not Used	HR	NA	NA	NA

S-46	Not Used	HR	NA	NA	NA
S-47	Siphon	RR	C	1908	HS-57
S-48	Cattle Car ca. 1923	RR	S	1986	GRKO-970
S-49	Cattle Car ca. 1929	RR	S	1985	GRKO-862
S-50	Railroad trestles	RR	NC	1978	

Objects and Small-scale Features

For the most part, fences and gates found within the Grant-Kohrs Ranch NHS contribute to or support the historic significance of the site, particularly within the Home Ranch Complex. As fence and gate materials deteriorate relatively quickly, routine maintenance and replacement of these features has been common throughout the ranch's history. As it is beyond the scope of this study to identify the specific construction date for every fence line and evaluate the significance of their construction method or style with what existed throughout the Grant-Kohrs and Warren periods, general evaluations compare the existence of fence lines with what existed at the end of the period of significance. Where dates of specific fence construction and/or specific fence types or styles at the close of the period of significance are known, they are evaluated against the current conditions.

Based upon analysis of 1983 aerial photographs, it appears as though some fence patterns within the ranch reflect the conditions present at the end of the period of significance. This is certainly true along the outer boundaries of Front Field, the western edge of the Western Hay Fields, and around the Railroad Corridor and Barrow pits. While the historic fencing materials for these areas is not known, it is assumed that these fences were constructed of split cedar wood posts and barbed wire.[39] Some of the metal posts used on the ranch date back to the 1940s—these may have replaced older wooden posts.[40] Since both wood and metal barbed wire fencing were used on the ranch during the historic period, contemporary fencing materials used by the NPS would be considered supporting to the Warren period.

Current post and wire cross-fences subdividing the Western Hay Fields and Front Fields, and fencing surrounding the North Meadows, L-Barn North Field, and the Riparian Woodland (north of the L-Barn Field) do not appear in the 1983 aerial photos. Jack-leg fencing found along the eastern side of the riparian woodland also appears to post-date the period of significance. These fences are considered noncontributing features. As mentioned earlier, the metal post and wire fences (cross-fences) and electrical fence subdividing the Upland Pasture area post-date the period of significance and are considered noncontributing features. As the entire park boundary was fenced by the NPS, it can be assumed the outer fence boundary currently existing on the perimeter of the NHS does not contribute to the period of significance.

Jack-leg fences found along both sides of the Kohrs-Manning Ditch (along the western boundary of Stuart Field), along the northern edge of the Cottonwood Creek riparian woodland, and along the western edge of the Kohrs-Manning Ditch Road do not appear in the 1983 aerial photo. As such, they are considered noncontributing features.

[39] NPS comments, 75% draft CLR review.
[40] NPS comments (Mike McWright), 75% draft CLR review.

Most of the fence types found within the Home Ranch Complex are either jack-leg or 5-rail stacked-end fence. These fence types are prominent within and around the smaller fields, corrals, and feedlots. Several other fence types, such as the vertical board fence and stacked log fence, are also found in this area, although to a lesser degree. In the 1977 *Historic Resource Study*, four prominent fence types were described. These included the jack-leg (historically the most prominent), and standard post and pole fences. The latter fence type was described as "vertical poles sunk into the ground with horizontal members nailed on them." It is assumed that this description is interchangeable with the simple post and rail fence described in this report. Other fence types mentioned in the HRS include a very small number of wood post and barbed wire, as well as sheep wire fences. Today, virtually no wood post and wire, nor sheep wire fences, are found within the Home Ranch Complex. It is not known if these changes were made by Warren prior to 1982.

Based upon comparison of existing conditions with the 1983 aerial photograph, it appears as though most of the fence lines present within the Home Ranch Complex at the end of the period of significance appear in the same location today, and are considered contributing features. Some new fences have been added since that time, particularly within the West Corrals along Johnson Creek in 1996, and the Lower Yards, around the chicken coop field, in 1981. A few others have been removed--such as those near HS-30, and in between HS-7 and HS-9.

When comparing current fence types with those documented in the 1977 HRS, and historic photographs dating from 1985, several changes have been made. In some cases, such as on the north and west edges of the Lower House Yard, and the east edge of the West Feedlot, jack-leg fencing has been replaced with other fence types. Likewise, vertical plank fencing has replaced post and pole along the south edge of the west feedlot, the east edge of the bunkhouse yards, and the north edges of the West Corrals. Jack-leg fencing has also replaced the post and pole fencing along the eastern edge of Johnson Creek Field. Specific dates of these changes are not known.

Based upon review of historic photographs, fences within the 1950s Warren Hereford Ranch Complex were historically constructed of milled-lumber (assumed to be representative of the flat rail and post fence described in this report), as well as the 5-rail locked end fence (see description in Chapter Three). It appears as though these fences and gates remain essentially the same today (both location and type), and are considered contributing features.

The white picket fence surrounding the yard at the main house (HS-1) has been reconstructed by the NPS to reflect conditions present during the Grant-Kohrs period. As such, it supports the historic significance of the landscape. The picket fence surrounding the Warren house (HS-58), also reconstructed by the NPS in 2001, is considered a supporting feature. The electrical fence surrounding the perimeter of the yard is not considered a contributing feature.

Fences and gates located within the Visitor Center area were constructed in 1975 and 1978. Although these features reflect the historic fences and gates found elsewhere throughout the ranch, they are considered noncontributing features.

Refer to the Inventory Tables of Existing Conditions and Contributing Resources found in this chapter for identification of other contributing/noncontributing small-scale features.

Missing Features

Missing buildings and structures are identified on the component landscape "Missing Features" maps and described in the existing conditions sections found in Chapter Three. Missing features

were present on the ranch during the site's period of significance (1862-1982), but are no longer extant. Most missing features were once located within the Home Ranch complex, and were removed as new structures were built to replace them, or as their functions became outdated. Features designated with a "NES" number are documented as Non-Extant Structures in the 1977 Historic Resource Study.[41]

[41] Albright, 209-211.

Inventory Tables of Existing Conditions and Contributing Resources

The following "Inventory of Existing Conditions and Contributing Resources" tables summarize the analysis of contributing (C), noncontributing (NC), supporting (S), and missing (M) features documented in the previous sections. Each feature/system has been assigned a reference number based upon abbreviations used in the inventory and can be cross-referenced to the existing conditions maps found in Chapter Three. Major historic periods associated with each contributing resource are identified. Where known/appropriate, the date of origin of each contributing feature is also listed. Features whose date of origin has not been identified are delineated as not determined (ND). It is important to note that because the Cultural Landscape Report recommends a period of significance spanning 1862-1982, there are some features post-dating 1958 that have been identified as contributing the period, and which have not been identified as contributing features to the National Register Historic District. These designations should be considered as recommendations for further consideration.

Home Ranch: Inventory of Existing Conditions and Contributing Resources

C = Contributing; **NC** = Non-Contributing; **S**=Supporting; **ND**=Not Determined				**Associated Period**					
Map #	CLR/Map ID#	Feature	C/NC/S/ND	Grant-Kohrs 1862-1919	Warren 1929-1982	NPS Post 1982	Date of Origin	Native or Exotic	Comments
EC-1	**Natural Systems and Features**								
	NS-1	Bench	C	X	X	X			
	NS-2	Johnson Creek	C	X	X	X			
	NS-3	North Fork of Johnson Creek	C	X	X	X			
	NS-4	Springs	C	X	X	X			
EC-1	**Vegetation**								
	VE-1	Riparian vegetation	C	X	X	X			
		willow sp.		X	X	X		N	*Salix sp.*
		smooth brome				X		E	*Bromus inermis*
		black cottonwood		X	X	X		N	*Populus trichocarpa*
		cattail		X	X	X		N	*Typha latifolia*
	VE-2	Lower Yard Garden	NC			X	1981		to be removed/reseeded
	VE-3	Row of cottonwoods	C						*Populus trichocarpa*
	VE-4	Mix of native/non-native grasses/forbs	ND						detailed species not inventoried
EC-2	**Spatial Organization**								
	SO-1	Lower yards	C	X	X	X			
	SO-2	Lower house yards	C	X	X	X			
	SO-3	Bunkhouse yards	C	X	X	X			
	SO-4	L-Barn South	C	X	X	X			
	SO-5	West Corrals	C	X	X	X			
	SO-6	Johnson Creek Field	C	X	X	X			
	SO-7	West feedlot	C		X	X			
	SO-8	Clark Fork Bridge Road	C		X	X	ca. 1930		
	SO-9	Kohrs-Manning Ditch Road	NC		X	X	ca. 1973		constructed by NPS
EC-3	**Land Uses**								
	L-1	Interpretation	NC		X	X	1975		
	L-2	Visitor services	NC		X	X	1975		
	L-3	Livestock grazing	C	X	X	X	ca. 1862		
	L-9	Ranching operations	C	X	X	X	ca. 1862		
EC-1	**Constructed Water Features**								
	CW-1	Kohrs-Manning Ditch	C	X	X	X	ca. 1870		

EC-2	**Circulation**								
	C-1	Clark Fork River Bridge Road	C		X	X	ca. 1930		
	C-2	Kohrs-Manning Ditch Road	NC		X	X	ca. 1973		constructed by NPS
	C-3	Bunkhouse Road	C	X	X	X	ca. 1862		
	C-4	Dairy Loop Road	C	X	X	X	ca. 1870-1880		reconfigured after 1932
	C-5	Warren Pumphouse Road	C	X	X	X	ca. 1890		lengthened to access HS-86 ca. 1960
	C-6	Lower House Yard Road	C	X	X	X	ca. 1870		
	C-7	Johnson Creek Road	C	X	X	X	ca. 1870		
EC-5	**Views and Viewsheds**								
	V-1	Views of western foothills	C	X	X	X			
	V-2	Views of Deer Lodge Mt. and Mt. Powe	C	X	X	X			
	V-3	Views of riparian corridor	C	X	X	X			
	V-4	Views of Grant-Kohrs residence	C	X	X	X			
	V-5	Views within fields, feedlots, and corral	C	X	X	X			
EC-3,4	**Buildings and Structures**								
	B-1	Bunkhouse Row	C	X	X	X	1862 - 1907		HS-2
	B-2	Ice House	C	X	X	X	1880		HS-5
	B-3	Coal Shed	C	X	X	X	1915		HS-4
	B-4	Blacksmith Shop/Garage	C		X	X	1935		HS-3
	B-5	Granary/Roller Mill	C		X	X	1935		HS-6
	B-6	Draft Horse Barn	C	X	X	X	1870		HS-7
	B-7	Privy	C		X	X	1934		HS-8
	B-8	Dairy	C		X	X	1932		HS-9
	B-9	Oxen Barn	C	X	X	X	ca. 1870		HS-10
	B-10	Bielenberg Barn	C	X	X	X	1880		HS-11
	B-11	Machine Shed	C	X	X	X	1890		HS-12
	B-12	Cow Shed	C	X	X	X	1908		HS-13
	B-13	Thoroughbred Barn	C	X	X	X	1883		HS-15
	B-14	Stallion Barn	C	X	X	X	1870s		HS-14
	B-15	Stallion Barn	C	X	X	X	1870s		HS-16
	B-16	Stallion Barn	C	X	X	X	1870s		HS-19
	B-17	Stallion Barn	C	X	X	X	1870s		HS-30
	B-19	Feed Storage House	C		X	X	1932		HS-31
	B-20	Buggy Shed	C	X	X	X	ca. 1883		HS-17
	B-21	Privy	C	X	X	X	ca. 1890		HS-20
	B-22	Granary	C	X	X	X	ca. 1890		HS-18
	B-23	Brooding House	C		X	X	1935		HS-21
	B-24	Chicken House	C		X	X	1935		HS-22
	B-25	Metal Granary	C	X	X	X	ca. 1910		HS-23

	B-26	Feed Storage House	C		X	X	1933		HS-28
	B-27	West Feedlot Storage Shed	C		X	X	ca. 1930		HS-34
	S-1	Cattle Scale	C		X	X	1935		HS-35
	S-2	Feed Rack	S			X	1984		HS-36
	S-3	Feed Rack	S			X	1984		HS-37
	S-4	Feed Rack	S			X	1984		HS-38
	S-5	Manure Pit	C		X	X	1932		HS-39
	S-6	Beef Hoist	C	X	X	X	ca. 1880		HS-40; rehab. 1982
	S-7	Squeeze Chute	S			X	1984		HS-41
	S-8	Feed Rack	S			X	1998		HS-42
	S-9	Feed Rack	S			X	1982-83		HS-43
	S-10	Feed Rack	S			X	1982-83		HS-44
	S-11	Feed Bunk	S			X	ca. 1937		HS-45; reconstructed 1991; 16173L
	S-12	Feed Bunk	S			X	ca. 1937		HS-46; reconstructed 1991; 16173L
	S-13	West Corrals Squeeze Chute	S			X	1984		HS-47
	S-14	Stock Shelter	C		X	X	1933		HS-24
	S-15	Stock Shelter	C		X	X	1933		HS-27
	S-16	Stock Shelter	C		X	X	1933		HS-29
	S-17	Stock Shelter	S			X	2000		HS-25
	S-18	Hay Storage	S			X	2000		HS-26
	S-19	Feed Bunk	S			X	1987		HS-48
	S-20	Feed Bunk	S			X	1987		HS-49
	S-21	Active/Irrigation Flume	C		X	X	1974		HS-50
	S-22	Kohrs-Manning Ditch Bridge	S			X	1982		HS-55
	S-23	West Feedlot Stock Shelter	C		X	X	1934		HS-32
	S-24	West Feedlot Stock Shelter	C		X	X	1932		HS-33
	S-25	West Feedlots Squeeze Chute	S			X	1984		HS-53
	S-26	West Feedlots Feed Bunk	S			X	1987		HS-52
	S-27	Slough Bridge	C		X	X	1930		HS-90
	S-28	Not used							
	S-29	Feed House	C		X	X	ca. 1945		M. McWright info, 2004
EC-6	**Objects and Small-scale Features**								
	SS-1	Jack-Leg Fence	C/S	X	X	X	ca. 1982		G. Stuart drawing; refer to park GIS database for details
	SS-2	Vertical Board Fence	C		X	X	pre-1937		16173L; fence likely dates to same period as HS-45 and HS-46.
	SS-3	5-Rail Stacked-end Fence	C		X	X	pre-1940		16841H
	SS-4	Simple Post and Rail Fence	C		X	X	pre-1940		16160H/16158H
	SS-5	Chicken Wire Fence	NC			X	1981		
	SS-6	Chicken Wire Gates	NC			X	1981		
	SS-7	Stacked Log Fence	C		X	X	pre-1938		16841H

	SS-8	Overhead Gate	C		X	X	pre-1938		16841H
	SS-9	Red Wood Gate	C		X	X	pre-1938		16841H
	SS-10	5-Rail Braced Gate	C	X	X	X	ca. 1866		1866 dwg, GRKO 6269
	SS-11	Vertical Board Gate	ND			X	ND		
	SS-116	Water trough	NC			X	1995		
	SS-117	Water bar	NC			x	2001		
	O-1	Fire Hydrants	NC			X	1980		Administrative History
	O-2	Fire Box	NC			X	ca. 1985		Administrative History
EC-7	**Archeological & Missing Resources**								
	A-1	Irrigation system	M	X			ca. 1883		HRS, 215-216; CLI
	A-2	Drainage ditch to Johnson Creek	M	X			ca. 1890		1907 map of townsite
	A-3	Hydraulic Ram	M	X			ca. 1890		HRS, 194
	A-4	Kohrs-Manning Flume	M		X		1947		HS-51
	A-5	Bridge	M		X		ca. 1930		HS-54
	A-6	Machine Shed	M	X			pre-1907		NES-B
	A-7	Open Cow-Shed	M	X			pre-1907		NES-C
	A-8	Cow Stable	M	X			pre-1907		NES-D
	A-9	Cow Barn	M	X			pre-1907		NES-E
	A-10	Chicken House	M	X	X		pre-1884		NES-G, Leeson dwg
	A-11	Turkey House	M	X	X		pre-1884		11400L, Leeson dwg
	A-12	Cow Shed	M		X		pre-1930		NES-L
	A-13	Feed Rack	M		X		pre-1930		NES-H
	A-14	Feed Rack	M		X		pre-1930		NES-I
	A-15	Feed Rack	M		X		pre-1930		NES-J
	A-16	Feed Rack	M		X		pre-1930		NES-K
	A-17	Wooden box or flume	M				ND		NES-M
	A-18	Foundations, unknown	M		X		pre-1930		NES-N
	A-19	Watering Trough	M				ND		NES-O
	A-20	Log Retaining Wall	M		X		pre-1935		NES-P
	A-21	NPS trailer	M			X	1970		NPS Caretaker, removed 1976
	A-22	NPS trailer	M			X	1971		NPS Caretaker Office, removed 1976
	A-23	NPS trailer	M			X	1974		NPS Historian, moved near HS-15 in 1976 and removed 2002
	A-47	Slaughter House	M	X			ca. 1904		Gerhmann, 1974
	A-54	Building, unknown function	M		X		ca. 1937		GRKO 15884.12, GRKO 15884.14

Warren Hereford Ranch: Inventory of Existing Conditions and Contributing Resources

C = Contributing; **NC** = Non-Contributing; **S**=Supporting; **ND**=Not Determined				**Associated Historic Periods**					
Map #	CLR/Map ID#	Feature	C/NC/S/ND	Grant-Kohrs 1862-1919	Warren 1929-1982	NPS Post 1982	Date of Origin	Native or Exotic	Comments
EC-8	**Natural Systems and Features**								
	NS-5	Drainage swale	C		X	X			
EC-8	**Vegetation**								
	VE-5	Mix of native/non-native pasture grasses	C						detailed species not inventoried
EC-8	**Spatial Organization**								
	SO-10	Alleys	C		X	X	1952		
	SO-11	Square Corrals	C		X	X	1952		
	SO-12	Chute area	C/NC		X	X	1952		metal chute system NC
	SO-13	Shop/barn yards	C		X	X	1952		
	SO-14	West pasture	C		X	X	1952		
	SO-15	Bull barn corrals	C		X	X	1952		
	SO-16	Whiskey pasture	C		X	X	1952		NPS converted to parking area, 2003
	SO-17	Kohrs-Warren lane	C	X	X	X	ca. 1862		
	SO-18	Bull Barn Rd./NPS Service Entrance	C/NC		X	X	1953		Road modified by NPS in 1973
EC-9	**Land Uses**								
	L-4	NPS administration /storage/maintenance	NC		X	X	1974		
	L-3	Livestock grazing	C		X	X	ca. 1954		
	L-9	Ranching operations	C		X	X	ca. 1954		
	L-10	Water Treatment/Effluent Irrigation	S		X	X	1999		
EC-9	**Constructed Water Features**								
	CW-2	Heated water troughs	C/NC			X	ca. 1956		NPS added 2nd trough to some pens ca. 1995
EC-8	**Circulation**								
	C-8	Bull Barn Rd./NPS Service Entrance	C/NC		X	X	1953		Road modified by NPS in 1973
	C-9	Kohrs-Warren lane	C	X	X	X	ca. 1862		
	C-10	Gravel parking areas	C/NC		X	X	1952		HS-64/65 est. by Warren; Whiskey Pasture parking is NC, est. by NPS
	C-11	Alleys	C		X	X	1952		
	C-12	Business Loop 90	C	X	X	X	pre-1862		Road to Hell Gate; Montana Hwy 10

EC-8	**Views and Viewsheds**								
	V-6	Views to fairgrounds	C		X	X			
	V-7	Views of railroad corridor	C	X	X	X	ca. 1879		
	V-8	Views to Warren Residence	C		X	X			
	V-9	Views to Home Ranch complex	C	X	X	X			
EC-9	**Buildings and Structures**								
	B-30	Warren Barn	C		X	X	1952		HS-64
	B-31	Bull Barn	C		X	X	1952		HS-62
	B-32	Bull Barn	C		X	X	1952		HS-63
	B-33	Sales Barn	C		X	X	1954		HS-65
	B-34	Resource Building/Office	NC			X	2000		BLDG-003
	B-35	Scale House	C		X	X	1952		HS-66
	B-36	Cow Shed	C		X	X	1952		HS-70
	B-37	Cow Shed	C		X	X	1952		HS-71
	B-38	Cow Shed	C		X	X	1952		HS-72
	B-39	Cow Shed	C		X	X	1952		HS-73
	B-40	Cow Shed	C		X	X	1952		HS-74
	B-41	Cow Shed	C		X	X	1952		HS-75
	B-42	Cow Shed	C		X	X	1952		HS-76
	B-43	Cow Shed	C		X	X	1952		HS-77
	B-55	Hazmat Building	NC			X	2003		GRKO-005
	S-30	Loading Chute	C		X	X	1952		HS-69
	S-31	Squeeze Chute	S			X	1990s		HS-67
	S-32	Feed Rack	S			X	1998		HS-68
	S-33	Feed House	C		X	X	1952		HS-78
	S-34	Feed House	C		X	X	1952		HS-79
	S-35	Feed House	C		X	X	1952		HS-80
	S-36	Feed House	C		X	X	1952		HS-81
	S-37	Feed House	C		X	X	1952		HS-82
	S-38	Feed House	C		X	X	1952		HS-83
	S-39	Feed House	C		X	X	1952		HS-84
	S-51	Portable Chute System	NC			X	2000		
EC-10	**Objects and Small-scale Features**								
	SS-3	5-Rail Stacked-end Fence	C		X	X	ca. 1952		15916.41 ("rub rails")
	SS-8	Overhead Gate	C		X	X	ca. 1952		16171W
	SS-9	Red Wood Gate	C		X	X	ca. 1952		16193A
	SS-10	5-Rail Braced Gate	C		X	X	ca. 1952		16193A
	SS-11	Not Used							
	SS-12	Not Used							
	SS-13	Concrete slabs/blocks							probably airplane tie-downs; added per NPS comments

	SS-14	Plank and Post Fence	C		X	X	pre-1972		16114F
	SS-15	Flat Rail and Post Fence	C		X	X	ca. 1952		TREELAWN photo
	SS-16	Woven Wire Fence	C		X	X	ca. 1945		16171W
	SS-17	Metal Pipe Fence	NC			X	2000		
	SS-18	Metal Pipe Gates	NC			X	2000		
	SS-19	Lumber Stack	NC			X	ca. 1980s		
	SS-20	Hitching Post	NC			X	ca. 1980s		
	SS-21	Stop sign/RR crossing sign	NC			X	ca. 1970		
	SS-22	Wood Trough	C		X	X	ca. 1950s-1970s		
	SS-23	Material piles	C/NC		X	X	ca. 1970s /1988		NW corner pile dates to Warren period
	SS-24	Wood Chutes and Gates	C		X	X	ca. 1954		used with HS-65
	O-1	Fire Hydrants	NC			X	ca. 1985		
EC-10	**Archeological & Missing Resources**								
	A-24	Pump house	M		X	X	pre-1958		HS-85, moved 10' west from original location in 1990; removed 2002
	A-55	Warren Hereford Entry Sign	M		X	X	ca. 1952		16193A; removed by Warren

Grant-Kohrs Residence: Inventory of Existing Conditions and Contributing Resources

C = Contributing; **NC** = Non-Contributing; **S**=Supporting; **ND**=Not Determined				**Associated Historic Period**					
Map #	CLR/Map ID#	Feature	C/NC/S/ND	Grant-Kohrs 1862-1919	Warren 1929-1982	NPS Post 1982	Date of Origin	Native or Exotic	Comments
EC-11	**Natural Systems and Features**								
	NS-1	Bench	C	X	X	X			
EC-11	**Vegetation**								
	VE-6	Grid of cottonwood trees	S	X	X	X	ca. 1870s	N	*Populus trichocarpa; restored by NPS 2002*
	VE-7	Ornamental vegetation (historical association derived from CLI, 2003)							
		black willow	C		X	X	ca. 1935		*Salix scoulerana*
		green ash	S	X	X	X			*Fraxinus Pennsylvanica; restored by NPS 2002*
		juniper	C	X	X	X			*Juniperus occidentalis*
		blue spruce	C	X	X	X	pre-1922		*Picea pungens*
		boxelders	C	X	X	X			*Acer negundo*
		lilac shrubs	C	X	X	X	pre-1934		*Syringa vulgaris*
		twinberry honeysuckle	C	X	X	X			*Lonicera involverata*
		lanceleaf cottonwoods	C	X	X	X			*Populus accuminata*
		barberry shrubs	C		X	X	ca. 1934		*Berberis thunbergii 'Atropurpurea'*
		gooseberry shrubs	C		X	X			*Ribes sp.*
		cotoneaster shrub	C		X	X			*Cotoneaster acutifolius*
	VE-8	Perrenial Garden (historical association derived from CLI, 2003)							
		babies breath	ND			X			
		bachelor buttons	ND			X			
		columbines	ND			X			
		crocuses	C	X		X			
		daffodils	C	X		X			
		daisies	ND			X			
		delphiniums	ND			X			
		flox	ND			X			
		forget-me-nots	ND			X			
		geraniums	ND			X			
		goldenrods	ND			X			
		hairbells	ND			X			
		hemerocalis	ND			X			
		hens and chicks	ND			X			
		hyacinths	C	X		X			
		irises	ND			X			
		dwarf irises	ND			X			
		lilies	C	X		X			
		monk's hood	C	X		X			
		peonies	C	X		X			
		pink poppies	ND			X			
		yellow raniculus	ND			X			

		rhubarb, soapwoods	ND			X			
		sweet peas	C	X		X			
		sweet williams	ND			X			
		tea roses	C	X		X			
		orange poppies	ND			X			
		tulips	C	X		X			
	VE-9	Lawn	C	X	X	X	ca. 1880		
EC-13	**Spatial Organization**								
	SO-19	Front lawn	C	X	X	X	ca. 1880		
	SO-20	Side yards	C		X	X	ca. 1890		north side yard served as former service area until 1934
	SO-21	Lower garden	C	X	X	X	ca. 1890		re-established by NPS mid-1980s
	SO-22	Bunkhouse Road Corridor	C	X	X	X	ca. 1865		
EC-12	**Land Uses**								
	L-1	Interpretation	NC		X	X	1975		
	L-4	NPS Admin/Storage	NC			X	1975		
EC-13	**Circulation**								
	C-13	Asphalt Sidewalk	NC			X	1976		
	C-14	Wood Plank Walk	S	X		X	1975/ 1986		reconstructed by NPS
	C-15	Brick Walk	S	X	X	X	ca. 1912		reconstructed by NPS ca. 1975
	C-16	Flagstone Walk	S			X	1997-98		reconstructed by NPS
	C-17	Wide Stone Staircase	C		X	X	1934		
	C-18	Narrow Stone Staircase	S		X	X	1987		reconstructed by NPS
	C-19	Wooden Stairs	S	X	X	X	1977		reconstructed by NPS
	C-20	Remnant Stone Steps	C	X			ca. 1890		abandoned ca. 1930
	C-21	Bunkhouse Row Loop Road	C	X	X	X	ca. 1865		
	C-45	Kitchen Stairs	ND	X	X	X	ca. 1890		reconstructed by NPS
	C-46	Stone Path	ND		X	X	ca. 1934		
EC-12	**Views and Viewsheds**								
	V-10	Views of Railroad Corridor & Warren Residence	C	X	X	X	1883 and 1934		
	V-11	Views to lower ranch, riparian corridor, and western foothills	C	X	X	X			
	V-12	Views to Bunkhouse Row	C	X	X	X			
	V-13	Views from within lower garden	C	X	X	X			
	V-27	Views to Hillcrest Cemetery	C	X	X	X			

EC-12	**Buildings and Structures**								
	B-44	Main Residence	C	X	X	X	1862/1890		HS-1
	S-40	River Cobble Wall	C	X	X	X	ND		
	S-41	Stone Terraces	S	X	X	X	ND		reconstructed by NPS ca. 1983-85
	S-42	Cut Stone Retaining Wall	C		X	X	1934		
EC-14	**Objects and Small-scale Features**								
	SS-25	White Picket Fence	S	X	X	X	2002-2003		originally built 1882; replaced 1934; original reconstructed by NPS
	SS-26	Wire Mesh Gate	C		X	X	ca. 1934		6835
	SS-27	Manhole Cover	NC			X			
	SS-28	Wood Benches	S	X	X	X	ND		reconstructed by NPS ca. 1980
	SS-29	Stanchion Pipe	NC			X			
	SS-30	Trash Barrel - Small	NC			X			
	SS-32	Wooden Raised-Bed Frames	S	X	X	X	ca. 1980s		reconstructed by NPS
	SS-33	Wooden Trellises	S	X	X	X	1984		reconstructed by NPS
	SS-34	Capped Pipes	NC			X			
	SS-35	Utility Meters	NC			X			
	SS-36	Yellow Stand-pipe	NC			X			
	SS-37	Sign	NC			X	1997		
	SS-38	Wood Cellar Covers	S	X	X	X	ca. 1890		reconstructed by NPS
	SS-39	Wood hand rail	S		X	X	1987		reconstructed by NPS
	O-1	Fire Hydrant	NC			X			
	O-2	Fire Box	NC			X			
	O-3	Utility Cover	NC			X			
	O-4	Wheelbarrow	NC			X	ca. 1995		NPS reproduction of period piece
EC-14	**Archeological & Missing Resources**								
	A-1	Irrigation system	M	X			ca. 1883		HRS, 215-216; CLI
	A-2	Drainage Ditch	M	X			ca. 1890		
	A-22	NPS trailer	M			X	1970		
	A-48	Ornamental vegetation	M						(Shappins, 2003), 35; specific locations not determined
		Granny's Bonnet (Aquilegia)							
		Johnny Jump Ups (Viola tricolor),							
		Heart's Ease (Viola x wittrockiana)							
		Roses (various species)							
		orange Zinnias							speculative
		yellow Marigolds							speculative
		blue Ageratum,							speculative
		pink Wax Begonias							speculative

		white Allysum							speculative
		scarlet Salvia							speculative
		purple Petunias							speculative
	A-49	Vegetable garden	M						(Shappins, 2003), 35.
		string beans							
		rhubarb							
		red potatoes							
		scallions							
		onions							
		leaf lettuce							
		carrots							
		radishes							
		yellow corn,							
		squash (hubbard)							
		parsnips							
		strawberries							

Warren Residence: Inventory of Existing Conditions and Contributing Resources

C = Contributing; **NC** = Non-Contributing; **S**=Supporting; **ND**=Not Determined				**Associated Historic Period**					
Map #	CLR/Map ID#	Feature	C/NC/S/ND	Grant-Kohrs 1862-1919	Warren 1929-1982	NPS Post 1982	Date of Origin	Native or Exotic	Comments
EC-15	**Natural Systems and Features**								
	NS-6	North Fork of Johnson Creek	C	X	X	X			
	NS-1	Bench	C	X	X	X			
EC-15	**Vegetation**								
	VE-10	Ornamental vegetation	C						
		Black cottonwood			X	X		N	*Populus trichocarpa*
		Spruce			X	X		N	*Picea sp.*
		Mountain alder			X	X			*Alnus incana*
		Mountain ash			X	X		N	*Sorbus aucuparia*
		Maple			X	X			*Acer sp.*
		Green ash			X	X			*Fraxinus pennsylvanica*
		Juniper tree			X	X			*Juniperus sp.*
		Juniper shrub			X	X			*Juniperus sp.*
		Cotoneaster			X	X			*Cotoneaster sp.*
	VE-11	Riparian zone vegetation	C						
		willow sp.		X	X	X		N	*Salix sp.*
		smooth brome				X		E	*Bromus inermis*
		black cottonwood		X	X	X		N	*Populus trichocarpa*
	VE-12	Non-irrigated pasture grasses	C						
		bluebunch wheatgrass		X	X	X		N	*Agropyron spicatum*
		moss phlox		X	X	X		N	*Phlox muscoides*
		needle-and-thread grass		X	X	X		N	*Stipa comata*
		Missouri goldenrod		X	X	X		N	*Solidago missouriensis*
		hairy goldenaster		X	X	X		N	*Chrysopis villosa*
		desert alyssum				X		E	*Alyssum desertorum*
		blue grama		X	X	X		N	*Bouteloua gracilis*
	VE-13	Lawn			X	X			
EC-16	**Spatial Organization**								
	SO-23	Domestic yard	C		X	X	1934		
	SO-24	Chicken coop field	C		X	X	1940		
	SO-25	East field	C		X	X	1934		
	SO-26	West field	C		X	X	1934		
	SO-27	Stuart pasture	C		X	X	1934		spatial org. altered after visitor center area development
	SO-17	Kohrs-Warren lane	C	X	X	X	ca. 1862		
	SO-28	Riparian zone (North Fork of Johnson Creek)	C	X	X	X			
EC-16	**Land Uses**								
	L-4	NPS administration/storage	NC			X	1994		
	L-3	Livestock grazing	C	X	X	X	ca. 1884		
	L-1	Interpretation	NC			X	ca. 1994		

EC-16	**Constructed Water Features**								
	CW-3	Well	C		X	X	1934		
	CW-4	Culvert	C		X	X	pre-1947		
	CW-5	Old Ditch	C		X	X	ND		
EC-16	**Circulation**								
	C-7	Kohrs-Warren lane	C	X	X	X	ca. 1862		
	C-19	Driveway	C		X	X	1934		
	C-20	Sidewalk	C		X	X	1934		Concrete replaced flagstone walk ca. 1956 (16004.152)
	C-21	Stuart pasture road	C		X	X	pre-1947		
	C-22	Steps	C		X	X	1956		HSR
	C-23	Patio	C		X	X	ca. late 1940s		
	C-45	Remnant stone path	C		X	X			locations approximate
	C-46	Chicken Coop road	C		X	X			
EC-17	**Views and Viewsheds**								
	V-14	Views within yard	C		X	X			
	V-15	Views of riparian zone	C	X	X	X			
	V-16	Views to Grant-Kohrs Residence	C	X	X	X			
	V-17	Views to Warren Hereford Ranch	C		X	X			
	V-18	Views of railroad corridor	C	X	X	X			
	V-19	Views of Visitor Center Complex	NC			X			
EC-16	**Buildings and Structures**								
	B-45	Warren Residence	C		X	X	1934		HS-58
	B-46	Garage	C		X	X	1934		HS-61
	B-47	Warren Residence Pump House	C		X	X	1954		HS-88
	B-48	Chicken Coop	C		X	X	1940		HS-59
	B-49	Boat House	C		X	X	ca. 1950		HS-60
EC-18	**Objects and Small-scale Features**								
	SS-40	Picket Fence	S		X	X	1934		5992HS; reconstructed by NPS ca. 2001
	SS-41	Electric Fence	NC			X	ca. 2000		
	SS-42	Picket Double Gate	C		X	X	1934		15884.22
	SS-43	Picket Single Gate	C		X	X	1934		
	SS-44	Wire Mesh Gate	C		X	X	ca. 1952		15882
	SS-45	Wood Post and Woven Wire Fence	C		X	X	pre-1943		1588421
	SS-46	Red Wood Gate	C				ca. 1934		
	SS-47	Jack-Leg Fence	NC				ca. 1975		NPS construction
	SS-48	5-Rail Braced Gate	C		X	X	ca. 1934		
	SS-49	Stepping Stones	NC		X	X			Not in original location; stones removed by NPS 2003; 5891
	SS-50	NPS Mailbox	NC			X	2002		
	SS-51	BBQ foundation/burn barrel	C		X	X	ca. 1958		
	SS-52	Clothesline	C		X	X	pre-1964		16058A

	SS-53	Concrete trough	ND				pre-1972		
	SS-54	Magpie trap	ND				ca. 1955		
	SS-55	Birdbath	C		X	X	pre-1964		16058A
	O-1	Fire hydrant	NC			X	1998		
	O-6	Antenna	NC			X	ND		
	O-7	Meter	NC			X	ND		
EC-18	**Archeological & Missing Resources**								
	A-1	Irrigation Ditch (GK residence)		X	X		ca. 1883		HRS, 215-216; CLI
	A-23	Warren Lane irrigation system			X		ND		NPS review comments (need source)
	A-24	Granary foundation remains			X		ca. 1950-60		1947 and 1960 aerials
	A-25	Ornamental vegetation			X		1934 and later		
	A-26	Garden			X		ca. 1934		location approximate
	A-27	Allee of cottonwoods			X		ca. 1870		16114H
	A-47	Berg Trailer			X		pre-1982		1983 aerial
	A-48	Creep Feeder			X		ND		location approximate; removed by NPS
	A-49	Wooden Bridge			X		ca. 1940		15882.20
	A-50	Flagstone Walk			X		ca. 1940		15882.20; full extent ND
	A-51	Swing set			X		ca. 1938		5964
	A-52	Dog House			X		ca. 1939		5879; location approximate
	A-53	Sweet Pea Trellis			X		ca. 1937		5936; 5881; location approximate

Pasture/Hayfield: Inventory of Existing Conditions and Contributing Resources

C = Contributing; **NC** = Non-Contributing; **S**=Supporting; **ND**=Not Determined				**Associated Historic Period**					
Map #	CLR/Map ID#	Feature	C/NC/S/ND	Grant-Kohrs 1862-1919	Warren 1929-1982	NPS Post 1982	Date of Origin	Native or Exotic	Comments
EC-19,20	**Natural Systems and Features**								
	NS-1	Bench	C	X	X	X			
	NS-7	Springs	C	X	X	X			
	NS-8	No-name Creek	C	X	X	X			
	NS-9	Spring Gulch	C	X	X	X			
	NS-10	West Gulch	C	X	X	X			
	NS-11	East Gulch	C	X	X	X			
	NS-17	Beaver Lodges	C	X	X	X			
EC-19,20	**Vegetation**								
	VE-13	Irrigated hay grasses							
		smooth brome	C		X	X	ca. 1950	E	*Bromus inermis*
		common timothy	C	X	X	X	1893	E	*Phleum partense*
		Kentucky bluegrass	C		X	X		E	*Poa pratensis*
		red clover	C	X	X	X	1894	E	*Trifolium pretense*
		Canada thistle	NC		?	X		E	*Cirsium arvense*
		crested wheatgrass	C		X	X	1951	E	*Agropyron cristatum*
		white clover	ND		X	X	?	E	*Trifolium repens*
		redtop bentgrass	C		X	X	?	E	*Agrostis stolonifera*
		intermediate wheatgrass	C		X	X	ca. 1939-45	E	*Agropyron intermedium*
	VE-14	Non-irrigated pasture grasses							
		bluebunch wheatgrass	C	X	X	X		N	*Agropyron spicatum*
		moss phlox	C	X	X	X		N	*Phlox muscoides*
		needle-and-thread grass	C	X	X	X		N	*Stipa comata*
		Missouri goldenrod	C	X	X	X		N	*Solidago missouriensis*
		hairy goldenaster	C	X	X	X		N	*Chrysopis villosa*
		desert alyssum	NC		?	X		E	*Alyssum desertorum*
		blue grama	C	X	X	X		N	*Bouteloua gracilis*
	VE-15	Irrigated pasture grasses (effluent fields)							
		smooth brome	C		X	X	ca. 1950	E	*Bromus inermis*
		spotted knapweed	NC		X	X		E	*Centaurea biebersteinii*
		bluebunch wheatgrass	C	X	X	X		N	*Agropyron spicatum*
		moss phlox	C	X	X	X		N	*Phlox muscoides*
		needle-and-thread grass	C	X	X	X		N	*Stipa comata*
		Missouri goldenrod	C	X	X	X		N	*Solidago missouriensis*
		hairy goldenaster	C	X	X	X		N	*Chrysopis villosa*
		desert alyssum	NC			X		E	*Alyssum desertorum*
		blue grama	C	X	X	X		N	*Bouteloua gracilis*
		orchard grass	NC			X	ca. 1950	E	*Dactylis glomerata*
		western sticktight	C	X	X	X		N	*Lappula occidentalis*

EC-21,22	**Spatial Organization**								
	SO-29	Stuart Field	C	X	X	X			aka Stuart Meadow
	SO-30	Lower Yard Fields	C	X	X	X			
	SO-31	North Meadows	C	X	X	X			aka Lower Meadows
	SO-32	L-Barn Field North	C	X	X	X			
	SO-33	Western Hay Fields	C		X	X	ca. 1930		aka Pumphouse Fields, Lower Meadow Fields (1-4), River Bridge Field, West Side Fields
	SO-34	Front Field	C	X	X	X			spatial organization altered by WH Ranch, 1952
	SO-35	Olson Field, East	C	X	X	X			
	SO-36	Olson Field, West	C	X	X	X			
	SO-37	Treatment Pond Field	C	X	X	X			spatial organization altered by sewage pond, 1958-60
	SO-38	L-Barn Field	C	X	X	X			
	SO-39	Kohrs "Big" Ditch Road	C		X	X	late 1930s		
	SO-40	Kohrs-Manning Ditch Road	NC		X	X	ca. 1973		constructed by NPS
	SO-41	Warren Pumphouse Road	C	X	X	X	ca. 1890		
	SO-42	Clark-Fork River Bridge Road	C		X	X	ca. 1930		
	SO-43	Sewage treatment service road	C		X	X	1958-60		
	SO-44	South park entry road	C		X	X	late 1930s		
EC-21,22	**Land Uses**								
	L-3	Livestock grazing	C	X	X	X	1860s+		
	L-5	Hay production	C	X	X	X	1860s+		
	L-10	Water treatment/Effluent irrigation	NC			X	1999		
EC-23,24	**Constructed Water Features**								
	CW-1	Kohrs-Manning Ditch	C	X	X	X	ca. 1870		
	CW-6	Kohrs "Big" Ditch	C	X	X	X	ca. 1885		assumed by water rights
	CW-7	Johnson Ditch	C	X	X	X	ca. 1874 or earlier		assumed by water rights
	CW-8	Lateral ditches	C		X	X	1930-50		
	CW-9	Old/abandoned ditches	C		X	X	ND		
	CW-10	Irrigation Risers	S		X	X	1999		Original irrigation system by Warren, 1954; NPS reconstructed with co-op agreement
	CW-11	Irrigation Headgates	S		X	X	1999		Original irrigation system by Warren, 1954; NPS reconstructed with co-op agreement
	CW-12	Effluent Wells	NC			X	1999		Co-op agreement

	CW-13	Irrigation Mainline	S		X	X	1999		Original irrigation system by Warren, 1954; NPS reconstructed with co-op agreement
	CW-14	Test Wells	NC			X	1997		Special use permit
	CW-15	Culverts	ND			X	ND		Not inidividually analyzed
	CW-16	Warren Ditch	C		X	X	pre-1947		1947 aerial photo
EC-21,22	**Circulation**								
	C-23	Kohrs Ditch Road	C		X	X	late 1930s		
	C-24	Kohrs-Manning Ditch Road	NC		X	X	ca. 1973		constructed by NPS
	C-25	Warren Pumphouse Road	C	X	X	X	ca. 1890		
	C-26	Clark-Fork River Bridge Road	C		X	X	ca. 1930		
	C-27	Sewage treatment service road	C		X	X	1958-60		
	C-28	South park entry road	C		X	X	late 1930s		
	C-29	Cottonwood Trail	NC			X	1993		
EC-25,26	**Views and Viewsheds**								
	V-20	Views to riparian corridor	C	X	X	X			
	V-21	Views to western foothills	C	X	X	X			
	V-22	Views of Deer Lodge	C	X	X	X			
	V-23	Views of sewage treatment ponds	C		X	X	1958-60		
	V-24	Views of Home Ranch Complex	C	X	X	X			
	V-25	Views of Business Loop 90 corridor	C	X	X	X			
	V-26	Views of Railroad Corridor	C	X	X	X	1879+		
	V-27	Views of Hillcrest Cemetery	C	X	X	X			
EC-19,20	**Buildings and Structures**								
	S-43	Jensen Hay Stacker	S			X	ND		
EC-27,28	**Objects and Small-scale Features**								
	SS-56	Jack-Leg Fence	C/S/NC	X	X	X	1860s+		Not individually analyzed; refer to park GIS database for details
	SS-57	Metal Post and Wire Fence	C/S/NC		X	X	ND		Not individually analyzed; refer to park GIS database for details; cross fence NC (1990s)
	SS-58	Wood Post and Wire Fence	C/S/NC		X	X	ND		Not individually analyzed; refer to park GIS database for details
	SS-59	Overhead Gates	ND			X			
	SS-60	Double 5-Rail Braced Gate	ND			X			

	SS-61	Metal Pipe Gate	NC			X	ca. 1999		
	SS-62	Metal Pipe and Mesh Gates	NC			X	ca. 1999		
	SS-63	Wood Post and Woven Wire Fence	C/S		X	X	ND		Not individually analyzed; refer to park GIS database for details
	SS-64	Blue water troughs	NC			X	ca. 1999		
EC-27, 28	**Archeological & Missing Resources**								
	A-29	Wood frame structure, ruins	M				ND		
	A-30	Road to Hell Gate	M	X	X		pre-1868		aka "Old County Road"; moved late 1930s

Upland Pasture: Inventory of Existing Conditions and Contributing Resources

C = Contributing; **NC** = Non-Contributing; **S**=Supporting; **ND**=Not Determined				**Associated Historic Periods**					
Map #	CLR/Map ID#	Feature	C/NC/S/ND	Grant-Kohrs 1862-1919	Warren 1929-1982	NPS Post 1982	Date of Origin	Native or Exotic	Comments
EC-29	**Natural Systems and Features**								
	NS-1	Bench	C	X	X	X			
	NS-12	Hilltops	C	X	X	X			
	NS-13	Taylor Creek	C	X	X	X			
EC-30	**Vegetation**								
	VE-13	Irrigated hay grasses							
		smooth brome	C		X	X	ca. 1950	E	*Bromus inermis*
		common timothy	C	X	X	X	1893	E	*Phleum partense*
		Kentucky bluegrass	ND		X	X		E	*Poa pratensis*
		red clover	C	X	X	X	1894	E	*Trifolium pretense*
		Canada thistle	NC			X		E	*Cirsium arvense*
		crested wheatgrass	C		X	X	1951	E	*Agropyron cristatum*
		white clover	ND			X	ND	E	*Trifolium repens*
		redtop bentgrass	C		X	X	ND	E	*Agrostis stolonifera*
		intermediate wheatgrass	C		X	X	ca. 1939-1945	E	*Agropyron intermedium*
	VE-16	Dry range/pasture grasses							
		common yarrow	C	X	X	X		N	*Achillea millefolium*
		crested wheatgrass	NC			X		E	*Agripyron cristatum*
		fringed sagebrush	C	X	X	X		N	*Artemisia frigida*
		standing milkvetch	C	X	X	X		N	*Astragalus adsurgens*
		blue grama	C	X	X	X		N	*Bouteloua gracilis*
		smooth brome	NC		X	X		E	*Bromus inermis*
		spotted knapweed	NC			X		E	*Centaurea biebersteinii*
		waveleaf thistle	C	X	X	X		N	*Cirsium undulatum*
		rubber rabbitbush	C	X	X	X		N	*Ericameria nauseosa*
		shaggy fleabane	C	X	X	X		N	*Erigeron pumilus*
		cultleaf daisy	C	X	X	X		N	*Erigeron compositus*
		rough fescue	C	X	X	X		N	*Festuca camperstris*
		scarlet gaura	C	X	X	X		N	*Gaura coccinea*
		prairie smoke	C	X	X	X		N	*Geum triflorum*
		curly-cup gumweed	C	X	X	X		N	*Grindelia squarrosa*
		broom snakeweed	C	X	X	X		N	*Gutierrezia saothrae*
		baby's breath	NC			X		E	*Gypsophia paniculata*
		needle-and-thread	C	X	X	X		N	*Hesperostipa comata*
		little-leaf alumroot	C	X	X	X		N	*Heuchera parvifolia*
		winterfat	C	X	X	X		N	*Krascheninnikovia lanata*
		bitterroot	C	X	X	X		N	*Lewisia rediviva*
		yellow sweetclover	NC			X		E	*Melilotus officinalis*
		plains pricklypear	C	X	X	X		N	*Opuntia polyacantha*
		Bessey's locoweed	C	X	X	X		N	*Oxytropis besseyi*
		western wheatgrass	C	X	X	X		N	*Agropyron smithii*

		longleaf phlox	C	X	X	X		N	*Phlox longifolia*
		moss phlox	C	X	X	X		N	*Phlox muscoides*
		sandberg's bluegrass	C	X	X	X		N	*Poa juncifolia*
		bluebunch wheatgrass	C	X	X	X		N	*Agropyron spicatum*
		tall tumblemustard	NC			X		E	*Sisymbrium altissimum*
		Missouri goldenrod	C	X	X	X		N	*Solidago missouriensis*
		scarlet globemarrow	C	X	X	X		N	*Sphaeralcea coccinea*
		dandelion	NC			X		E	*Taraxacum officinale*
		spineless horsebrush	C	X	X	X		N	*Tetradymia canescens*
		intermediate wheatgrass	NC		X	X		E	*Agropyron intermedium*
	VE-17	Apple tree cluster	C		X	X	ca. 1890	E	*Malus sp.*
	VE-18	Cottonwood tree cluster	C		X	X	ca. 1890	N	*Populus trichocarpa*
EC-30	**Spatial Organization**								
	SO-45	Big Gulch	C		X	X	1930s		
	SO-46	Little Gulch	C		X	X	1930s		
	SO-47	Lower Taylor Field	C		X	X	1930s		aka Taylor meadow
	SO-48	Upper Northwest Range	C		X	X	1930s		
	SO-49	Taylor Ridge Range	C		X	X	1930s		
	SO-50	Gravel Pit Range	C		X	X	1930s		
	SO-51	Ridge Road Range	C		X	X	1930s		
	SO-52	Upper Taylor Field	C		X	X	1930s		
EC-30	**Land Uses**								
	L-3	Livestock Grazing	C		X	X	1930s		
	L-5	Hay production	C	X	X	X	1860s+		
EC-29	**Constructed Water Features**								
	CW-6	Kohrs "Big" Ditch	C	X	X	X	ca. 1885		
	CW-8	Lateral ditches	C		X	X	1930-50		
	CW-9	Old/abandoned ditches	C		X	X	ND		
	CW-13	Irrigation Mainline	NC			X	ND		location approximate
	CW-17	West-side Ditch	C	X	X	X	1887		
	CW-18	Hartz Ditch	C	X	X	X	ca. 1890		assumed association with Kading homesite
	CW-19	Talyor Ditches	C			X	ca. 1885		GRKO water rights
	CW-20	Salmonson Waste Ditch	ND			X	ND		
	CW-21	Irrigation Headgates	S/NC		X	X	ND		Most headgates in original location but reconstructed; not individually analyzed
	CW-22	Earthen Dam	ND			X	ND		based on NPS comments
EC-31	**Circulation**								
	C-23	Kohrs Ditch Road	C		X	X	late 1930s		
	C-30	Upland Pasture Road	C		X	X	ca. 1890		assumed association with Kading homesite
	C-31	Ridge Road	C		X	X	ca. 1890		assumed association with Kading homesite

	C-32	MTSR-4691	C		X	X	ND		
	C-33	Gravel Pit Road	C		X	X	late 1950s		
	C-34	Little Gulch Road	C		X	X	ND		
	C-35	Big Gulch Road	C		X	X	ND		
EC-31	**Views and Viewsheds**								
	V-28	Views of the ranch and riparian zone	C	X	X	X			
	V-29	Views of Deer Lodge/Hillcrest Cemeter	C	X	X	X			
	V-30	Views to Deer Lodge Mountain/Mt. Powell	C	X	X	X			
	Buildings and Structures								
		N/A							
EC-32	**Objects and Small-scale Features**								
	SS-65	Metal Post and Barbed Wire Fence	NC			X	1998		
	SS-66	Wood Post and Barbed Wire	C/S		X	X	ca. 1930s		not individually analyzed
	SS-67	Electric Fence	NC			X	ca. 2002		
	SS-68	5-Rail Stacked-End Fence	C		X	X	ND		
	SS-69	Wire Gates	ND			X	ND		
EC-32	**Archeological & Missing Resources**								
	A-31	Dump Areas	M		X		ND		
	A-32	Pig Farm Foundation	M		X		ND		
	A-33	Kading Homestead	M	X	X		ca. 1890		
	A-34	Excavations	M		X		ND		gravel pit excavated late-1950s, reclaimed 1994
	A-35	Brickyard	M		X		ND		
	A-36	Archeological-Tipi	M				ND		
	A-56	Hilltop (removed for road grade)	M	X	X	X	ND		NPS removed ca. 1992

Riparian Woodland: Inventory of Existing Conditions and Contributing Resources

C = Contributing; **NC** = Non-Contributing; **S**=Supporting; **ND**=Not Determined				**Associated Historic Period**					
Map #	CLR/Map ID#	Feature	C/NC/S/ND	Grant-Kohrs 1862-1919	Warren 1929-1982	NPS Post 1982	Date of Origin	Native or Exotic	Comments
EC-33	**Natural Systems and Features**								
	NS-2	Johnson Creek	C	X	X	X			
	NS-7	Springs	C	X	X	X			
	NS-14	Clark Fork River	C	X	X	X			
	NS-15	Cottonwood Creek	C	X	X	X			
	NS-16	Sloughs	C	X	X	X			
	NS-17	Beaver Lodges	C	X	X	X			
EC-33	**Vegetation**								
	VE-19	Riparian vegetation communities							
		geyer willow	C	X	X	X		N	*Salix geyeriana*
		water birch	C	X	X	X		N	*Betula occidentalis*
		sandbar willow	C	X	X	X		N	*Salix exigua*
		western snowberry	C	X	X	X		N	*Symphoricarpos occidentalis*
		Bebb willow	C	X	X	X		N	*Salix bebbiana*
		woods rose	C	X	X	X		N	*Rosa woodsii*
		smooth brome	NC		X		ca. 1950	E	*Bromus inermis*
		Baltic rush	C	X	X	X		N	*Juncus balticus*
		redtop bentgrass	NC		X	X	?	E	*Agrostis stonlonifera*
		beaked sedge	C	X	X	X		N	*Carex utriculata*
		black cottonwood	C	X	X	X		N	*Populus trichocarpa*
		Rocky Mountain juniper	C	X	X	X		N	*Juniperus scopulorum*
		cattail	C	X	X	X		N	*Typha latifolia*
EC-34	**Spatial Organization**								
	SO-53	Clark Fork River Riparian Zone	C	X	X	X			
	SO-54	Cottonwood Creek Riparian Zone	C	X	X	X			
	SO-55	Johnson Creek Riparian Zone	C	X	X	X			
	SO-56	Slickens	NC	X	X	X	pre-1908		J. Eckberg, 2001
	SO-57	Cottonwood Trail	NC			X	1993		
	SO-58	Clark Fork River Bridge Road	C		X	X	ca. 1930		
EC-34	**Land Uses**								
	L-6	Conservation	NC			X	early 1980s		
	L-1	Interpretation	NC		X	X	1975		
	L-11	Recreation	NC			X	ND		
EC-35	**Constructed Water Features**								
	CW-1	Kohrs-Manning Ditch	C	X	X	X	ca. 1870		
	CW-7	Johnson Ditch	C	X	X	X	ca. 1874		assumed by water rights
	CW-9	Old/abandoned ditches	C		X	X	ND		

EC-34	**Circulation**								
	C-29	Cottonwood Trail	NC			X	1993		
	C-26	Clark Fork River Bridge Road	C		X	X	ca. 1930		
EC-35	**Views and Viewsheds**								
	V-31	Views of pastures and hay fields	C	X	X	X			
	V-32	Views within riparian woodland	C	X	X	X			
	V-33	Views to sewage treatment ponds	C		X	X	1958-60		
EC-35	**Buildings and Structures**								
	S-27	Slough Bridge	C		X		1930		HS-90
	S-44	Clark Fork Bridge	C		X		1930		HS-89
	B-50	Pump House South	C		X		1960		HS-87
EC-36	**Objects and Small-scale Features**								
	SS-3	4-rail stacked end fence	ND			X	ND		
	SS-56	Jack-Leg Fence	C/NC		X	X	ca. 1980		NC along SE and N sides of river, and along KM ditch
	SS-57	Metal Post and Barbed Wire fence	NC			X	1994		
	SS-63	Wood Post and Woven Wire Fence	ND			X	ND		
	SS-70	Metal Post and Hog Panel Fence	ND			X	ND		
	SS-71	Double-Rail and Post Fence	ND			X	ND		
	SS-72	5-rail braced gate	ND			X	ND		
	SS-73	Old Fence Remnants	C		X	X	ND		
	SS-74	Health warning signs	NC			X	1988		
	SS-75	Wooden sign	NC			X	ND		
	SS-76	Wooden interpretive markers	NC			X	ca. 1993		
	SS-77	Wooden bench	NC			X	1994		
	O-5	Metal pump drum	ND			X	ND		
EC-37	**Archeological & Missing Resources**								
	A-37	wagon tongues	M				ND		
	A-38	wagon wheels	M				ND		
	A-39	old logs	M				ND		
	A-40	old bridge	M				ND		
	A-41	historic dump	M				ND		
	A-42	berm dam	M				ND		
	A-43	old wooden flume	M				ND		

Railroad/Barrow Pit: Inventory of Existing Conditions and Contributing Resources

C = Contributing; **NC** = Non-Contributing; **S**=Supporting; **ND**=Not Determined				**Associated Historic Period**					
Map #	CLR/Map ID#	Feature	C/NC/S/ND	Grant-Kohrs 1862-1919	Warren 1929-1982	NPS Post 1982	Date of Origin	Native or Exotic	Comments
EC-38	**Natural Systems and Features**								
	NS-2	Johnson Creek	C	X	X	X			
	NS-11	East Gulch	C	X	X	X			
	NS-18	Beaver Lodges	C	X	X	X			
EC-38	**Vegetation**								
	VE-20	Railroad bed grasses							
		bluebunch wheatgrass	C	X	X	X		N	*Agropyron spicatum*
		moss phlox	C	X	X	X		N	*Phlox muscoides*
		needle-and-thread grass	C	X	X	X		N	*Stipa comata*
		Missouri goldenrod	C	X	X	X		N	*Solidago missouriensis*
		hairy goldenaster	C	X	X	X		N	*Chrysopis villosa*
		desert alyssum	C	X	X	X		N	*Alyssum desertorum*
		blue grama	C	X	X	X		N	*Bouteloua gracilis*
		spring whitlow-grass	C	X	X	X		N	*Draba verna*
		common sagewort	C	X	X	X		N	*Artemisia campestris*
		spotted knapweed	NC			X		E	*Centaurea biebersteinii*
		baby's breath	NC			X		E	*Gypsophila paniculata*
	VE-21	Barrow pit vegetation							
		cattails	C	X	X	X		N	*Typha latifolia*
		softstem bulrush	C	X	X	X		N	*Scheonoplectus tabernaemontani*
		forget-me-nots	C	X	X	X		N	*Myosotis scorpioides*
		cottonwoods	C	X	X	X		N	*Populus trichocarpa*
		willows	C	X	X	X		N	*Salix sp.*
		western serviceberry	C	X	X	X		N	*Amelanchier alnifolia*
		yellow rocket	NC			X		E	*Barbarea vulgaris)**
		ballhead waterleaf	C	X	X	X		N	*Hydrophyllum capitatum*
		Utah honeysuckle	C	X	X	X		N	*Lonicera utahensis*
		blunt-leaf yellowcress	C	X	X	X		N	*Rorippa curvipes*
		redosier dogwood	C	X	X	X		N	*Cornus sericea*
		chokecherry	C	X	X	X		N	*Prunus virginiana*
		violet	C	X	X	X		N	*Viola sp.*
	VE-22	Ungrazed prairie							
		bluebunch wheatgrass	C	X	X	X		N	*Agropyron spicatum*
		giant wildrye	C	X	X	X		N	*Elymus canadensis*
		needle-and-thread grass	C	X	X	X		N	*Hesperostipa comata*
		Indian ricegrass	C	X	X	X		N	*Oryzopsis hymenoides*
		moss phlox	C	X	X	X		N	*Phlox muscoides*
		long-leaf phlox	C	X	X	X		N	*Phlox longifolia*
		land larkspur	C	X	X	X		N	*Delphinium nuttallianum*
		woolypod milkvetch	C	X	X	X		N	*Astragalus purshii*
		plains prickleypear	C	X	X	X		N	*Opuntia polyacantha*

EC-38	**Spatial Organization**								
	SO-59	Railroad corridor	C	X	X	X	1879/1908		
	SO-60	Barrow pit	C	X	X	X	1908		
	SO-61	Ungrazed prairie	C	X	X	X			
EC-39	**Land Uses**								
	L-6	Conservation	NC			X	ND		
	L-7	Transportation	C	X	X	X	1879		
	L-8	Utilities	C	X	X	X	ND		
	L-1	Interpretation	NC			X	1985		
EC-39	**Constructed Water Features**								
	CW-12	Effluent Wells	NC			X	1999		
	CW-13	Irrigation Mainline	NC			X	1999		
EC-39	**Circulation**								
	C-33	Burlington Northern Railroad line	C	X	X	X	1879		previously Montana Western RR
	C-34	Old Milwaukee Railroad road	C	X	X	X	1908		tracks removed 1982
	C-35	NPS Service Road/at-grade crossing	C		X	X	1979		
	C-36	Sewage treatment service road/at-grade crossing	C		X	X	1958-60		
EC-40	**Views and Viewsheds**								
	V-34	Views to Ranch complexes	C	X	X	X			
	V-35	Views to Visitor Center complex	NC		X	X			
	V-36	Views framed by vegetation	C	X	X	X			
	V-37	Views to riparian corridor and mountains	C	X	X	X			
EC-39	**Buildings and Structures**								
	S-47	Siphon	C	X	X	X	1908		HS-57
	S-48	Cattle Car ca. 1923	S		X	X	1986		GRKO-970
	S-49	Cattle Car ca. 1929	S		X	X	1985		GRKO-862
	S-50	Railroad trestles	NC		X	X	1978		
	B-51	Warren Pumphouse	C		X	X	1960		HS-86

EC-40	**Objects and Small-scale Features**								
	SS-78	Metal Post and Wire Fence	NC			X	ND		
	SS-79	Jack-Leg Fence	S			X	ND		
	SS-80	4-Rail Stacked-end Fence	ND			X	ND		
	SS-81	5-Rail Braced Gate	ND			X	ND		
	SS-82	Galvanized Metal Gate	ND			X	ND		
	SS-83	Metal Pipe Gate	ND			X	ND		
	SS-84	Wood and Metal Post and Wire Fence	S			X	ND		reconstructed by NPS ca. 1995
	SS-85	Wheel flange detector system	ND			X	ND		
EC-40	**Archeological & Missing Resources**								
	A-44	Dump areas	M		X	X	ND		
	A-57	Maintenance Shed	M		X	X	ND		Used by Milwaukee RR; removed ca. 1982
	A-58	Gravel excavation remains	M		X	X	ND		
	A-59	Oil barrel	M		X	X	ND		Used by Milwaukee RR

Development Zone: Inventory of Existing Conditions and Contributing Resources

C = Contributing; **NC** = Non-Contributing; **S**=Supporting; **ND**=Not Determined				**Associated Historic Period**					
Map #	CLR/Map ID#	Feature	C/NC/S/ND	Grant-Kohrs 1862-1919	Warren 1929-1982	NPS Post 1982	Date of Origin	Native or Exotic	Comments
EC-41	**Natural Systems and Features**								
	NS-1	Bench	C	X	X	X			
	NS-2	Johnson Creek	C	X	X	X			
EC-41	**Vegetation**								
	VE-23	Riparian vegetation							
		willow sp.	C	X	X	X		N	*Salix sp.*
		smooth brome	NC		X	X		E	*Bromus inermis*
		black cottonwood	C	X	X	X		N	*Populus trichocarpa*
	VE-24	Non-irrigated pasture grasses		X	X	X		N	
		bluebunch wheatgrass	C	X	X	X		N	*Agropyron spicatum*
		moss phlox	C	X	X	X		N	*Phlox muscoides*
		needle-and-thread grass	C	X	X	X		N	*Stipa comata*
		Missouri goldenrod	C	X	X	X		N	*Solidago missouriensis*
		hairy goldenaster	C	X	X	X		N	*Chrysopis villosa*
		desert alyssum	NC			X		E	*Alyssum desertorum*
		blue grama	C	X	X	X		N	*Bouteloua gracilis*
EC-42	**Spatial Organization**								
	SO-62	Developed area	NC		X	X	1975		
	SO-63	Johnson Creek riparian area	C	X	X	X			
	SO-64	Visitor center field	NC	X	X	X			
	SO-65	Asphalt sidewalk/Interpretive trail	NC		X	X	1975/ 1977		
EC-41	**Land Uses**								
	L-2	Visitor services	NC		X	X	1975		
	L-1	Interpretation	NC		X	X	1975		
	L-4	NPS administration/storage	NC		X	X	1975		
	L-6	Conservation	NC		X	X	1975		
EC-41	**Constructed Water Features**								
	CW-9	Old/abandoned ditches	C		X	X	ND		
EC-42	**Circulation**								
	C-40	Visitor Entry Drive	NC		X	X	1975		
	C-41	Parking areas	NC		X	X	1975/ 2002		
	C-42	Asphalt sidewalk/trail	NC		X	X	1975/ 1977		
	C-43	Traffic islands	NC		X	X	1975		
	C-44	Pedestrian underpass	NC		X	X	1977		

EC-42	**Views and Viewsheds**								
	V-38	Views of riparian area	C	X	X	X			
	V-39	Views of railroad tressels/corridor	NC		X	X	1975		
	V-40	Views within developed area	NC		X	X	1975		
	V-41	Views of fairgrounds and Business Loop 90	NC		X	X			
	V-42	Views of Grant-Kohrs Ranch	C	X	X	X			
EC-41	**Buildings and Structures**								
	B-52	Curation Storage Facility (CSF)	NC			X	2002		GRKO-004
	B-53	Visitor Contact Station	NC		X	X	1975		GRKO-002
	B-54	Restroom	NC		X	X	1975		GRKO-001
EC-43	**Objects and Small-scale Features**								
	SS-87	Entrance Sign	NC			X	1987		
	SS-88	Jack-Leg Fence	NC			X	1975/ 1978		
	SS-89	Overhead Gate	NC			X	1992		
	SS-90	5-Rail Braced Gate	NC			X	1992		
	SS-91	Typical Ranch Gate	NC			X	ND		
	SS-92	Entrance Bollards	NC			X	ND		
	SS-93	Wayfinding Signage	NC			X	1982		
	SS-94	Large Interpretive Sign	NC			X	1992		
	SS-95	Information Kiosk	NC			X	ND		
	SS-96	Deer Lodge Valley Sign	NC			X	ND		removed 2003
	SS-97	Flagpole/Flag	NC			X	1982		
	SS-98	Concrete Curb	NC			X	1975		
	SS-99	Interpretive Grain Wagon	ND			X	ND		
	SS-100	Trash Cans	NC			X	ND		
	SS-101	Trash Barrels (Large)	NC			X	ND		
	SS-102	Trash Barrels (Small)	NC			X	ND		
	SS-103	Fire Hydrant	NC			X	1980		
	SS-104	Manhole Cover	NC			X	ND		
	SS-105	TIS Pole	NC			X	ND		
	SS-106	Fire Box	NC			X	1980		
	SS-107	Picnic Table	NC			X	2003		
	SS-108	Transformer	NC			X	ND		
	SS-109	Cord wood	NC			X	ND		
	SS-110	Storage Shed	NC			X	ND		

	SS-111	Interpretive Trail waysides	NC		X	X	1977/ 1992/ 1992		
	SS-112	Wooden Bench	NC			X	1994		
	SS-113	Small informational signs	NC			X	1982		
	SS-114	Metal plaque	NC			X	2000		
	SS-116	Electric Fence	NC			X	2002		location approximate
EC-41	**Archeological & Missing Resources**								
	A-45	Stuart cabin	M	X			pre-1884		removed ca. 1935
	A-46	Weather Station	M			X	1979		location unknown

Integrity Assessment

Introduction

[comparative photos of historic and existing conditions follow this chapter]

Numerous sources of guidance are available to assist in evaluating the integrity of a historic property. For example, National Register Bulletin 15: *How to Apply the National Register Criteria for Evaluation* states that:

> Integrity is the ability of a property to convey its significance….Historic properties either retain integrity (convey their significance) or they do not. Within the concept of integrity, the National Register criteria recognize seven qualities, or aspects, that in various combinations, define integrity. The seven aspects of integrity are: **location**, **design**, **setting**, **materials**, **workmanship**, **feeling**, and **association**. To retain historic integrity a property will always posses several, and usually most, of the aspects. According to guidance contained in National Register Bulletin 15: *How to Apply the National Register Criteria for Evaluation:*
>
> **Location** is the place where the historic property was constructed or the place where the historic event occurred. The relationship between the property and its location is often important to understanding why the property was created or why something happened. The actual location of a historic property, complemented by its setting, is particularly important in recapturing the sense of historic events and persons.
>
> **Design** is the combination of elements that create the form, plan, space, structure, and style of a property. Design includes such elements as organization of space, proportion, scale, technology, ornamentation, and materials. Design can also apply to districts, whether they are important primarily for historic association, architectural value, information potential, or a combination thereof. For districts significant primarily for historic association or architectural value, design concerns more than just the individual buildings or structures located within the boundaries. It also applies to the way in which buildings, sites, or structures are related.
>
> **Setting** is the physical environment of a historic property. Whereas location refers to the specific place where a property was built or an event occurred, setting refers to the *character* of the place in which the property played its historical role. It involves *how*, not just where, the property is situated and its relationship to surrounding features and open space.
>
> Setting often reflects the basic physical conditions under which a property was built and the functions it was intended to serve. The physical features that constitute the setting of a historic property can be either natural or manmade, including such elements as:
>
> - Topographic features (a gorge or the crest of a hill);
> - Vegetation;
> - Simple manmade features (paths or fences); and

- Relationships between buildings and other features or open space.

These features and their relationships should be examined not only within the exact boundaries of the property, but also between the property and its *surroundings*. This is particularly important for districts.

Materials are the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property. The choice and combination of materials reveal the preferences of those who created the property and indicate the availability of particular types of materials and technologies. A property must retain the key exterior materials dating from the period of its historic significance. If the property has been rehabilitated, the historic materials and significant features must have been preserved.

Workmanship is the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory. It is the evidence of artisans' labor and skill in constructing or altering a building, structure, object, or site. Workmanship can apply to the property as a whole or to its individual components. It can be expressed in vernacular methods of construction and plain finishes or in highly sophisticated configurations and ornamental detailing. It can be based on common traditions or innovative period techniques.

Feeling is a property's expression of the aesthetic or historic sense of a particular period of time. It results from the presence of physical features that, taken together, convey the property's historic character.

Association is the direct link between an important historic event or person and a historic property. A property retains association if it is the place where the event or activity occurred and is sufficiently intact to convey that relationship to an observer. Like feeling, association requires the presence of physical features that convey a property's historic character.

While the above criteria were developed primarily for buildings, structures and objects, it is necessary to consider three additional qualities that apply more directly to biotic resources. Biotic cultural resources are communities of plants and animals associated with human settlement and land use in historic districts, whereas biotic natural resources are those that have escaped deliberate alteration, although affected by human presence in a historic period. The three criteria appropriate for evaluation of biotic resource integrity include: species composition, community organization, and land management techniques, which substitute for material, design, and workmanship, respectively.[42]

Species Composition is the integrity of species present on the site compared to those present during the site's period of significance. As stated in NPS Research/Resources Management Report SER-82, "A managed biotic community is usually composed of a mixture of native and introduced species. It is very difficult, if not impossible, to catalogue all the species in a biotic community, and this is not necessary. Instead, the dominant and the introduced species, which were the focus of management activities in the historic period, should be the focus for inventory

[42] Firth, 4.

and preservation. This inventory should not only identify the species, but also the variety of plants and breeds of animals. Where possible, the origins of introduced species and the histories of varieties and breeds should be known."[43]

Community Organization "can be described in terms of the size, structure and distribution of each of its plant and animal populations, plus the cyclical patterns in these characteristics. The size of a population can be derived from a count of individuals or from an estimate based on area occupied. For example, trees in an orchard and livestock in a pasture can be counted, while the size of grain crops is given as an acreage accompanied by a yield per acre….Distributions may be described in terms of a fixed layout, a general density or a movement between points….Many cyclical patterns affect the size, structure, and distribution of plant and animal populations. These cycles are controlled by natural rhythms and by management. For example, daily and seasonal cycles in the movement of livestock, annual cycles in the replanting of vegetable and the regeneration of most livestock, a four or five-year cycle in the rotation of some field crops, etc."[44]

Land Management Techniques "are the practices by which biotic resources are cared for. They result in the physical evidence of the steward's labor and skill in managing or altering biotic resources, the types of equipment used and the timing of the various activities. "Agriculture, silviculture, and other land management systems employ a variety of techniques, which can be described under five headings:

- regeneration—including the maintenance of population numbers and promotion of desirable characteristics by selection of parent stock;
- intermediated care—such as the cultivation of crops, thinning of timber and feeding of stock;
- protection—the prevention of losses to weather, disease, insect and animal predation;
- harvest—the optimization of production by controlling the length of the life cycle and determining the place and time of harvest; and
- use—including the conservation and consumption of the products."[45]

Integrity assessments follow for the overall landscape as well as for each of the component landscapes. Assessments of biotic resources are included, where appropriate. Recognizing the park's desire for identification of specific themes, or historic periods of time that each landscape represents, this section also includes discussion of each component landscape's period of association, or current physical conveyance of a particular period of history.

[43] Firth, 11.
[44] Firth, 12.
[45] Firth, 13.

Grant-Kohrs Ranch Integrity

The Grant-Kohrs Ranch retains a relatively high degree of integrity to the recommended 1862-1982 period of significance. The landscape resources present on the ranch illustrate a 120 year continuum of cattle ranching operations that includes the Grant, Kohrs, Warren, and NPS periods of ownership, and represent their responses to the natural and cultural environment. Encompassing the core of the historic domestic and working landscape, the ranch clearly retains integrity of *location* and *association*. The rural character of the ranch, which also retains patterns of spatial organization, landform/topography, vegetation, and natural systems, survives and enhances the ranch's ability to convey the *setting* and *feeling* of the historic period. The integrity of setting and feeling is also strengthened by the active ranching practices that continue within the landscape.

Because the spatial relationships of buildings and structures, road systems, field patterns, fences, and irrigation ditches continue to reflect the functions of everyday ranching operations for which they were created, the ranch also retains a high degree of *design*. Although several buildings and structures have been removed over the years while others have been added, the remaining manmade features represent the majority of the constructed features present on the ranch throughout its 120 year period of significance. The log, wood frame, and board-and-batten structures retain a high degree of integrity of *materials* and *workmanship*, and continue to reflect a range of vernacular architectural styles and methods of construction typical of the region, and illustrate ranch function and use. Under NPS management, the extant buildings and structures have been maintained, restored, or reconstructed according to the *Secretary of Interior's Standards for the Treatment of Historic Properties.*

Overall, the Grant-Kohrs Ranch retains a moderate degree of integrity of native plant *species composition*. While some of the native bunchgrass prevalent throughout the Deer Lodge Valley when John Grant and Conrad Kohrs first settled in the region remains today, its species composition has been compromised by the spread of both the non-native cultivated grasses planted in the hay fields as well as the non-native weeds and invasive exotic species that have taken root in disturbed areas. The Upland Pasture area and the remnant prairie fenced near the railroad corridor are the best representative examples of the native plant community. Likewise, the integrity of the natural riparian plant community has been compromised by the metal toxins deposited from the mining operations upstream as well as from years of grazing, allowing non-native plant species to spread and dominate in these areas.

The integrity of cultural plant *species composition*, however, is relatively high. Although less diverse in the types of plants cultivated throughout the ranch's history, the almost exclusive cultivation of hay and the species of grasses in the hayfields generally reflect that found at the end of the period of significance and contain several plants that represent both Kohrs and Warren period cultivation. Due to NPS preservation and restoration efforts, the species of ornamental planting surrounding the Grant-Kohrs residence also reflects those found during the Grant-Kohrs period of significance.

Because the ranch continues to cultivate hay for harvest and grazing, it retains a relatively high degree of integrity of plant *community organization*. Although Kohrs and Bielenberg raised approximately 30,000 tons of hay at the close of their cattle operations, this number reflected the total amount needed to winter feed the cattle on their land (to include land other than the Home Ranch). This number dropped significantly during Warren's years of operation, reflecting the reduction in the size of the ranch, the size of his herd, and his feedlot operations. Before NPS acquisition of the ranch, Warren was harvesting between 500-1500 tons of hay from his fields.

This number has fluctuated during the NPS operation of the ranch, ranging between 76 tons at the close of the period of significance, to over 900 tons in 1993, to 468 tons in 2001.[46] In recent years, this number has been dependent upon the amount of hay leased for pasture versus harvest. Overall, the Park's seasonal hay production, to include irrigation, fertilization, cultivation, harrowing, and harvest--cutting, baling and stacking-- supports the historic integrity of the ranch.

As mentioned earlier, the ranch currently maintains approximately 94 head of cattle, including several breed yearlings born in the spring. Breeds include Hereford, English Shorthorn, Longhorn, and Angus, as well as cross-breeds of the four types. This number fluctuates annually, based upon resource availability and market conditions. Nine horses are also cared for on the ranch. These include three saddle horses (quarter horses), two Belgian draft horses, and five USFS horses that lease the pasture. During visitor season, the ranch also usually cares for a few chickens, ducks and turkeys.

During the Grant-Kohrs period, Conrad Kohrs and John Bielenberg raised longhorn cattle, shorthorn cattle, Hereford cattle, thoroughbred horses, Clydesdale horses, Percheron-Norman draft horses, Yorkshire hogs, Holstein cows, and chickens and turkeys. Documentation also suggests that Angus bulls, Ayrshire dairy cows, merino rams, and sheep were also kept on the ranch. Con Warren maintained this diversity until the 1950s, raising both registered and commercial Hereford cattle, Durham and Holstein dairy cows, Belgian horses, hogs, chickens, milch cows, and a mule. In the mid-1950s he expanded the Warren Hereford Ranch to the east of the railroad tracks and began raising primarily purebred and commercial Herefords.

Based upon this information, the integrity of animal *species composition*--or in this case livestock breeds--managed on the ranch is moderate. While the cattle breeds currently represented on the ranch reflect those present during the period of significance (particularly the breeding and commercial operations of the late Warren period), the diversity of other livestock species and breeds represented throughout the larger period of significance is lacking. These include dairy cows, hogs, oxen, sheep, rams, ducks, and mules, as well as a greater diversity of horse breeds, such as thoroughbreds, Clydesdales, Shire, and Percheron-Norman draft horses.

Although the diversity of livestock species and breeds may not necessarily be representative of the larger period of significance, historical research indicates that the numbers of livestock and diversity of breeds fluctuated considerably throughout the period of significance as both Kohrs and Warren adapted their herd to market conditions and resource availability. This is the case today, as NPS operations seek to balance interpretation with revenue flow needed to keep the program viable. AUMs and hay lease contracts are also determined by market conditions and resource availability; agricultural and ranching management practices are interwoven, as hay and pasture use is determined by park staff to prevent overgrazing and to protect resources. As a result of these traditional seasonal practices (which include field irrigation, ditch maintenance, fertilization, harrowing, and harvesting, as well as calving, feeding, vaccinating, branding, grazing, etc.) the integrity of *community organization* and *land management techniques* is considered high.

Home Ranch Integrity

The Home Ranch Complex component landscape retains a high degree of integrity of *location*, *design*, *setting*, *materials*, *workmanship*, *feeling*, and *association* to the recommended 1862-1982

[46] Refer to crop tables found at the end of Chapter Two. This study assumes that the average weight per bale is 93 pounds. This weight has been derived from 2002 hay bale statistics.

period of significance. Responses to natural features and systems, patterns of spatial organization, physical construction, and functional relationships of buildings, structures, fences, fields, corrals, views, roads, and constructed water features very well convey the organization and operation of the ranch to Park visitors. While the integrity of *species composition, biotic community organization* and *land management techniques* is relatively moderate due to reduction in intensity of use and number of livestock within the Home Ranch Complex (this area would have housed the greatest diversity of livestock species--to include dairy cows, hogs, oxen, mules, chickens, etc., and a greater diversity of horse breeds), the landscape still conveys the character and use of the historic period.

Physically, the period of association most strongly represented by the Home Ranch Complex is ca. 1870-1954. This period reflects the early development of the Bunkhouse Yards, Lower Yards, Lower House Yards, and West Corrals, including construction of their associated buildings, development of spatial organization, and determination of function as initiated by Kohrs and Bielenberg. The end of this period of association is defined by Con Warren's 1930s infill construction of buildings, structures, feedlots, fences, and roads, and his operation of the ranch before moving cattle operations to the east feed lots in 1954.

East Feed Lot/Warren Hereford Ranch Integrity

The East Feed Lot/Warren Hereford Ranch component landscape retains a high degree of integrity of *location, design, setting, association, materials* and *workmanship*. Spatial organization, physical construction and functional relationships of buildings, structures, fences, fields, corrals, views, roads, and water troughs very well convey the organization and operation of the Warren Hereford Ranch to Park visitors. All feedlots, pastures, and alleys remain essentially as they were originally constructed. While some of the fencing is in poor condition, continual repair of these features was ongoing throughout the period of significance. While the NPS made some changes to the landscape (such as the construction of the NPS Service Entrance, the addition of the Resource Building/Office, and the removal of the pumphouse HS-85), these alterations are minor to the overall landscape and do not detract from the complex's ability to convey significance. The integrity of *feeling*, however, has been reduced within this component landscape. Once a working ranch with some equipment (aerials show this area to be very neat and tidy), a few hired hands, and Hereford and Holstein cows, the NPS presence (staff, maintenance shop, offices, vehicles, equipment, supplies, new buildings, etc.) has changed this area from a working ranch to a hustling and bustling administrative and management center for the Park. While the Warren Barn, which historically housed Warren's best bull calves, is no longer used for such a purpose, the integrity of *species composition, biotic community organization* and *land management techniques* is relatively high within this component landscape. Corrals continue to be used for calving in the early spring, temporary containment before sale, and some feed storage. All breed and breed mixes occupy this area, and the use of the bull barns has been continuous.

The period of association most strongly represented by the Warren Hereford Ranch Complex is 1952-1982. This period reflects the early development of the feedlots, corrals, and pastures under Con Warren, including construction and spatial relationships of their associated cow sheds, feed bunks, barns, fences, and gates. The end of this period of association is defined by Con Warren's sale of the ranch to the NPS, curtailment of his cattle operations on the site, and adaptation of some of the buildings in response to changes in function.

Grant-Kohrs Residence Integrity

The Grant-Kohrs Residence component landscape retains a high degree of integrity of *location, design, setting, feeling, association, materials* and *workmanship,* as well as a moderate degree of integrity of *species composition* and *biotic community organization.* The spatial organization and relationships to topography/landform, natural features, circulation features, and surrounding buildings and structures has remained essentially the same since Con and Augusta Kohrs lived in the ranch home. The retaining walls and stairways built by Con Warren in 1934 also helped define new circulation patterns that were in place throughout the Warren period of significance.

In recent years the NPS has expended a great deal of energy and resources to research the domestic landscape surrounding the Grant-Kohrs Residence. This research has informed restoration and reconstruction efforts of the grounds to reflect the conditions present at the turn of the 20th-century. These efforts have included the planting of cottonwood trees in the front and along the sides of the house as well as restoring the lower garden based upon historic photographs and plant records. Reconstruction efforts have also included repair of the cobble wall and reconstruction of the stone terrace and the white picket fence that originally surrounded the domestic yard. Some circulation features have also been restored to reflect their historic materials, such as the wood plank walk in the front yard.

While some of these features are not original to the site, such as the flagstone paths built by the NPS, these features do not significantly detract from the landscape's ability to convey its significance. The immaturity of the cottonwood trees does minimize the integrity of feeling of the front lawn and entry sequence, but over time, this will improve. Although there are a few missing features, such as the irrigation system that provided water to the house and grounds and the historic service area on the north side, the overall integrity of this landscape is relatively high.

The period of association most strongly represented by the Grant-Kohrs Residence is 1890-1934. The beginning of this period reflects the major changes that occurred to the house and grounds—including the brick addition, conservatory, fence, and cottonwood grove. The end of this period of association is defined by the modifications made to the landscape by Con Warren.

Warren Residence Integrity

The Warren Residence component landscape retains a high degree of integrity of *location, setting, association, materials* and *workmanship.* Overall, the spatial organization of the site and its relationships to natural features, circulation features, and the Warren Hereford Ranch has remained essentially the same since Con Warren retired from ranching in 1982. This is also true of the buildings and structures on the site, although their uses have changed since the NPS moved their administrative headquarters to the Warren Residence. Although the site generally retains integrity of *design*, the removal of several large trees within the domestic landscape, the loss of the cottonwood allee along Warren Lane, the removal of the vegetable garden, and clearing of ornamental plantings around the foundation of the residence, has diminished the integrity of *species composition* and *biotic community organization*. Likewise, as the use of this landscape is no longer residential, but rather administrative, the integrity of *feeling* associated with the site's residential use has been slightly reduced. This integrity is, however, still supported to some degree by those small scale features that are common to residential landscapes, such as the picket fence, birdbath, burn barrel, and clothesline, which still remain.

The period of association most strongly represented by the Warren Residence is 1952-1993. The beginning of this period reflects the completion of the major buildings and structures found within the Warren Residence landscape, as well as the development of the Warren Hereford Ranch to the north, which strongly influences the setting of the residential landscape. The end of this period of association is defined by the death of Con Warren and the end of the use of this property as a residence.

Pasture/Hayfield Integrity

Overall, the pastures and hayfields within the Grant-Kohrs Ranch NHS have a high degree of integrity. The low lying lands on either side of the Clark Fork River, as well as drier lands found along the upper benches, have been used by Grant, Kohrs, Warren, and the NPS throughout the site's history for both hay and pasture to sustain the livestock of the ranch. As such, these lands clearly retain integrity of *location* and *association*. The buildings and structures of the Home Ranch Complex, the Warren Hereford Ranch, the natural features and systems, circulation features, and the complex irrigation system, also remain essentially the same today as they were at the end of the period of significance, and therefore enhance the pastures and hayfields ability to convey the *setting* and *feeling* of the historic period. The integrity of setting and feeling is also strengthened by the active ranching practices, such as hay harvesting and livestock grazing, that continue within this component landscape. To some extent, NPS subdivision of the Western Hay Fields and the Front Fields with cross-fencing has diminished the integrity of feeling slightly, as these lands were open and expansive during the period of significance.

The irrigated pastures and hayfields also retain a moderately high integrity of cultural plant *species composition, biotic community organization, and land management techniques.* The same hay species found to be predominant in the 1984 Rice/Ray study and likely present at the end of the Warren period, generally remain the predominant hay species today. Likewise, the cyclical pattern of irrigation and fertilization in the spring, grazing and hay cultivation throughout the spring and summer, and harvest--cutting, baling, and stacking--in the late summer also supports the integrity of *community organization,* as does the continued cultivation of hay averaging 500 tons per year. This number reflects the smaller hay harvests undertaken by Con Warren during the ranch's latter period of significance. The presence of smooth brome, common timothy, red clover, crested wheatgrass, and intermediate wheatgrass help convey both the Kohrs and Warren periods of significance, which were intentionally introduced during their care of the ranch. This integrity is reduced slightly by the presence of invasive exotic weeds, such as Canadian thistle, which has spread throughout the hayfields.

Although the grasses and forbs found in the non-irrigated pastures have not changed significantly since 1982, the species composition of the effluent-irrigated pastures, particularly the L-Barn Field and the Front Fields, are beginning to acquire non-native species that were not intentionally cultivated in this area, such as smooth brome, which is found in the other irrigated areas of the ranch. These fields were reseeded in 2000. The integrity of species composition of these irrigated pastures is also being diminished by invasive exotic weeds, such as spotted knapweed. These changes have diminished the integrity of species composition.

Within the pastures and hayfield, the integrity of livestock (breed) *composition, community organization* and *land management techniques* remains relatively high. Cattle pastured within this component landscape generally represent the major breeds found at the close of the period of significance. As mentioned earlier, pasturing occurs 12 months a year, and is based upon Best Management Practices (BMPs), the needs of the park, and the resources available. Cattle

rotations between various pastures are based upon economic and natural resource conditions, as was done during the period of significance.

The period of association most strongly represented by the Pasture/Hayfield component landscape is the late 1950s-1972. The beginning of this period reflects Con Warren's abandonment of the cultivation of grains and his focus on hay as the predominant crop cultivated in the fields. It also encompasses the general design and organization of his contour irrigation system, which he began in the 1930s and worked toward refining over the next twenty years. The end of this period of association is defined by Con Warren's sale of the Home Ranch to the NPS.

Upland Pasture Integrity

Like the previous component landscape, the dry range pastures and irrigated hay fields found in the Upland Pasture area retain integrity of *location, association,* and *setting.* Purchased by Con Warren in the 1930s, this land and the irrigation ditches he sought control of have changed little since the end of the historic period. A few modern small scale features, such as electric fences, diminish the integrity of *feeling* slightly, as does the subdivision of the fields and ranges with cross fences. Overall, these features generally do not detract from the landscape's ability to convey its significance.

The Upland Pasture area also retains a moderately high integrity of *species composition*. Several of the same hay species planted by Con Warren, such as brome, timothy, and clover, are still found to be predominant in the irrigated gulches. With the exception of some invasive exotic species found in the dry range pastures, most grasses found here belong to the native bluebunch wheatgrass, western wheatgrass, and Sandberg's bluegrass communities. Like the Pasture/Hayfield component landscape, the integrity of livestock (breed) *composition*, *community organization* and *land management techniques* is relatively high.

The period of association most strongly represented by the Upland Pasture area is the 1930s-1972. The beginning of this period reflects Con Warren's acquisition of this land, the removal of the Kading and pig farm structures, and the regrading of the gulches to improve irrigation for hay production. The end of this period of association is defined by Con Warren's sale of the Home Ranch to the NPS.

Riparian Woodland Integrity

Overall the Riparian Woodland component landscape has moderate integrity. Because this area has long been defined by the Clark Fork River and its alluvial soils, its integrity of *location* is high. However, because of toxic metal contamination dating back to 1884, (which still remains on the site) the presence of exotic, noncontributing plant communities, such as those defined by smooth brome and redtop bentgrass, constitute the majority of vegetation within this component landscape. Research conducted in 2002 has determined that these non-native, non-desirable species would not be present under natural conditions, absent of toxic metal contamination. While native species and plant communities remain within the riparian woodland, they only account for approximately 40% of the vegetation found within this zone. As such, the integrity of *species composition* and *biotic community organization* of the riparian area can be considered moderate. Because of impacts to species composition and community organization, the Riparian Woodland's integrity of *feeling* has also been somewhat reduced. Feeling is influenced by the composition and distribution of plant communities, as well as by manmade features such as fences. As the entire riparian woodland was not fenced until 1993 (particularly the area north of the Home Ranch Complex and along the southeast), these features have slightly diminished

integrity of *feeling*. Likewise, as the riparian woodland was not entirely fenced during the historic period, livestock were free to roam throughout this area and within the river itself. Historic accounts discuss how livestock would take shelter along the river, which was afforded by the vegetation found there. As these conditions are no longer present due to health and safety concerns, the riparian woodland also has slightly diminished its integrity of *association* and *land management techniques.*

The period of association most strongly represented by the Riparian Woodland is 1972 to the present. The beginning of this period reflects the NPS management of this land, which was primarily focused on conservation. Fencing of the riparian woodland begins shortly after this time.

Railroad Corridor & Barrow Pit/Wetland Integrity

The Railroad Corridor and Barrow Pit/Wetland component landscape maintains a high degree of integrity of *location* and *setting*. The corridor remains in the same location as it was originally constructed, and its context remains essentially unchanged. As the corridor also maintains its historic spatial organization and construction, it has a high degree of integrity of *design* and *materials*. Since the tracks of the Old Milwaukee Railroad line are no longer in use (and no longer transport livestock to market), the landscape maintains a reduced integrity of *association* and *feeling*. While the integrity of plant *community organization* is high, integrity of plant *species composition* is considered moderate. While the barrow pits are comprised of mostly native wetland species and the ungrazed prairie remnant represents a native plant community that would have been present during the early period of significance, the species composition of the larger corridor has been impacted by disturbance and invasive species, such as spotted knapweed.

The period of association most strongly represented by the Railroad Corridor & Barrow pit/Wetland is 1908 to 1982. The beginning of this period reflects the construction of the Old Milwaukee Railroad line along side the Montana Western corridor and the excavation of the barrow pits. The end of the period reflects the removal of tracks and discontinuation of service along the Old Milwaukee line.

Development Zone Integrity

Aside from most of the natural features and views found within this component landscape, all of the resources associated with the Visitor Center Complex do not contribute to the historical significance of the ranch. As this component landscape was entirely developed by the NPS, it does not represent the historic uses associated with this landscape and therefore lacks historic integrity.

The period of association for this component landscape dates from 1975-present. The beginning of this period is associated with the NPS development of this site, to include relocation of historic structures serving as the visitor contact station and restroom, and development of the parking and circulation system.



Figure 4-1 : Rear yard of Grant Kohrs Ranch House with Conrad and Augusta, circa 1890. (Grant Kohrs Ranch NHS Archives 6280H)



Figure 4-2 : (COMP 10) View of rear yard of Grant Kohrs Ranch House from similar vantage point. (JMA, 2002)



Figure 4-3 : (11400L) Lower Ranch Yard circa 1900. (Source: Grant Kohrs Ranch NHS Archives)



JMA, 2002

Figure 4-4 : (COMP 21) View of Lower Ranch Yard from similar vantage point. (JMA, 2002)

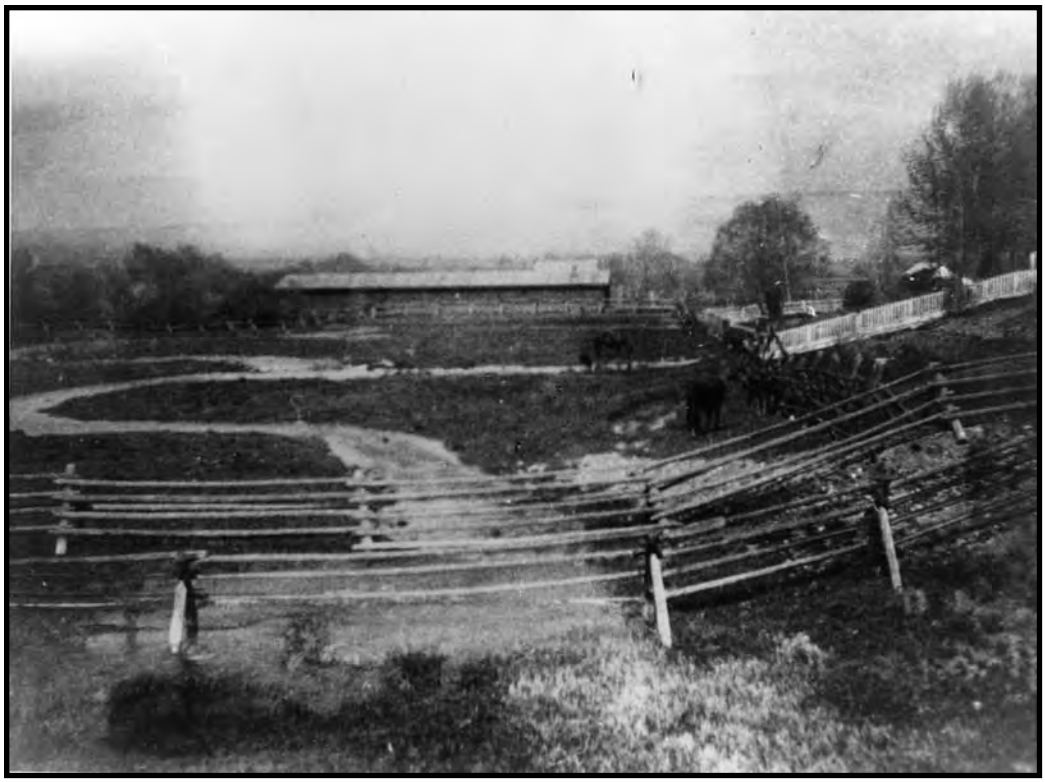


Figure 4-5 : (CI, X) General view of ranch, Montana Historical Society Print, circa 1900. (Source: Grant Kohrs Ranch NHS Archives)



JMA, 2002

Figure 4-6 : (COMP 13) View of Ranch from similar vantage point. (JMA, 2002)



Figure 4-7 : (16281) Area in front of Grant Kohrs Ranch House, easterly view with phaeton buggy, circa 1900. (Source: Grant Kohrs Ranch NHS Archives)



JMA, 2002

Figure 4-8 : (COMP 6) Front of Grant Kohrs Ranch House from similar vantage point. (JMA, 2002)



Figure 4-9 : (Bache.12) Auntie in drive, Anna Kohrs Boardman, no date, possibly 1925. (Source: Grant Kohrs Ranch NHS Archives)



JMA, 2002

Figure 4-10 : (COMP 16) View of Bunkhouse Row from similar vantage point. (JMA, 2002)



Figure 4-11 : (5993) Warren House, 1934. (Source: Grant Kohrs Ranch NHS Archives)



JMA, 2002

Figure 4-12 : (COMP 30) Warren Residence from similar vantage point. (JMA, 2002)



Figure 4-13 : (16270H) Flower garden and shrubs, south side of Grant Kohrs Ranch House, Thoroughbred Barn in background. No date, possibly 1935. (Source: Grant Kohrs Ranch NHS Archives)

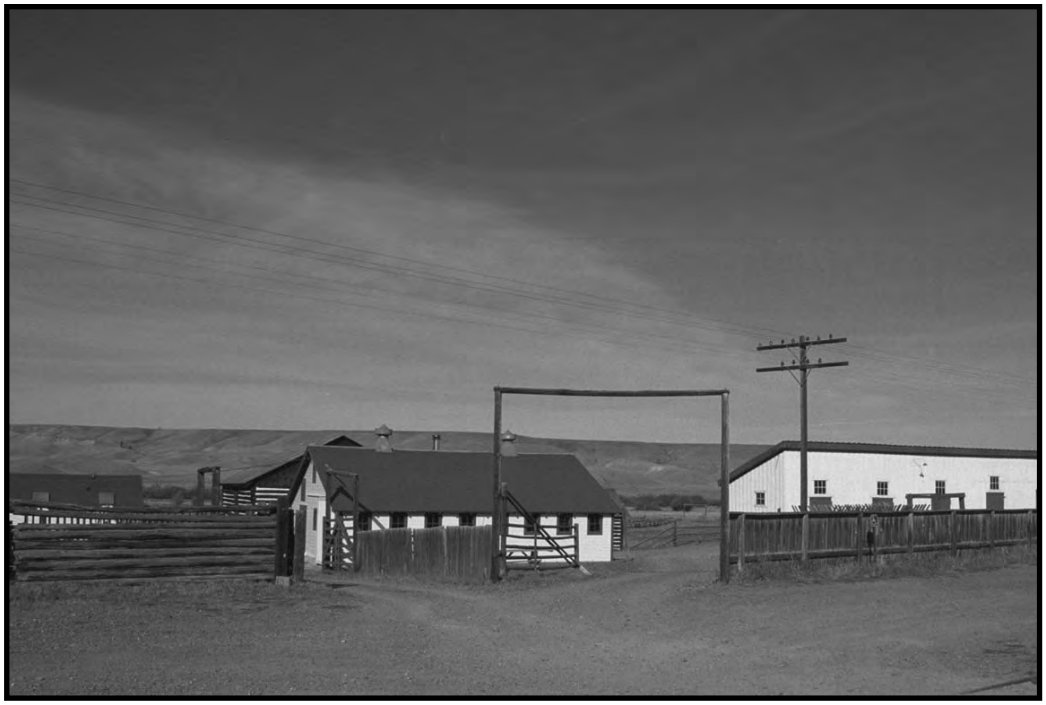


JMA, 2002

Figure 4-14 : (COMP 12) View of south side of house from similar vantage point. (JMA, 2002)



Figure 4-15 : (16841H) General view of ranch from the east, circa 1938. (Source: Grant Kohrs Ranch NHS Archives)



JMA, 2002

Figure 4-16 : (COMP 24) View of ranch from the east from similar vantage point. (JMA, 2002)



Figure 4-17 : (16158H) Conrad Warren on Sin, circa 1940. (Source: Grant Kohrs Ranch NHS Archives)



JMA, 2002

Figure 4-18 : (COMP 22) View of Lower Yards from similar vantage point. (JMA, 2002)



Figure 4-19 : (16160H) Stallion Barn, circa 1940. (Source: Grant Kohrs Ranch NHS Archives)



JMA, 2002

Figure 4-20 : (COMP 25) Stallion Barn from similar vantage point. (JMA, 2002)



Figure 4-21 : (16172L) Conrad Warren with calves in corral, circa 1940. (Source: Grant Kohrs Ranch NHS Archives)



JMA, 2002

Figure 4-22 : (COMP 26) View of corral from similar vantage point. (JMA, 2002)



Figure 4-23 : (15969H) Warren Ranch House, circa 1945. (Source: Grant Kohrs Ranch NHS Archives)



JMA, 2002

Figure 4-24 : (COMP 32) Warren Residence from similar vantage point. (JMA, 2002)



Figure 4-25 : (16171W) Herefords in pasture, north of Warren Ranch, circa 1945. (Source: Grant Kohrs Ranch NHS Archives)



JMA, 2002

Figure 4-26 : (COMP 35) View of Pasture, north of Warren house from similar vantage point. (JMA, 2002)



Figure 4-27 : (15967H) Grant Kohrs Ranch House and Bunkhouse Row, circa 1945. (Source: Grant Kohrs Ranch NHS Archives)



JMA, 2002

Figure 4-28 : (COMP 4) Front of Grant-Kohrs Ranch House from similar vantage point. (JMA, 2002)



Figure 4-29 : (15916H1) Cattle in corral near sales barn. No Date, possibly 1952. (Source: Grant Kohrs Ranch NHS Archives)



JMA, 2002

Figure 4-30 : (COMP 33) View of corral near sales barn from similar vantage point. (JMA, 2002)

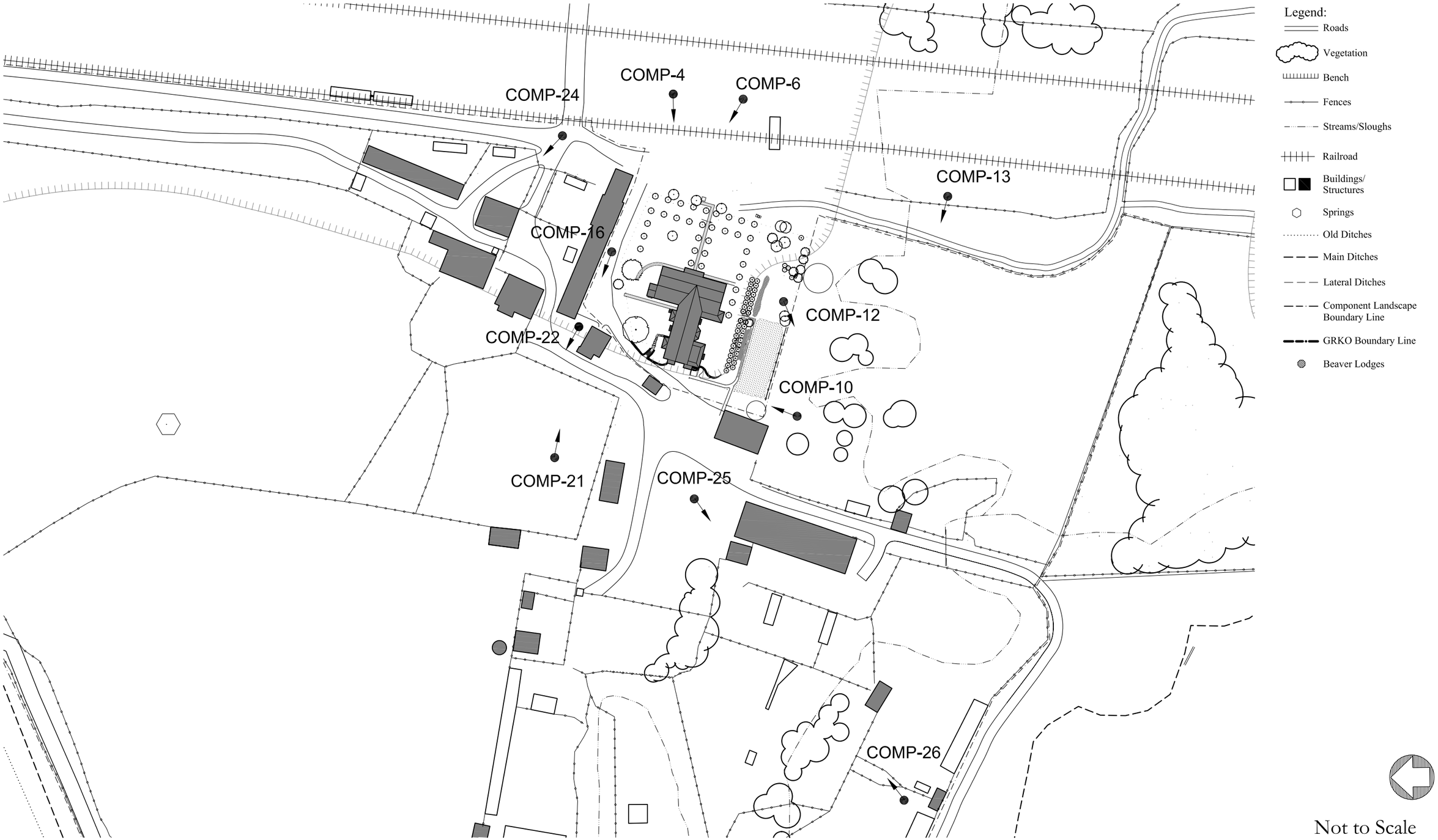


Figure 4-31 : (16193A) Warren Hereford Ranch sign and barn, 1952. (Source: Grant Kohrs Ranch NHS Archives)



JMA, 2002

Figure 4-32 : (COMP 36) View of pasture and barn from similar vantage point. (JMA, 2002)

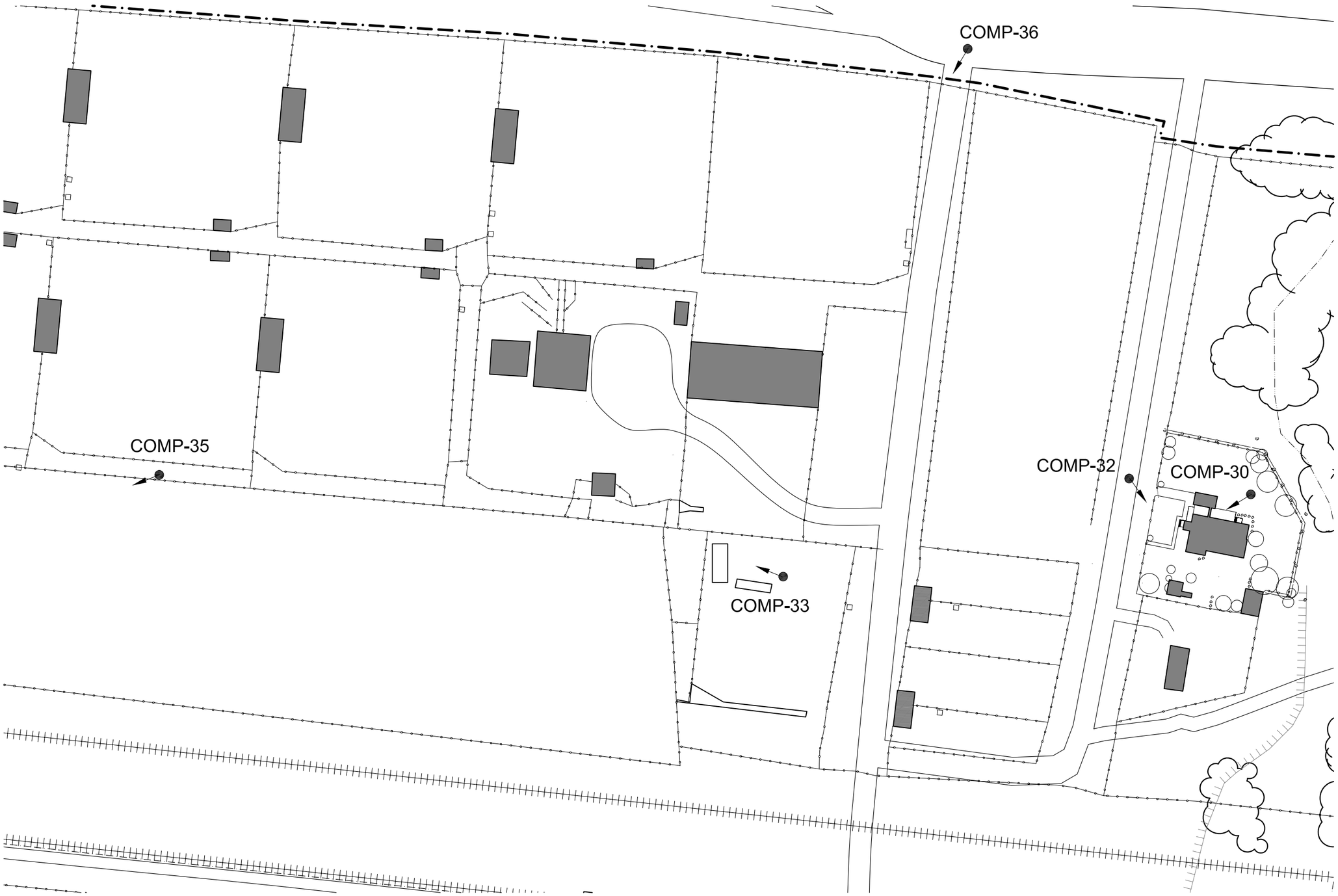


Not to Scale

Map Sources: Albright, John. *Historic Resources Study and Historic Structure Report Historical Data, Kohrs and Bielenberg Home Ranch, Grant-Kohrs Ranch National Historic Site, Montana* . Denver: Denver Service Center, National Park Service, 1977. Base mapping referenced to Grant-Kohrs Ranch National Historic Site 1994 aerial photographs and Montana 1:24,000 scale State Plane DRG quadrangles. GIS data was exported into Autocad format for production of base maps and further further detailed with additional data collected in the field.

The following data was provided by the National Park Service, Grant-Kohrs Ranch National Historic Site GIS Program (shapefile format), which was compiled 1998 and updated/field-checked by OCULUS/JMA during the October 2002 site visit: fences and gates; boundary lines; utility lines; fire hydrants; irrigation ditches, headgates, pipes, and risers; culverts; river boundaries; roads; railroad tracks; unvegetated slickens and tailings; fields; trails; cottonwood trees; beaver lodges and dams; hydrology; and groundwater monitoring wells. Metadata for this data is avaliable from World Wide Web: [http://www.nps.gov/gis/metadata/grko/]. Wetlands, hypsography (topography), and Montana 1:24,000 scale State Plane DRG quadrangles were derived from Montana State Library Natural Resource Information System, metadata available from: [http://nris.state.mt.us/gis/datalist.html].

A/E FIRM PRIME NAME: Susan Maxman Architects CITY, STATE: Philadelphia, PA SUBCONTRACTOR NAME: John Milner Associates, Inc. CITY, STATE: Charlottesville, VA	DESIGNED: DRAWN: ADF TECH. REVIEW: KLS, RMM DATE: JULY 2004	SUB SHEET NO. P-12	EXISTING CONDITIONS INVENTORY HOME RANCH **COMPARATIVE PHOTO STATION POINT MAP (1 OF 2)** GRANT-KOHRS RANCH NATIONAL HISTORIC SITE	DRAWING NO. PKG. NO. SHEET OF



Not to Scale

Map Sources: Albright, John. *Historic Resources Study and Historic Structure Report Historical Data, Kohrs and Bielenberg Home Ranch, Grant-Kohrs Ranch National Historic Site, Montana* . Denver: Denver Service Center, National Park Service, 1977. Base mapping referenced to Grant-Kohrs Ranch National Historic Site 1994 aerial photographs and Montana 1:24,000 scale State Plane DRG quadrangles. GIS data was exported into Autocad format for production of base maps and further further detailed with additional data collected in the field.

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