

11.1 Introduction

This chapter describes the impacts on cultural resources (archaeological resources, tribal resources, and built resources) that could result from construction and operation of each of the build alternatives. The sections that follow describe the cultural resources study area, the methods used to analyze the impacts, the affected environment, and the impacts of the build alternatives on cultural resources. The regulations and guidance related to cultural resources are summarized in Section 11.6, *Regulatory Setting*. The contribution of the proposed rail line to cumulative impacts on cultural resources is discussed in Chapter 18, *Cumulative Impacts*.

In summary, any build alternative would result in similar types of cultural resource impacts because they would all require clearing railroad footprint within the rights-of-way. OEA assessed the sensitivity of archeological sites for the total acreage (both surveyed and unsurveyed) of each build alternative by conducting field surveys and using this information to extrapolate site-sensitivity information for unsurveyed areas. Using this method, the Tongue River Road Alternatives and Moon Creek Alternatives would destroy or damage the most archaeological resources based on the sensitivity of archaeological sites on the total acreage (both surveyed and unsurveyed), while the Decker Alternatives and Colstrip Alternatives would destroy or damage the fewest. Unlike resources with archaeological materials, OEA did not attempt to estimate or predict the likelihood of tribal resources that may be located in unsurveyed areas, because tribal resources are often spiritual in nature and not necessarily predictable based on factors such as topography, soils, or distance from water. However, for the areas surveyed within the rights-of-way, tribal members found the most tribal resources along the Decker Alternatives and the fewest along the Colstrip Alternative and Moon Creek Alternative. Combining the results of the field survey and research, the Moon Creek Alternative would destroy or damage the most built resources in the right-of-way and the Decker Alternatives would destroy or damage the fewest. OEA considers the adverse impact of destroying or damaging cultural resources to be moderate.

11.1.1 Cultural Resources Terminology

The primary laws that govern the Board's consideration of cultural resources for the proposed rail line are the National Environmental Policy Act (NEPA) and National Historic Preservation Act (NHPA) (54 United States Code [U.S.C.] § 300101 *et seq.*). The Board is coordinating Section 106 of NHPA (54 U.S.C. § 306108); i.e., Protection of Historic Properties (36 C.F.R. Part 800) and NEPA. The regulations that implement Section 106 encourage agencies to do so to prevent redundant reviews.

The Section 106 regulations of NHPA require the Board to take into account the potential effects of its licensing of a project, or *undertaking*,¹ on historic properties. The term *historic properties* describes the subset of cultural resources considered under NEPA that are listed in or eligible for listing in the National Register of Historic Places (National Register) (36 C.F.R. Part 60), and is defined by the regulations for implementing Section 106. Historic properties include historic buildings, prehistoric and historic archaeological sites, artifacts, traditional cultural properties, districts, and landscapes (both tribal and historic).

The NEPA term *cultural resources* used in this chapter covers a wider array of resources than the term historic properties, including sacred sites, archaeological collections, plant gathering areas, and sites not eligible for listing in the National Register (Council on Environmental Quality and Advisory Council on Historic Preservation 2013:4). Cultural resources discussed in this chapter are divided into three categories: *archaeological resources*, *tribal resources*, and *built resources*.

- **Archaeological resources.** Archaeological resources include physical manifestations of both Native American and European American habitation and use of the environment. OEA ensured that archaeological resources were identified in the field by a person who meets the Secretary of the Interior's Professional Qualifications Standards (48 *Federal Register* [Fed. Reg.] 44716, 36 C.F.R. Part 61) in the discipline of archaeology.
- **Tribal resources.** Tribal resources include locations with religious and cultural significance to tribes. OEA acknowledges that tribes possess special expertise identifying cultural resources with religious and/or cultural significance. OEA invited 21 federally recognized tribes who have ancestral ties to the area to join the field surveys and identify tribal resources. Fifteen tribes participated in the surveys.
- **Built resources.** Built resources include both intact buildings, such as ranch houses, and constructed features on the landscape, such as irrigation ditches. OEA ensured that built resources were identified in the field by an individual who meets the Secretary of the Interior's Professional Qualifications Standards in history or architectural history.

11.1.2 Applicable Time Periods

The cultural resources studies OEA conducted identified resources from the *Precontact*, *Protohistoric*, and *Historic* periods, as described below.

- **Precontact period.** The Precontact period is sometimes referred to as the Prehistoric period. It encompasses the majority of the time of human occupation of North America, from initial human habitation about 13,000 years ago, to the arrival of European groups. Big game hunting was an important subsistence activity during the Precontact period, though increased use of ground stone tools suggests more reliance on plants for food.

¹ Terms italicized at first use are defined in Chapter 25, *Glossary*.

Tipi use was widespread midway through and pit houses first appeared during the later stages of the period (Kornfield et al. 2010, MacDonald 2012).

- **Protohistoric period.** The Protohistoric period refers to the time when Native Americans and their culture and activities were influenced by the arrival of Europeans in North America. The Protohistoric period begins about Anno Domini (AD) 1600. This period is the time when the horse and European trade goods reached native cultures, likely occurring sometime between AD 1700 and 1750 (Kornfield et al. 2010, MacDonald 2012). Of the area's Native American groups, the Shoshone probably acquired the horse first, resulting in a dramatic northward increase in the tribe's range. The Crow are believed to have acquired the horse soon after, and when northern tribes acquired the horse and guns, the Shoshone moved southward (Kornfield et al. 2010, Swagerty 2001).
- **Historic period.** The Historic period refers to when European Americans began to arrive in the area in significant numbers and establish large-scale habitations. This began around 1870 in the study area, and by definition, this period continues to the present day. This period encompasses the physical remains of habitations and activities of both European American and Native American habitations and built resources. Federally recognized tribes inhabiting or using the study area and vicinity during the Historic period include the Assiniboine, Sioux, Gros Ventre, Cheyenne, Crow, Shoshone, Blackfoot, Arapaho, Arikara, Hidatsa, and Mandan. The Cree and Chippewa also likely used portions of the area later in the historic period; however, the Crow and Cheyenne are the two groups most closely associated with the study area (DeMallie and Miller 2001, DeMallie 2001, Fowler and Flannery 2001, Moore et al. 2001, Voget 2001, Dempsey 2001, Fowler 2001a, Parks 2001, Stewart 2001, Wood and Irwin 2001, Carlson 1998).

11.1.2.1 Precontact Period

The Precontact period spans from the time of the initial Native American occupation of North America around 15,500 years ago, to the arrival of Europeans. Archaeological evidence indicates that the northern Great Plains began to be settled approximately 11,500 years ago by groups of semi-nomadic hunter-gatherers. The first clear evidence of human occupation of the Tongue River Valley is found in rock shelters in the valley's side canyons. These were used for long-term, repeat occupations during the Archaic period (8000 to 1500 years before present [BP]). Archaic populations consisted of small, highly mobile bands that used large territories for resource procurement, with occasional cooperation with other bands for community large game hunting activities (corrals, jumps). Communal hunting activities demonstrate that as early as the Archaic a highly organized subsistence regime was in place. Though the emphasis on big game hunting varied through time, it was always central to area peoples' subsistence strategies. This emphasis increased substantially with the adoption of the bow and arrow, in the Late Precontact period, and became by far the central lifeway after the introduction of the horse, in the 1700s (Kornfield et al. 2010, MacDonald 2012).

Material culture changed gradually over time, though the use of flaked-stone tools dominated; ceramics and ground stone also figured into the toolkit albeit to a much lesser extent. Early projectile points were large and used as dart (atlatl) points or spear tips, while the introduction of the bow and arrow, later on, resulted in much smaller points for use as arrowheads. Ceramics similar to those of Middle Missouri peoples, along with exotic stone tool materials, show idea and material exchange with groups outside of the region throughout the entire span of human occupation in the region. Pacific and Gulf Coast shells appear in later assemblages in the region, demonstrating the presence of even more extensive trade networks (Kornfield et al. 2010, MacDonald 2012).

The following provides a brief overview of precontact cultures that existed in the study area. For brevity's sake, only general descriptions and prominent complexes are discussed. Because there is a dearth of archaeological evidence for Paleoindian occupation of the study area and vicinity from circa (ca.) 12500 BP to 7800 BP, the Paleoindian period is not addressed, and the discussion begins with the Archaic period and its three subdivisions: the Early, Middle, and Late Plains Archaic.

Early Plains Archaic (ca. 7800 to 5000 BP)

An overall trend of aridity in the Northern Plains characterizes a large portion of the Early Plains Archaic, a trend that substantially lowered game-carrying capacity and resulted in an overall scarcity of human populations in the region. There is a paucity of sites from this period; one regional overview study (Aaberg et al. 2006) found only 2 percent of the sites identified from the Middle Period in Eastern Montana fell into this period. The archaeological record suggests that during this period, lanceolate and large-stemmed spear points were no longer made, and side-notched and corner-notched atlatl point types became common. Big game hunting continued as an important subsistence activity, though increased use of ground stone tools suggests more reliance on plants for food. Also, pit houses first appear during the later stages of this period (Kornfield et al. 2010, MacDonald 2012).

Middle Plains Archaic (ca. 5000 BP to 3000 BP)

The beginning of the Middle Plains Archaic was cooler and wetter than the previous period, resulting in an overall increase in big game, particularly bison. Human populations increased as a result. Bison continued as an important element of the diet of Middle Plains Archaic groups, with pronghorn, deer, elk, moose, and a variety of smaller species also figuring prominently. The archaeological record suggests that, following the trend of the Early Plains Archaic, many new projectile point forms appeared. Midway through the period, tipi use was widespread. The most prominent complexes of this period are Oxbow and McKean (Kornfield et al. 2010, MacDonald 2012).

Oxbow Complex

A group of sites extending over the Northern Plains in Montana, Wyoming, the Dakotas and

north into Manitoba, known by archaeologists as the Oxbow complex, was occupied by population groups who exploited bison, elk, wolf, coyote, dog, fox, rabbit, marten, goose, frog, mussel, pronghorn, mountain sheep, birds, and other small mammals. Archaeological evidence suggests the typical Oxbow projectile point was side-notched with rounded lugs or ears. It is worth noting that sites associated with this point type are rare in the study area and the points might be confused with younger Yonkee Points (Aaberg et al. 2006). Other stone tools associated with the Oxbow complex include oval biface knives, lanceolate bifaces (double-edged knives), small end scrapers, thin unifacial knives or side-scrapers, pebble hammerstones, crude choppers, irregular triangular or cone-shaped cores, perforators, and flake tools. Bone tools were also a component of the Oxbow toolkit (Kornfield et al. 2010, MacDonald 2012, Greiser et al. 2013).

McKean Complex

The bulk of occupations at Middle Plains Archaic sites are associated with the McKean complex, which appears to have proliferated fairly quickly throughout the region. Named after an archaeological site about 75 miles southeast of the study area in Crook County, Wyoming, the McKean complex displays an emphasis on plant foods, seen by an increase in ground stone features and artifacts. McKean peoples conducted communal bison kills, demonstrating an emphasis on bison procurement at a level comparable to later classic bison hunting complexes such as the Besant and Avonlea. The McKean complex also included individual and communal hunting of deer, pronghorn, and mountain sheep. The diagnostic McKean projectile point was large, and stemmed or shouldered (Kornfield et al. 2010, MacDonald 2012).

Late Plains Archaic (ca. 3000 BP to 1500 BP)

The Late Plains Archaic saw a continuation of bison-focused big game hunting. Compared with the Middle Plains Archaic, bison kill sites are more common, evidencing further development and expansion of communal game procurement. Archaeological evidence suggests that projectile point forms from the period were dominated by corner-notched varieties but also included side-notched types. Use of the tipi as a primary domicile increased substantially, and ceramics appear late in the period. The first evidence of dog domestication in Montana comes from this period. Yonkee, Pelican Lake, and Besant phases are among the better-understood cultural manifestations of this period (Kornfield et al. 2010, MacDonald 2012).

Yonkee Phase

Yonkee peoples were sophisticated bison hunters who planned seasonal communal kills that included jumps, traps, and corrals. Yonkee peoples also exploited a variety of mammals, plants, eggs, and shellfish. Yonkee projectile points were long and slender with notching low on the lateral edges. The Yonkee toolkit included ground stone tools, flaked stone tools, drills, scrapers, bifacial cores, and beveled-edge bifacial knives. Stone circles are a

ubiquitous feature at Yonkee phase sites (Kornfield et al. 2010, MacDonald 2012); however, less so in the project area (Ferguson 2003).

Pelican Lake Phase

Pelican Lake peoples also focused on bison procurement by hunting, trapping, and jumping. Other big game species were also used frequently, including high-altitude big horn sheep. Pelican Lake projectile points were large, corner-notched points with barbed shoulders or corner notching—the corner-notching types increased substantially with time (Kornfield et al. 2010, MacDonald 2012). This is the most common Archaic type point in the study area and may have some overlap with Yonkee (Aaberg et al 2006).

Besant Phase

The Besant phase spanned the terminal Late Plains Archaic into the Late Precontact period. This phase emphasized sophisticated bison hunting techniques, including the use of corrals. However, a more generalized big game hunting and resource procurement strategy may have been used at varying intervals during the phase. Besant projectile points were used as atlatl dart points, and included both side-notched and corner-notched forms. Ground stone tools and a variety of chipped stone tools were also used. Ceramics first appear in the study area during the Besant phase, including cord-marked varieties characteristic of Woodland culture ceramics (Kornfield et al. 2010, MacDonald 2012, Johnson 1977).

Late Precontact Period (ca. 1500 BP to 200 BP)

The beginning of the Late Precontact period saw the introduction and widespread use of the bow and arrow. In Montana, bison kills from the Late Precontact period were common. Big game hunting focused on bison through communal kills and individual hunting; however, other big game, especially pronghorn and smaller species, were also frequently exploited. Diet breadth probably increased during late fall, winter, and early spring, indicating the adoption of broad-based hunting strategies during periods of reduced mobility. Ceramic types became increasingly varied. Projectile point forms decreased significantly in size with the transition from atlatls and spears to arrows. Increased manufacturing of projectile points also brought about a plethora of point types (Taylor 2006). The Avonlea phase is a prominent manifestation of this period (Kornfield et al. 2010, MacDonald 2012).

Avonlea Phase

The Avonlea phase probably represents the first widespread bow and arrow culture on the Northwestern Plains. Unlike earlier phases, stone circles are an uncommon site type in the Avonlea phase. Avonlea appears to have different manifestations in the open plains to the north and in the pine breaks region of south-central Montana, encompassing the study area. A regional variant of the Avonlea called Benson's Butte-Behive Complex has been proposed for the Avonlea in south central Montana (Fredlund 1988). However, this term has not been widely accepted (Aaberg et al. 2006:186).

In this Benson's Butte-Beehive Complex, bison kills are infrequent, and the southern Avonlea peoples did not use ceramics, traits distinguishing them from the northern Avonlea. The smaller projectile point types used for arrowheads resulted in much larger overall numbers of projectile points. Avonlea projectile points were small to medium length, generally very thin, often very well flaked and finished, and usually side notched, although some corner notching was also used. Also associated with Avonlea peoples are large numbers and varieties of bone and sandstone tools, and faunal remains of large ungulates and small rodents (Kornfield et al. 2010, MacDonald 2012).

11.1.2.2 Protohistoric Period (ca. 250 BP to 100 BP)

The Protohistoric period refers to the time when Native Americans and their culture and activities were being influenced by the arrival of Europeans in North America, whether the influences were by direct contact, or through indirect trade and contact through other Native American tribes serving as middlemen. The beginning of the Protohistoric period is most commonly defined as the time when the horse and European trade goods reached native cultures. Introduction of the horse in the Northern Plains area probably occurred sometime between AD 1700 and 1750 (Kornfield et al. 2010, MacDonald 2012). Of the area's Native American groups, the Shoshone probably acquired the horse first, resulting in a dramatic northward increase in their range. The Crow are believed to have acquired the horse soon after. When northern tribes acquired the horse and guns, the Shoshone moved southward (Kornfield et al. 2010, Swagerty 2001). The earliest European venture into eastern Montana was likely that of the Frenchman Sieur de la Verendrye in 1742. Another of the earliest documented European American ventures into the area was that of the Canadian-owned Northwest Company's François Larocque in 1805. Substantial contact and European American settlement of the region did not occur, however, until after Lewis and Clark visited the area in 1805 and 1806. The establishment of Manuel Lisa's post, at the mouth of the Big Horn River in 1807, initiated a period of increased fur trade in the area. From this point forward, European and European American trade goods became increasingly available to the area's Native American tribes (Swagerty 2001, Carlson 1998).

The archaeological record suggests increased mobility owed to the adaptation of the horse dramatically altered Plains Indians' lifeways, resulting in substantial changes to hunting and subsistence strategies, more contact with neighboring tribes, and the altering of political structures with the introduction of status attached to accumulating horses. Trade beads, guns, ammunition, blankets, and metal weapons (arrowheads, lance points, knives, axes, and hatchets) and household items (iron pots and pans) were among the most common trade items (Swagerty 2001, Carlson 1998).

The introduction of the horse and European American trade goods (e.g., guns and metal) were the principal drivers in the large-scale changes among Northern Plains Native American groups in both the Protohistoric and Historic periods. With the great increase in mobility from using horses, the region's Native American groups were able to conduct much more geographically extensive hunting excursions, particularly to the bison-rich areas of eastern

Montana. The result was increased contact between the area's tribes; this meeting and mixing of groups resulted in new alliances and exchanges of material goods and cultural expressions. It also resulted in increased conflict associated with hunting territories and horse raiding, the latter of which became an important marker of social status and military capabilities. The tipi was the principal domicile and an important symbol for tribes—traditions and beliefs associated with the tipi were integral to these cultures (Swagerty 2001, Lehmer 2001, Carlson 1998).

The 1500s saw notable migrations into eastern Montana from the east. During the 1550s, the Mountain Crow separated from the Hidatsa in the area of present-day North Dakota. The Crow began a westward movement, and by the 1600s had expanded into the Yellowstone River drainage and environs. Around 1670, the River Crow separated from the Hidatsa and began a westward movement ultimately occupying portions of central Montana. By 1720, the River Crow were concentrated in the Yellowstone and Bighorn drainages (Stewart 2001). In the 1600s and 1700s, groups related to the Eastern Shoshone extended their range into eastern Montana. The Shoshone, who were among the first native groups to obtain the horse, quickly expanded northward into present-day Canada (Swagerty 2001). By the 1700s, the Gros Ventre, Blackfoot, and Arapaho (Algonquian-speaking peoples) migrated westward into eastern Montana from North Dakota. These tribes eventually split sometime during the 1720s, with the Gros Ventre occupying northeastern Montana and the Arapaho southeastern and central Montana (Fowler and Flannery 2001, Dempsey 2001, Fowler 2001a). Around 1750, the Gros Ventre and Blackfoot had acquired horses and guns and pressured the Shoshone southward (Fowler and Flannery 2001, Dempsey 2001).

By the late 1700s, the Cheyenne had moved from their villages in North Dakota south into South Dakota, also venturing west into southeastern Montana for bison procurement (Moore et al. 2001). The Cheyenne's westward movement resulted in persistent conflict with the Crow and Shoshone, and the Cheyenne eventually formed an alliance with the Sioux against the Crow and Shoshone (Moore et al. 2001, DeMallie 2001). The Sioux were inhabiting areas of present-day Minnesota by the mid-1600s, eventually splitting into three divisions, the Yankton/Yantonai (Nakota language), Teton (Lakota language), and Santee (Dakota language). By the 1800s, the Yankton inhabited much of North Dakota and frequented eastern Montana to hunt the vast buffalo herds that were present in the area. This often brought them into contact with the Assiniboine, with whom they developed a close relationship, sharing territory and communities (DeMallie 2001). Despite speaking three different languages and observing different customs, the Arikara, Hidatsa, and Mandan were all sedentary farming people of the Missouri River who had very similar building and farming methods. These tribes cultivated a variety of crops, but also made frequent hunting excursions to southeastern Montana, leading to an alliance with the Crow (Parks 2001, Stewart 2001, Wood and Irwin 2001, Voget 2001).

11.1.2.3 Historic Period

Native American tribes inhabiting or using the study area and vicinity in this period include the Assiniboine, Sioux, Gros Ventre, Cheyenne, Crow, Shoshone, Blackfoot, Arapaho, Arikara, Hidatsa, and Mandan. The Cree and Chippewa also likely used portions of the area later in the historic period. The Crow and Cheyenne are the two groups most closely associated with the study area (DeMallie and Miller 2001, DeMallie 2001, Fowler and Flannery 2001, Moore et al. 2001, Voget 2001, Dempsey 2001, Fowler 2001a, Parks 2001, Stewart 2001, Wood and Irwin 2001, Carlson 1998).

The Great Sioux War and Early 19th Century Treaties

In 1851, the U.S. government invited a number of Northern Plains Native American tribes to Fort Laramie, Wyoming, to sign a treaty whose purpose was to keep Native Americans away from European American travel routes and reduce conflict between area tribes. The treaty, the Treaty of Fort Laramie of 1851, established specific territories for each of its signatories, the Sioux, Cheyenne, Crow, Arapaho, Gros Ventre, Hidatsa, Mandan, and Arikara. The Sioux were assigned the area north of the Platte River and west of the Missouri River, the Cheyenne and Arapaho were assigned different areas between the North Platte and Arkansas Rivers, the Crow were assigned the area west of the Powder River, the Assiniboine were assigned the area west of the lower Yellowstone River, and the Hidatsa, Mandan, and Arikara were assigned the area east of the lower Yellowstone River. The Powder and Tongue River areas were designated as unceded Native American lands that were closed to European American entry and available for seasonal hunting, but not permanent occupation by Native Americans. Additionally, the treaty established regional travel routes for European Americans, users of which were not to be attacked by tribes, as well as U.S. government annuities for the signatories (Carlson 1998, Fowler 2001b).

Despite the treaty, European Americans continued to venture into the established Native American territories for prospecting and migrated west for settlement. Inevitably, this resulted in hostilities between tribes and the European Americans, and a Native American sense that the treaty would not, in fact, be respected by European Americans or the U.S. government. The discovery of gold in Montana and Colorado in the 1860s, the Northern Pacific Railway construction from 1870 through 1883, and the systematic killing of bison in the area further exacerbated the problem, and conflict between European Americans and tribes escalated substantially. Destroying the peace were military campaigns against the Sioux, the 1864 Sand Creek Massacre of the Cheyenne and Arapaho, and the 1868 Battle of Washita against the Southern Cheyenne in Oklahoma (Carlson 1998, Fowler 2001b, Moore et al. 2001).

A new treaty, the Fort Laramie Treaty of 1868, was the U.S. government's attempt to quell the increasing conflict, with the Sioux, Crow, Arapaho, and Northern Cheyenne hesitantly agreeing to its terms. Similar to the Fort Laramie Treaty of 1851, individual tribal territories were established for the signatories, though much reduced in size compared with those set

out by the previous treaty. This created what became known as the Great Sioux Reservation, and occupied territory in Montana, Wyoming, and South Dakota west of the Missouri River (Carlson 1998, Fowler 2001b). The following year, President Ulysses S. Grant articulated a peace policy that relegated all Native Americans to reservations where they would receive agricultural training.

Discovery of gold in 1874 in the Black Hills of South Dakota led to an influx of European American gold miners into the area—an area established as Sioux territory in the Fort Laramie Treaty of 1868. Predictably, Native Americans protected their territories, and conflict developed between Native Americans and European Americans. In 1875, President Grant ordered the military to stop blocking miners from entering the region, leading to the Great Sioux War of 1876 to 1877. The Tongue and Powder Rivers were a focal point of the conflict, and a series of battles occurred throughout southeastern Montana (Carlson 1998, Fowler 2001b).

The Tongue and Powder Rivers were at the center of the maelstrom as a series of battles unfolded across southeastern Montana. The war opened with the Battle of Powder River on March 17, 1876 (also known as the Reynolds Battlefield), where Colonel Joseph J. Reynolds, under the command of General George Crook, attacked a Cheyenne village after mistaking it for the Oglala Lakota war leader Crazy Horse's camp. The Northern Cheyenne and Lakota united, and fought Crook again on June 17, 1876, at the Battle of Rosebud Creek, where some 1,500 warriors defeated Crook's soldiers. This battle was followed a week later by the war's most famous episode, the Battle of the Little Big Horn, where the allied Sioux and Northern Cheyenne defeating Lieutenant Colonel George A. Custer's U.S. 7th Cavalry and associated Crow and Akira scouts (Dillon 1997).

In the aftermath, the U.S. Army, with more than 2,500 soldiers and 150 provisioned wagons, set out to vanquish the tribes of the area. Skirmishes continued into the fall, with a devastating attack on November 25, 1876, led by Colonel Ranald Mackenzie against Morning Star (or Dull Knife) and Little Wolf's Cheyenne village in Wyoming. The final battle took place deep among the conical buttes and choppy bottomlands of the Tongue River Valley at the Battle of the Wolf Mountains on January 7, 1877 (Dillon 1997, Greene 2006, Carlson 1998).

The January 8, 1877 Battle of the Wolf Mountains was the decisive battle and last large-scale engagement of the so-called Great Sioux War. Stirred by the desire for revenge following Custer's defeat and death, the U.S. Army had been relentless in its pursuit of the combined Lakota and Northern Cheyenne bands, led by Crazy Horse and the Northern Cheyenne Two Moons. On December 28, 1876, Colonel Miles led his force, supplemented by Crow scouts, up the Tongue River to where he believed were the winter camps of the Lakota and Northern Cheyenne bands. Temperatures had dropped to 30 degrees Fahrenheit below zero, but Miles followed the trail through the Tongue River Valley for the next several days, fighting harsh winds, bitter subzero temperatures, deep snows, and over 100 icy river crossings. One event proved decisive in initiating the battle, when on January 7, 1877, Miles captured a party of

nine Northern Cheyenne women and children attempting to reach Crazy Horse's camp. Their warrior escort witnessed the capture, and rode to Crazy Horses' camp. The Lakota and Northern Cheyenne immediately began to prepare for war and to rescue the captured Cheyenne. As the weather degenerated into blizzard conditions, the warriors engaging Miles' troops withdrew from the battlefield, using the blinding snowfall to cover their retreat. After nearly 5 hours of fighting, the battle was over. Miles believed that the bands were in full-flight toward the Bighorn Mountains, some 70 miles to the south, where Miles knew supplies to be meager. Miles decided the expedition's objectives had been met and announced that the army would begin its march home the next day. Although the Indians fought to a draw at the Wolf Mountains, the battle ultimately proved to be a tactical victory for the U.S. Army and an unrecoverable military defeat for the Lakota and Northern Cheyenne. The losses in supplies and ammunition suffered at the battle meant that neither the Lakota or Cheyenne warriors could mount anymore large-scale attacks against the U.S. Army (Carlson 1998, Dillon 1997, Fowler 2001a).

In late January, the first of many government messengers arrived at the Lakota and Northern Cheyenne camp near the headwaters of the Bighorn River. These messengers bore promises of good treatment from the military, which was now trying to convince these bands to surrender before campaigning renewed in the spring. One by one, they surrendered, and on May 6, 1877, Crazy Horse led his people into Camp Robinson, which ended the Great Sioux War (Carlson 1998, Dillon 1997, Fowler 2001a).

The Reservation Era

After a few more months of skirmishes, the Lakota were returned to their reservations. The Lakota spiritual leader and tribal chief Sitting Bull, who had had a vision of the defeat of Custer before the battle, managed to escape to Canada, while Crazy Horse was killed during his incarceration by the U.S. Army. Many Cheyenne, meanwhile, were shipped away to inhospitable Indian Territory in Oklahoma. There, reservation conditions were dire and many Cheyenne fell ill with malaria. Two principal Chiefs, Little Wolf and Morning Star (Dull Knife), pressed for the release of the Cheyenne so they could return to their homeland. In 1878, an estimated 350 Cheyenne fled Indian Territory to travel north. Some 13,000 soldiers and volunteers are thought to have pursued the Cheyenne, who divided their group. Little Wolf and his band journeyed back to Montana; Morning Star and his band were captured and incarcerated at Fort Robinson, Nebraska. The Cheyenne were ordered to return to Oklahoma but refused to submit. Conditions grew tense through the end of 1878 and soon the Cheyenne were confined to barracks with no food, water, or heat. In January of 1879, Morning Star and his group broke out of Fort Robinson. Most of the group was gunned down as they ran from the fort. It is estimated that only 50 Cheyenne survived the breakout to be reunited with the tribe in Montana. On March 25, 1879, Little Wolf and his band ultimately surrendered at Fort Keogh on the advice of Lieutenant Will Clark (Fowler 2001a, Carlson 1998, Moore et al. 2001).

Once back in southeastern Montana, they settled into the Tongue River drainage, claiming homesteads on both the east and west sides of the river. In 1884, by Executive Order, a small reservation near the Tongue and Rosebud rivers was created for the Northern Cheyenne out of land formerly assigned to the Crows; in 1900, the Cheyenne land base was extended to the Tongue River. The current western border of the Cheyenne Reservation is the Crow Indian Reservation, while the Tongue River forms the eastern border (Chief Dull Knife College 2008, Fowler 2001a, Carlson 1998, Moore et al. 2001).

The Crow, meanwhile, in 1880 sold the western portion of their reservation to the United States, and by 1883, had settled on today's vast Crow Agency centered near Hardin, Montana. Since that time, reservation lands have been further reduced, most recently in the 1950s when the tribe was forced to sell land rights in Wyoming's Bighorn Canyon for a federal dam project. Still, both tribes remain and occupy a portion of their original homelands in southeastern Montana (Chief Dull Knife College 2008, Voget 2001, Carlson 1998).

Government agents at the Northern Cheyenne Reservation carried out federal plans to assimilate native tribes by introducing agriculture and discouraging native culture. In 1892, under the auspices of the federal Dawes Severalty Act, tribal lands were divided into 160-acre tracts and assigned to individual Cheyenne. Unassigned or surplus land was made available to white settlers, and the Tongue River Day School opened at so-called "Indian" Birney on the reservation ("White" Birney exists just across the Tongue River). Developed in the eastern states, the government's initial farming methods were not suited to the natural environment of southeastern Montana, and Tongue River Valley history includes failed farming and assimilation projects promoted by government agents at the Northern Cheyenne Reservation (Chief Dull Knife College 2008, Fowler 2001a, Moore et al. 2001, Carlson 1998).

Beginning in 1910 and intended to promote agriculture, a decade-long project to construct an elaborate earthen dam, headgate, and ditch system was completed. However, plagued by flooding, seepage, and collapse, the irrigation system met with failure and within 8 years was abandoned. The Cheyenne fared far better at livestock production, especially horse-raising. In 1912, reservation herds reached 12,000 cattle and 15,000 horses, a way of life that the Cheyenne found compatible with traditional ways. However, in the early 1920s, the Bureau of Indian Affairs (BIA) sought to reduce the size of herds and create communal ownership of the herds. BIA mismanagement led to the destruction of the Cheyenne economy, and by 1924, the cattle herd was down to 4,000. By the end of the 1920s the remaining herd was slaughtered to provide government rations and thousands of acres of reservation land was leased by BIA to area white ranchers. This practice continued for decades (Chief Dull Knife College 2008, Fowler 2001a, Carlson 1998, Moore et al. 2001, Voget 2001).

11.1.2.4 Built Resources

Fort Keogh

Established as a military cantonment in 1876 after the Battle of Little Bighorn, Fort Keogh is located approximately 3 miles southwest of Miles City near the confluence of the Yellowstone and Tongue Rivers. By 1877, construction on a more permanent post was underway and by 1879, it was the U.S. Army's largest fort. It was at Fort Keogh, on March 25, 1879, where the Cheyenne group led by Little Wolf ended its approximate 1,500-mile exodus from Oklahoma. In 1908, Fort Keogh was decommissioned but by 1909, it had been pressed into service as a Remount Depot. Until the outbreak of World War I, the remount station supplied 800 trained horses to the U.S. Army. During World War I, demand for cavalry horses increased dramatically. In the early years of the war, horses were provided to the British and French. After 1917, when the United States entered the war, the U.S. Army ordered nearly 200,000 horses. In addition to horses, cattle grazed at Fort Keogh also provided beef to the troops. In 1924, ownership of Fort Keogh was transferred to the USDA to establish the U.S. Range Livestock Experiment Station. It has been the site of a variety of important agricultural research projects from that time until now (Anderson n.d.). Figure 11-1 shows a Gaw map excerpt of southeastern Montana in 1884.

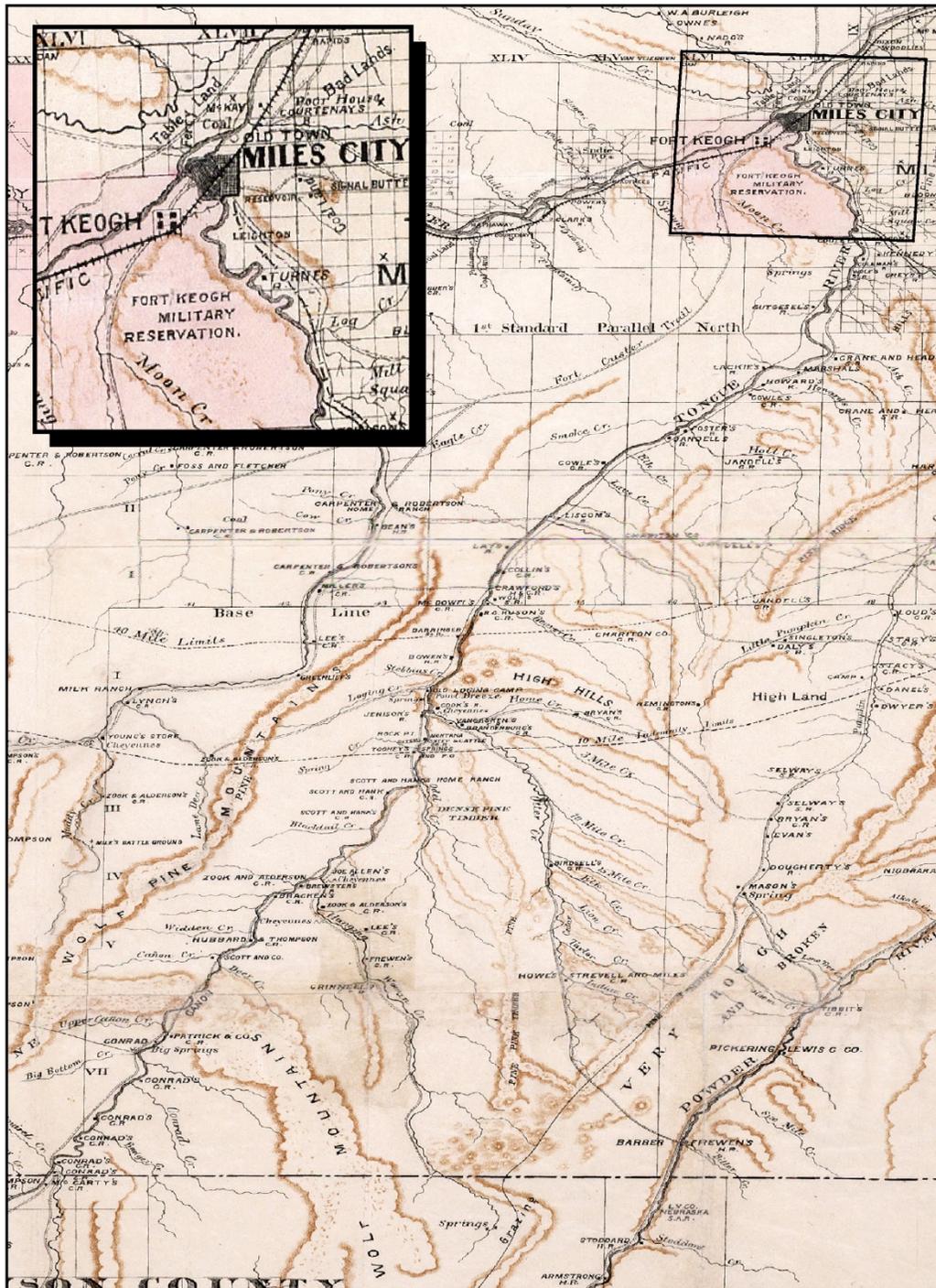


Figure 11-1. Excerpt of Gaw Map of Southeastern Montana (1884)

Homesteading

During the decades following the Great Sioux War and Northern Cheyenne Exodus, a period of Native American and European American settlement in the Tongue River Valley began. Because they were nontreaty Indians, prior to 1884, the Northern Cheyenne did not have a reservation (Brownell 2005:11). Legislatively enabled by the Indian Homestead Act of 1875, the Northern Cheyenne began homesteading along the Tongue River, Otter Creek, and Hanging Woman Creek starting in 1881. Many Northern Cheyenne people additionally established homesteads along the Rosebud River and some of its tributaries (Brownell 2005:9–10). The initial establishment of the Northern Cheyenne Reservation occurred in 1884. At that time, some Northern Cheyenne homesteaders were moved to the reservation. The reservation land area was expanded to its current configuration with the Tongue River as its eastern boundary in 1900. After 1900, Northern Cheyenne homesteaders east of the river were relocated to the reservation. Determining Indian homesteads from early white inhabitants was difficult, presumably because there were no discernable physical or stylistic differences between them (Brownell 2005:65).

The Tongue River Valley was also the location of European American claims under a variety of land settlement acts including the 1862 Homestead Act; and, after 1909, the Enlarged Homestead Act. Congress enacted these laws, which granted land ownership at little or no cost, to encourage settlement in lightly populated areas. Homestead claims were defined by the 1862 Homestead Act to consist of a quarter section, or 160 acres of public land. The first homestead claim in the area was filed in 1877 by Norwegian native Andrew Andersen (Montana Preservation Alliance 2007:18–19). By 1882, European American settlers were a notable presence (Brownell 2005:10). Some of the earliest homesteaders were subsistence farmers accustomed to seeking out a living from small plots of land (Montana Preservation Alliance 2007:30). Initial homestead shelters were sometimes mere dugouts that were replaced or supplemented over time with one and two-room log cabins.

Ranching and Dude Ranching

Cattle raisers in western Montana quickly took note of the expanding settlement of eastern Montana and identified the area as a potential new route to market. Historical reports suggest that cattle first arrived in the area in 1879. The earliest recorded herds wintered in the Tongue River Valley in 1880 with sufficient success to establish it as hospitable ranching country. Homestead sites, in many cases, grew into more established ranches with houses, barns, and a variety of outbuildings. In other cases, the 160-acre homestead allotment proved too small or too far from a water source to provide adequate subsistence, leading the homesteader to sell his holding to a more successful neighbor as grazing land. Several area ranches grew to encompass tens of thousands of acres able to support cattle herds numbering in the thousands (Montana Preservation Alliance 2007:18–19).

As the 20th century dawned, area ranchers expanded their activities beyond cattle management to include raising horses that were sold to the Remount Depot at Miles City for

training as cavalry horses. Horse-raising remained a lucrative business through World War I but quickly collapsed after the signing of the armistice. Similarly, the demand for beef dropped off after World War I. In addition to this dramatic reduction in demand for horses and cattle, area ranchers were faced with several years of drought in the late 1910s (Montana Preservation Alliance 2007:33–34).

In response to the financial strains posed by the reduction in demand for horses and cattle and the effects of drought, struggling ranchers began accepting paying guests. Dude ranching, as this practice came to be called, reflected a broad cultural interest in western pursuits and a rise in tourism spurred, in part, by the opening of Yellowstone National Park in 1872. At its peak, the area roughly bounded by Birney, Sheridan, and Buffalo boasted 38 dude ranches. By the 1920s, dude ranching was an established economic and cultural practice throughout the region. Some ranches expanded facilities to accommodate up to 50 working vacationers (Montana Preservation Alliance 2007:33–35).

Irrigation Practices

The Tongue River Valley and its drainages feature an arid climate. Unable to rely on natural precipitation, area ranchers have long relied on water conveyance and irrigation systems to support their farming and ranching activity. Throughout the Tongue River Valley and drainages, water was dammed, culverted, forded, drawn and bridged. Irrigation systems were constructed to bring water from rivers and creeks to nourish hay and other crops. Windmills drew water from wells for drinking and bathing (Renewable Technologies 2006:109–115).

Community Development

The presence of the military post at Fort Keogh spurred the development of Miles City (Figure 11-1). Miles City was initially a collection of saloons and service businesses that supported the fort, but the city continued to expand and develop as the area was settled by homesteaders and ranchers. During the late 19th and early 20th centuries, other communities emerged along the Tongue River and its drainages including Birney and the Lee area. As these communities grew, institutional and commercial services such as schools and retail outlets appeared. Because of the long distances and relatively sparse population, transportation features such as roads, railways, and river crossings (bridges, fords, and levees) were important to preserve connections between neighbors and to faraway markets and supplies (Renewable Technologies 2006:109–115).

11.1.3 Phased Identification under Section 106

To comply with Section 106 regulations (36 C.F.R. §§ 800.3–800.6) federal agencies must follow the consecutive four-step process outlined below.

1. Initiate consultation.
2. Identify and evaluate historic properties.
3. Assess effects.
4. Resolve effects.

In addition to completing the four steps consecutively, a federal agency may use a phased approach pursuant to 36 C.F.R. § 800.4(b)(2). This alternative process can include deferring some of the identification and evaluation (National Register assessment) of historic properties (including effects assessment and resolution, or mitigation). OEA used a phased approach due to the large number and length of the build alternatives and because OEA was not granted access to the entire length of all build alternatives. On January 23, 2014, OEA met with the Advisory Council on Historic Preservation (ACHP), the Montana State Deputy Historic Preservation Officer (SHPO) called into the meeting, and all parties agreed that a phased identification effort was appropriate for the proposed rail line.

If the Board licenses a build alternative, OEA would complete its identification efforts and apply the National Register criteria to each cultural resource identified in the study area. OEA has developed a draft Section 106 Programmatic Agreement in accordance with 36 C.F.R. § 800.14(b) with the ACHP, SHPO, tribes and other consulting parties. Provided as Appendix P, *Programmatic Agreement*, to this Draft EIS, the Programmatic Agreement stipulates measures that would be taken to complete the identification and evaluation efforts in accordance with C.F.R. § 800.4(b)(2) and to phase the application of the criteria of adverse effect in accordance with 36 C.F.R. § 800.5(a)(3). It also outlines measures that would be taken to avoid, minimize, or mitigate the effects on historic properties and tribal sites of significance in accordance with 36 C.F.R. § 800.6(a).

11.2 Study Area

OEA defined the study area for cultural resources is defined as the area(s) that would be affected by the build alternatives (40 C.F.R. § 1502.15). Section 106 uses the term *area of potential effects* (APE) instead of the term *study area*. The Section 106 definition of APE is the geographic area or areas within which an undertaking may directly or indirectly cause alterations to the character or use of historic properties, if any such properties exist. The APE is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by an undertaking (36 C.F.R. § 800.16(d)). For cultural resources, the NEPA study area is the same as the Section 106 APE; hereafter, APE is used to reference the NEPA study area.

The Section 106 process does not require agencies to identify and evaluate historic properties in the APE for all NEPA alternatives (Council on Environmental Quality and Advisory Council for Historic Preservation 2013:13). If the Board licenses a particular build alternative, OEA would determine the APE in consultation with the SHPO in accordance with 36 C.F.R. § 800.4 and the stipulations in the Programmatic Agreement.

OEA defined two APEs for cultural resources identification: one for tribal and archaeological resources and one for built resources. The APE for tribal and archaeological resources is the right-of-way for each build alternative plus a 200-foot-wide buffer zone on either side of the right-of-way edge. The 200-foot-wide buffer zone allowed archaeologists and tribal members to identify and record cultural resources adjacent to the right-of-way to better understand the context and association among the sites. If a build alternative is licensed, the Programmatic Agreement (Stipulations III B.1.b and III.B.2.) allows the APE to be expanded beyond the buffer zone to include tribal sites of significance that may be indirectly affected.

OEA limited the APE for built resources (historic buildings, structures, objects, and districts) to the right-of-way with a maximum 1,500-foot buffer measured from the outer edges of both sides of the proposed right-of-way. OEA selected this buffer to allow for a comprehensive analysis of impacts on built resources including construction impacts, (e.g., demolition) and operational impacts, (e.g., impacts caused by changes to the visual and auditory setting of the built resource). Areas within the 1,500-foot buffer obscured from the right-of-way by a butte or mountain were not considered to be in the APE because built resources would be shielded from impacts by these geological features.

11.3 Analysis Methods

OEA used the following methods and information sources to evaluate the impacts of construction and operation of the build alternatives on cultural resources. Review under Section 106 is being coordinated with the NEPA process (36 C.F.R. § 800.8(a)). Results of the Section 106 consultation, research, and field survey that identified potential historic properties in the APE contributed to the cultural resources analysis under NEPA. In addition, for the purposes of NEPA, OEA conducted a *slope analysis* to characterize the impacts across all build alternatives.

11.3.1 Identification of Consulting Parties

From October to December 2012, OEA sent letters to initiate Section 106 consultation to the SHPO, the ACHP, the Northern Cheyenne Tribe, 20 other federally recognized tribes with ancestral ties to the Tongue River Valley, and other potential consulting parties including federal and state agencies, the Applicant, and historic preservation organizations. In accordance with 36 C.F.R. § 800.2(b), ACHP accepted OEA's invitation to provide guidance and advice and has entered the Section 106 consultation process for the proposed rail line.

The Section 106 regulations at 36 C.F.R. § 800.2(c) list the following consulting parties and their level of participation.

- SHPO consultation is required to provide advice and assistance to the federal agency in carrying out the agency's Section 106 responsibilities.
- Federal agencies are required to invite federally recognized tribes that might attach religious and cultural significance to historic properties to be a consulting party regardless of the location of the property.
- Local governments with jurisdiction over the area are entitled to participate as consulting parties.
- Applicants for federal assistance, permits, licenses, and other approvals are entitled to participate as a consulting party.
- Additional individuals and organizations with a demonstrated interest in the undertaking may be invited to participate as consulting parties.

OEA carefully considered the range of consulting parties recommended by the Section 106 regulations. In late 2012, OEA invited initially those who had been involved in previous applications to the Board to construct and operate a railroad line in the Tongue River Valley. Subsequently, OEA added several consulting parties over the course of the Section 106 consultation process, including the Montana Preservation Alliance and Rocker Six Cattle Company in February 2013; Northern Cheyenne Otter Creek Homestead descendants in April 2013; Turtle Mountain Band of Chippewa in July 2013; National Wildlife Federation, Fix Ranch, and Northern Plains Resource Council in November 2013; and Fort Belknap Indian Community and Spirit Lake Sioux in January 2014 (Table 11-1).

Table 11-1. Consulting Parties

Federal Agencies and State and Local Governments	
Advisory Council on Historic Preservation	National Park Service
Bureau of Land Management	Montana State Historic Preservation Officer
U.S. Army Corps of Engineers	Miles City Historic Preservation Office
U.S. Department of Agriculture	Montana Department of Natural Resources and Conservation
Federally Recognized Tribes	
Cheyenne and Arapaho	Ogala Sioux
Cheyenne River Sioux	Rosebud Sioux
Crow	Santee Sioux
Crow Creek Sioux	Shakopee Mdewakanton Sioux
Flandreau Santee Sioux	Shoshone of the Wind River
Fort Belknap Indian Community	Sisseton-Wahpeton Oyate
Fort Peck Assiniboine and Sioux	Spirit Lake Sioux
Lower Brule Sioux	Standing Rock Sioux
Mandan, Hidatsa and Arikara	Turtle Mountain Chippewa
Northern Arapaho	Yankton Sioux
Northern Cheyenne	
Other Consulting Parties	
Tongue River Railroad Corporation (Applicant)	National Wildlife Federation
Montana Preservation Alliance	Northern Plains Resource Council
National Trust for Historic Preservation	Sierra Club
Northern Cheyenne Otter Creek Descendants	Colstrip Alternative Landowners Group
Rocker Six Cattle Company	Fix Ranch

11.3.1.1 Section 106 Consultation Efforts

To support its Section 106 outreach efforts, OEA has held monthly calls with consulting parties since February 2013. OEA also added a historic preservation page to the Tongue River Project website, which is accessible to the public.² The webpage includes pertinent Section 106 correspondence, documents, and project maps. OEA invited potential Section 106 consulting parties to a meeting held on the Northern Cheyenne Reservation in Lame Deer, Montana, on April 16 through 18, 2013; members of the public also attended. The meeting included a one-day bus tour of portions of the APE. During the meeting, representatives from the Rosebud Sioux Tribe offered some suggestions for OEA to consider in developing the approach to the archaeological surveys. Other tribal representatives echoed the following comments and suggestions at the meeting.

- Tribal cultural resources specialists and archaeologists offer differing expertise in the identification of sites of religious and cultural significance to tribes.
- Tribal sites should be respected.

² The Tongue River EIS historic preservation webpage can be accessed at http://www.tonguerivereis.com/sect_106.html.

- Tribal archaeologists and cultural resources specialists should have parity with OEA archaeologists.

OEA held a Section 106 consulting party meeting in Billings, Montana, on February 13 and 14, 2014. OEA provided an update on the Section 106 process to the consulting parties and solicited their comments, opinions, and concerns about the progress to date and next steps. Several of the meeting attendees recommended that work on a Programmatic Agreement begin immediately. Consequently, after the meeting was formally adjourned on February 14th, the consulting party representatives remained behind to work on redrafting the Programmatic Agreement that OEA had developed for the prior Tongue River project. Appendix A, *Consultation*, provides the list of attendees and transcripts of the meetings. Since the February 2014 meeting, OEA has worked with the consulting parties on a regular basis to develop the Programmatic Agreement. In April 2014, upon the advice of ACHP, OEA provided the consulting parties with an explanation of why it would be appropriate to develop a Programmatic Agreement in this case. In June through July 2014, OEA worked with the consulting parties to develop the recitals, or WHEREAS clauses, of the draft Programmatic Agreement. From August 2014 through January 2015, OEA continued to work with the consulting parties to develop the other sections of the draft Programmatic Agreement, including the stipulations and appendices. The draft Programmatic Agreement is being issued for public review and comment as part of this Draft EIS; it is contained in Appendix P.

11.3.2 Treatment of Ethnography

Ethnography is the study of the culture of a specific group of people, including how that group uses natural resources and what it considers important in the physical landscape. OEA conducted a literature review of previous studies, books, and other materials regarding the ethnography of tribes in the area and analyzed each document for any information relating to the Tongue River. The consulting tribes for the proposed rail line are not equally represented in the literature, though all are known to have ties to the area, to varying degrees.

The documents OEA examined contain an abundance of well-referenced information on the ethnography of southeastern Montana, especially of the Northern Cheyenne and Crow peoples. The focus varied from a generalized overview of the Northern Cheyenne and their reservation, to an analysis of the tribe's spiritual ties to the Tongue River and of Northern Cheyenne homesteading. Also included in one of the documents is an analysis of the proposed rail line's potential impacts on cultural resources associated with the Northern Cheyenne and measures proposed to mitigate these impacts for portions of the APE (Tallbull and Deaver 1991). However, specific information regarding ethnographic resources and their exact location in the region—in a way that these resources can be mapped on the ground in relation to the APE—is not usually found in these documents. A document regarding Northern Cheyenne homesteads located on the east side of the Tongue River (Brownell 2005) is an exception, since the document includes General Land Office maps. These maps, created by the U.S. government in the late 19th century, indicate that the proposed rail line

would avoid Northern Cheyenne homestead locations along the east side of the Tongue River.

Overall, specific places or locations along the Tongue River or in the APE cannot be determined with accuracy from the existing ethnographic literature. For example, a specific reference from *A Cheyenne Voice* (Stands in Timber and Liberty 2013:109–110) refers to specific locations along the Tongue River and a side drainage.

Big Medicine, (a Cheyenne ceremonial plant) the other plant I mentioned, grows on the same Poker Jim Creek and also at another place near the Tongue River Dam. They used it in every medicine they made...About 1952 the Keeper of the Sacred Arrows in Oklahoma came all the way up here to get some of it.

This information is indicative of an ethnographically important resource that is in the APE; however, its exact location is unknown. If the Board were to license a build alternative, an ethnographic study would be conducted as part of the Programmatic Agreement. Such a study would help determine whether construction of the proposed rail line would affect these important resources.

11.3.3 Fieldwork Methods

As previously discussed in Section 11.1.3, *Phased Identification under Section 106*, OEA is conducting a phased identification of historic properties pursuant to 36 C.F.R. § 800.4(b)(2) of the Section 106 regulations which states, “where alternatives under consideration consist of corridors or large land areas, or where access to properties is restricted, the agency official may use a phased process to conduct identification and evaluation efforts...” OEA used the following methods when conducting fieldwork during the first phase of the identification effort. These methods varied for tribal resources, archaeological resources, and built resources because each resource category has different characteristics and requires different experts to identify them properly. If the Board licenses a build alternative, the Programmatic Agreement would guide OEA to complete its identification efforts and evaluate each cultural resource identified in the APE by applying the National Register criteria.

11.3.3.1 Survey Areas

OEA made an extensive outreach to landowners to gain access to and survey property within the right-of-way for portions of each build alternative (Appendix B, *Land Access*). OEA could not gain access to some areas because landowners would not grant access or because some accessible parcels were surrounded by parcels that were not accessible. OEA conducted its initial field surveys in 2013, and then conducted an additional season of field surveys in 2014, because some landowners provided access to land for cultural resources surveys that had not been available in 2013.

OEA was granted access to approximately 51 percent of the archaeological and tribal resources APE (Figure 11-2, Table 11-2) and approximately 50 percent of the built resources APE (Figure 11-3, Table 11-2). OEA identified archaeological and tribal resources by conducting pedestrian transect surveys on a high percentage (approximately 72 percent) of the accessible property (Table 11-2).

Prior to the survey, an archaeologist acting as an access manager processed all information for parcels where permission had been granted and created a spreadsheet with specific access requirements (i.e., contacts, time of day, and specific limitations). OEA used this datasheet to make initial planning calls to landowners, schedule survey days, and ensure that all specific requirements of the landowners were met by OEA's survey crews. The survey crews were not able to survey all accessible land but chose areas based on criteria that maximized the area surveyed. For example, some parcels, while accessible, were small and isolated from larger blocks of accessible land and, by focusing on contiguous accessible parcels, survey crews were able to focus on large surveys and, thus, cover more area.

At the end of each survey rotation, the survey crews reviewed maps and acreage of what was covered. If there were large areas of land unsurveyed but accessible—in terms of geographic landscape area or build alternative—OEA made the large area a priority for survey in the next rotation. This prioritization allowed OEA to gather information in a comparable level of detail for all build alternatives where access was granted; it also meant that small, accessible areas were not always surveyed.

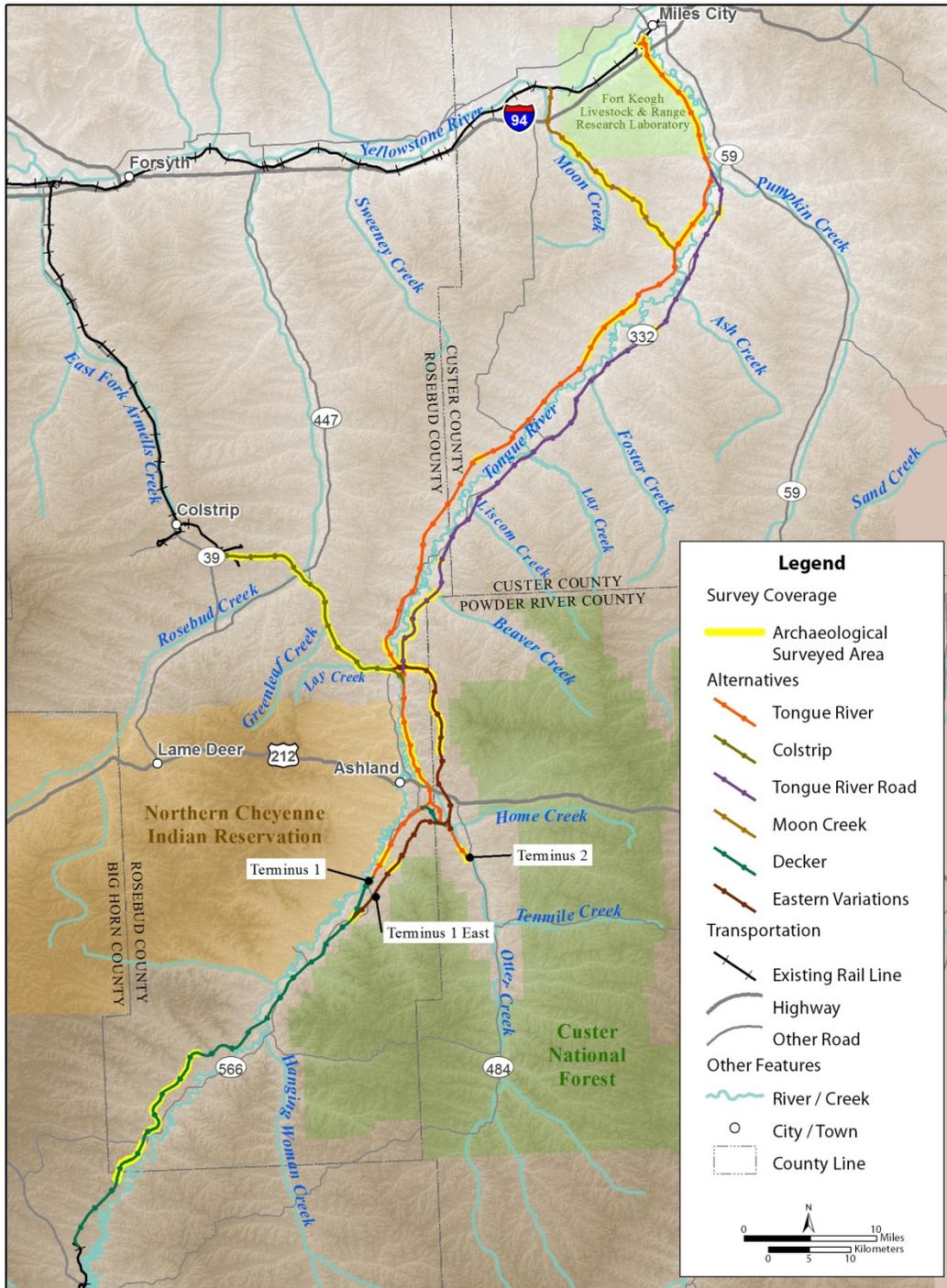


Figure 11-2. Archaeological Survey Coverage in 2013–2014 Tongue River Railroad APE

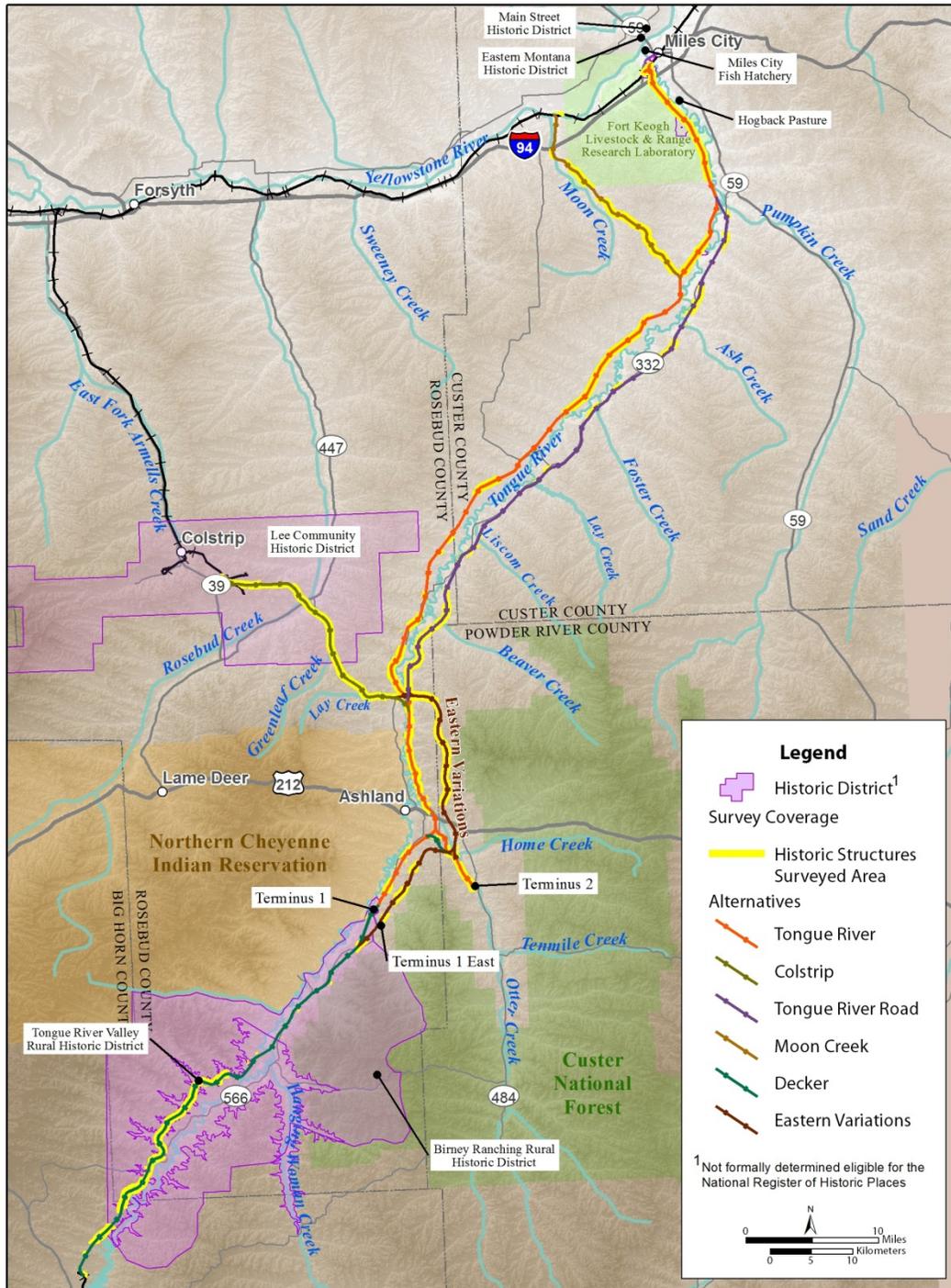


Figure 11-3. Built Resources Survey Coverage in 2013–2014 Tongue River Railroad APE

Table 11-2. APE Access

APE	Total Acres in the APE^a	Total Acreage Accessible^b	Percent Access Granted	Total Acreage Surveyed^a	Percent of APE Surveyed	Percent Accessible Surveyed
Archaeological and tribal resources ^c	23,431	11,995	51	8,650	37	72
Built resources ^c	96,116	48,274	50	46,578	48	96
Archaeological and Tribal Resources APE—by Build Alternative						
Tongue River	7,921	4,226	53	2,674	34	63
Tongue River East	8,097	4,353	54	3,080	38	71
Colstrip	4,133	2,913	71	2,124	51	73
Colstrip East	4,369	3,156	72	2,590	59	82
Tongue River Road	8,368	3,641	44	2,493	30	68
Tongue River Road East	8,491	3,714	44	2,834	33	76
Moon Creek	8,086	4,299	53	2,456	30	57
Moon Creek East	8,262	4,426	54	2,862	35	65
Decker	5,420	2,555	47	1,699	31	66
Decker East	5,229	2,560	49	1,683	32	66

Notes:

^a APE includes a 200-foot buffer zone on either side of the right-of-way edge for the archaeological and tribal resources APE, and 1,500-foot buffer measured from the outer edges of both sides of the proposed right-of-way for the built resources APE.

^b Accessible because of landowner permission

^c Some alternatives share common segments; the total is for unique segments

APE = area of potential effect

11.3.3.2 Identifying Tribal and Archaeological Sites

OEA organized seven eight-member survey teams to conduct field surveys in portions of the APE. Each survey team included four tribal members and four OEA archaeologists. The OEA chief archaeologist for each rotation met the Secretary of the Interior Professional Qualifications Standards (36 C.F.R. Part 61) for archaeology; all other OEA team members had a Bachelor’s degree (BA or BS), or higher, in anthropology or a closely related field.

All consulting tribes were asked about their interest in participating in the field surveys. Participants from 15 different tribes rotated their participation among the seven field survey teams (Table 11-3). Each survey team consisted of four tribal members and four archaeologists. The survey teams worked in 10-day increments (Table 11-4).

Table 11-3. Tribes Participating in Field Surveys

Team A	Team B	Team C	Team D
Northern Arapaho	Mandan, Hidatsa, and Arikara	Crow	Cheyenne and Arapaho
Northern Cheyenne	Northern Cheyenne	Northern Cheyenne	Crow Creek Sioux
Fort Peck Assiniboine and Sioux	Oglala Sioux	Standing Rock Sioux	Northern Cheyenne
Yankton Sioux	Rosebud Sioux	Yankton Sioux	Sisseton Wahpeton Oyate Turtle Mountain Chippewa
Team E	Team F	Team G	
Cheyenne and Arapaho	Crow Creek Sioux	Cheyenne River Sioux	
Crow	Fort Belknap	Northern Cheyenne (member #1)	
Northern Arapaho	Mandan, Hidatsa, and Arikara	Northern Cheyenne (member #2)	
Northern Cheyenne	Northern Cheyenne	Standing Rock Sioux	
Turtle Mountain Chippewa	Rosebud Sioux		

Table 11-4. Survey Dates

APE	Team A	Team B	Team C	Team D
Archaeological and tribal resources	July 15, 2013– July 24, 2013	July 29, 2013– August 7, 2013	August 12, 2013– August 21, 2013	August 26, 2013– September 4, 2013
Built resources	July 15, 2013– July 24, 2013	July 29, 2013– August 7, 2013	N/A	N/A
APE	Team E	Team F	Team G	
Archaeological and tribal resources	May 12, 2014– May 23, 2014	June 2, 2014– June 13, 2014	July 7, 2014– July 18, 2014	
Built resources	N/A	June 2, 2014– June 9, 2014	N/A	

During each rotation, all seven survey teams conducted the survey as one collective team. Individuals were spaced approximately 50 feet apart and walked at the same pace observing the ground for any indications of archaeological resources and/or tribal resources such as rock alignments, flaked stone (lithics), bone, historical debris, or other deposits. As potential resources were encountered, the entire crew stopped and recorded the resource, using a global positioning system (GPS) device and iPad® to record the location and attributes, as appropriate. The crew did not perform any earthmoving or excavation, and all team members took care not to disturb any cultural resources observed. Archaeological site types were recorded using standard types (described in Section 11.4.3, *Cultural Resources Identified in the APE*). Team members kept field notes and took photos of all archaeological resources.

If a tribal member observed sites of tribal significance (sites containing attributes beyond or in addition to archaeological data), the tribal member recorded a single GPS point for that resource, along with a brief description. In all cases, all four tribal participants agreed that the tribal resource should be recorded before OEA collected any information.

OEA archaeologists and tribal members conducted fieldwork for the first phase of the phased identification effort for Section 106 only where they were able to obtain access permission from landowners. OEA surveyed 8,650 acres (72 percent of the acres with permitted access) but did not access 3,345 acres (28 percent of the acres with permitted access). Isolated parcels, for example, were not surveyed because they were surrounded by inaccessible parcels with no public roads for access (1,348 acres or 11 percent of permitted access area). OEA made a reasonable and good-faith effort to gain access to the proposed right-of-way to conduct cultural resources surveys in the APE for all build alternatives. The APE consists of the proposed right-of-way with an additional buffer zone to capture potential indirect effects. For archaeological and tribal resources, landowners granted OEA access to approximately 51 percent of the APE, and OEA conducted pedestrian transect surveys on 72 percent of the accessible APE.

11.3.3.3 Identifying Built Resources

Two teams of two federally qualified (36 C.F.R. Part 61) architectural historians conducted field survey work for built resources. Their method involved reviewing geographic information system (GIS) maps using Google Earth Pro satellite imagery (Google Earth 2013); reviewing previously recorded site forms; interviewing landowners or managers who offered to provide information; conducting a windshield survey along public roads; and conducting a pedestrian or all-terrain vehicle field survey along private roads, trails, or cow paths where available. Built resources field surveyors recorded buildings, structures, objects, and districts that appeared to be 50 years of age or older, the general threshold for consideration under the National Register.

The architectural historians made contact with the following local repositories and organizations to determine if these entities have knowledge about the significance of built resources in the APE.

- American Prairie Foundation
- Billings Preservation Alliance
- Bureau of Land Management Research Center
- Custer County Art and Heritage Center/Waterworks Art Museum
- Frontier Heritage Alliance
- Frontier Montana Museum

- Hardin, Big Horn County, Certified Local Government³
- Miles City, Certified Local Government
- Miles City Public Library
- Montana Heritage Commission
- Montana Historical Society Research Center
- Montana Live
- Montana Preservation Alliance
- Montana State Historic Preservation Office
- Montana State University Billings - Library
- Montana State University Bozeman - Library
- Museums Association of Montana
- Northern Plains Resource Council
- Range Riders Museum
- Sheridan (Wyoming) Fulmer Public Library
- U.S. Department of Agriculture (USDA) Agricultural Research Center
- Western Heritage Center

OEA architectural historians conducted fieldwork for built resources where they were able to obtain access permission from landowners. OEA surveyed 46,578 acres (96 percent of the acres with permitted access). OEA did not access 1,696 acres (4 percent of the acres with permitted access) because these acres were on isolated parcels surrounded by inaccessible parcels with no public roads for access.

11.3.4 Predicted Resources in Surveyed and Unsurveyed Areas

OEA's archaeologists and architectural historians developed an approach to extrapolate sensitivity for archaeological resources and built resources on parcels⁴ that were not surveyed. OEA used field results from archaeological surveys and records searches to extrapolate the sensitivity for archaeological sites. To accomplish this, OEA first explored the various relationships between the location of precontact archaeological sites and geographic information including distance to water and geologic soils data. A review of this

³ Per 36 C.F.R. Part 61, a Certified Local Government is a local government whose local historic preservation program has been certified by SHPO and National Park Service. It is the local government, and not the Commission, that is certified.

⁴ For the purposes of this analysis, a parcel is considered to be real estate with a specific legal description and defined by the relevant county tax assessor with a unique number, known as an assessor's parcel number.

data (soils and distance to water, specifically) indicated that neither criteria had a recognizable influence on the location of prehistoric sites. Walter (1996) also found that distance to water was not a strong predictor of site location. This does not mean that these factors did not matter to precontact peoples in terms of where sites were located, but rather that the data patterns were not visible in computer analyses. For example, almost all sites were located close to water, but areas with no archaeological sites were also close to water; soil formations differed mainly between the ridges and the valley floor, but soils did not vary much where sites were recorded.

OEA then conducted a review of areal images to discern any visible patterns. Because many precontact resources are subtle and not clearly visible from afar, this method did not prove useful for identifying archaeological resources. However, based on field survey and records searches, most known sites were located in areas with less than 20 degrees of slope (considered highly sensitive or moderately sensitive for archaeological resources), and fewer sites were located on steeper slopes. Because this factor could be categorized by using the digital elevation model (DEM), OEA calculated the likelihood of archaeological resources by synthesizing slope for unsurveyed areas, including areas of proposed road realignments. This analysis was facilitated by GIS, which allows for data from multiple sources to be easily related geospatially to calculate areas (acreage) of land with various levels of flatness. If an area had a slope of 0 to 20 degrees, OEA considered it highly likely to contain archaeological resources. If the slope was calculated at 20 to 30 degrees, OEA considered it moderately sensitive. While the terms *highly likely* or *moderately likely* do not represent specific numbers or counts of predicted resources, these categories do allow for a general assessment of sensitivity for specific landforms on each build alternative.

Because acreage of surveyed areas varied by each build alternative, this same analysis was employed to standardize the sensitivity of surveyed area—thereby creating comparable acreage calculations for archaeological resources. After calculating degrees of slope for the entire build alternative, surveyed and unsurveyed acreage was then combined to assess the overall likelihood of archaeological sensitivity between build alternatives.

Unlike the analysis for archaeological resources, OEA did not attempt to estimate or predict the likelihood of tribal resources that may be located in unsurveyed areas because tribal resources are often spiritual in nature and are not necessarily predictable based on factors such as topography, soils, or distance from water.

For built resources in areas where access was granted, OEA's architectural historians conducted a pedestrian or vehicular field survey of the entire area. To evaluate the remaining areas to which the historic structure survey team did not have access, the architectural historians used tax assessor data and Google Earth Pro® with satellite imagery. OEA reviewed tax assessor data to identify parcels with improvements at least 50 years old and used Google Earth Pro® with satellite imagery to determine if buildings or structures were present in the right-of-way.

11.4 Affected Environment

The existing environmental conditions related to cultural resources identified in the APE are described below.

11.4.1 Summary of Affected Cultural Resources

11.4.1.1 Archaeological Resources

The density of archaeological sites was fairly even across all build alternatives. Lithic scatters (stone flakes and tools found on the ground surface) dominated the resource type throughout the APE. For areas OEA surveyed, archaeological and tribal survey teams identified the most resources in the Colstrip Alternative (68) and the fewest in the Decker East Alternative (48); however, OEA was not granted access to the entire APE. Because the acreage of surveyed land on all build alternatives varied, OEA calculated the overall sensitivity (likelihood) of additional archaeological resources in unsurveyed areas based on the level of slope and total acreage by build alternative with areas considered highly likely or moderately likely to contain archaeological sites. In this way, unsurveyed and surveyed acreage could be combined and the total number of acreage considered sensitive for archaeological resources could be assessed and compared. Based on this analysis developed by OEA archaeologists, the Tongue River Road Alternative and Tongue River Road East Alternative would have the highest acreage of relative flat land in the proposed right-of-way (2,532 and 2,547 respectively) and, therefore, have the potential to affect the most archaeological resources. The Decker Alternatives (Decker Alternative at 1,150 acres and Decker East Alternative at 1,097 acres of flat land in the proposed right-of-way) would affect the fewest.

11.4.1.2 Tribal Resources

The density of tribally identified resources was also fairly even across all build alternatives. Based on the field survey of areas where access was granted by landowners, the Tongue River East Alternative would affect the most tribally identified resources in the right-of-way (six), and the Colstrip and Moon Creek Alternatives would affect the fewest (three).

11.4.1.3 Built Resources

The Main Street Historic District in Miles City is the sole property in the APE listed in the National Register, but it does not fall within the proposed right-of-way. Neither the Wolf Mountain Battlefield National Historic Landmark nor the National Register-listed Fort Keogh Historic District is located in the APE. The Colstrip Alternative would affect the most built resources within the proposed right-of-way (five) and Moon Creek East Alternative and both Decker Alternatives would affect the fewest (one each). However, three large historic districts associated with important contexts but not evaluated for National

Register eligibility would be affected by several build alternatives. The precise boundaries and contributing elements of these potential historic districts have not yet been clearly delineated. The Tongue River, Colstrip, Tongue River Road, Moon Creek, and Decker Alternatives would all affect the Birney Ranching Rural Historic District. The Tongue River East, Colstrip East, Tongue River Road East, Moon Creek East, and Decker East Alternatives, however, would avoid it. Additionally, the Decker Alternatives would affect the Tongue River Valley Rural Historic District. The Decker and Colstrip Alternatives would affect the Lee Community Historic District, which was previously nominally recorded and has not yet been evaluated for the National Register.

11.4.2 Previously Recorded Cultural Resources

Cultural resources in Montana are recorded on site forms that are retained in the State of Montana Cultural Resource Information System (CRIS) database, maintained by the Montana Historical Society (MHS).

Site records are forms prepared by cultural resources specialists that describe and map previously discovered cultural resources (including archaeological sites and built resources) in an area. OEA obtained site records from MHS for an area 1 mile wide on either side of the centerline for each build alternative. This was consistent with the access requested for all NEPA resource areas, not just cultural resources. This large records search area, because it yields many site forms describing previously found cultural resources, also provides a better context for the cultural environment of the APE. The records searches yielded 780 site forms: 170 from Custer County, 166 from Powder River County, 312 from Rosebud County, and 132 from Bighorn County. Of these 780 previously recorded cultural resources, 71 fell within the APE including 44 archaeological sites (Table 11-5) and 27 historic built resources (Table 11-6). Reports of past surveys and analyses were also obtained from the Montana Historical Society, indicating that *less than 10 percent* of the areas encompassed by the build alternatives had been previously surveyed for archaeological sites. Tables 11-5 and 11-6 summarize the previously recorded archaeological sites and built resources within 1 mile on either side of the centerline for all build alternatives.

Table 11-5. Number of Previously Recorded Archaeological Resources—All Build Alternatives

Lithic Scatter	Lithic Scatter with other components	Stone Circle	Cairn	Historic Water Associated	Historic Trail or Fence	Other ^a	TOTAL Archaeological Sites	Tribal Resources
16	23	2	1	0	0	2	44	0

Notes:

^a Two railroad grades

Table 11-6. Previously Recorded Built Resources—All Build Alternatives

Barn	Bridge	Dam/Levee	District ^{a,b}	Homestead	Railroad ^c	Ranch	Road/Trail	Utility	Windmill	Other ^d
0	2	0	2	3	2	11	2	0	0	5

Notes:

^a Includes the Miles City Main Street Historic District, listed in the National Register

^b Includes the Lee Community Historic District, which was identified in the records search (Ferguson 2002) but was only nominally recorded and was not formally determined eligible for the National Register.

^c Includes the Northern Pacific Railroad (Main line: Miles City to Billings segment; Nichols to Colstrip branch line), which the 2007 site record stated was previously determined eligible for the National Register.

^d Includes schools, irrigation systems, a former Civilian Conservation Corps (CCC) camp, and a grave marker

OEA reviewed the inventory of properties listed in the National Register through the National Park Service’s Focus digital library. Based on this search, OEA found that the Main Street Historic District in Miles City is the sole property in the APE listed in the National Register. Neither the Wolf Mountain Battlefield National Historic Landmark nor the National Register-listed Fort Keogh Historic District is located in the APE.

In addition to the 27 built resources formally recorded in the CRIS database, the following three resources were revealed through literature review, but none has been formally determined eligible for the National Register:

- The Birney Ranching Rural Historic District, identified in the *Cultural Landscape of the Upper Tongue River Valley in Rosebud County, Montana* (Montana Preservation Alliance 2007)
- The Tongue River Valley Historic District, identified in the *Cultural Landscape-Scale Overview of the High Potential Coal Bed Natural Gas Development Area* (Renewable Technologies 2006)
- The Hogback Pasture, identified in *A Study of the Hogback Pasture on the Fort Keogh USDA Agricultural Station* (Ethnoscience in press)

11.4.3 Cultural Resources Identified in the APE

11.4.3.1 Field Survey Results—Tribal and Archaeological Resources

The field survey resulted in the identification of 386 new sites in the APE including 350 archaeological and 36 tribal resources (Table 11-7). Impacts on these sites are discussed further in Section 11.5, *Environmental Consequences*.

Table 11-7. Newly Recorded Tribal and Archaeological Resources

Lithic Scatter	Lithic Scatter with other components	Stone Circle	Cairn	Historic Water Associated	Historic Trail or Fence	Other	Isolate	Total Archaeology Sites	Tribal Resources
83	27	12	39	6	6	51	126	350	36

OEA considers the newly identified tribal and archaeological resources as presumed eligible for listing in the National Register for the purpose of this Draft EIS. National Register evaluation would be undertaken through the procedures set forth in the Programmatic Agreement if the Board licenses a build alternative. Generally, these types of resources are found eligible for listing in the National Register under Criteria A and D, defined below, though other criterion can apply particularly in the case of tribal resources (36 C.F.R. Part 60).

- **Criterion A** resources are associated with events that have made a significant contribution to the broad patterns of history.
- **Criterion B** resources are associated with the lives of persons significant in our past.
- **Criterion C** resources 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.
- **Criterion D** resources have yielded, or may be likely to yield, information important in prehistory or history.

The field survey team of tribal members and archaeologists observed resources in the survey areas for all build alternatives that fall within the following categories.

Tribal Resources

Tribal members that participated in the field surveys used the following terms to describe resources significant to the tribes: cairns, depressions, stone circles, and ceremonial, cosmological, faunal, or spirit track sites. Many of these resources are also considered archaeological resources or resource types as described below.

Lithic Scatters

Lithic scatters are by far the most common site type (precontact or historic) in the APE. These sites consist of culturally modified stone tool materials, including projectile points (e.g., spear tips, atlatl dart tip, arrowheads), tools (e.g., scrapers, choppers, hammerstones), tested cobbles, waste flakes (associated with cobble testing, and projectile point or tool manufacture), and ground stone artifacts (e.g., manos, metates). Porcellanite (porcelanous-fused shales) was the principal material represented in chipped stone assemblages, with small quantities of various cryptocrystalline silicates (chert, jasper, chalcedony) and quartzites also present.

Lithic Scatters with Other Components

Lithic scatters, as defined above, are often found associated with other types of precontact cultural features. These often include stone circles and cairns, as described below. Other features often associated with lithic scatters in the APE included quarry sites, bedrock milling features, and historic-period petroglyphs. Quarry sites are, in essence, lithic scatters whose implied origin is that of lithic tool source material extraction and testing. These sites occur at bedrock outcrops or areas of abundant surface cobbles/gravels. By nature, quarry sites are typically large and contain a much higher percentage of primary reduction material and tested cobbles when compared with general lithic scatters. Petroglyphs are rock art created by physical removal of material from natural stone, done by incising and/or pecking. Petroglyphs are found on bedrock exposures that form cliffs, bedrock outcrops, rockshelters, and caves. Bedrock milling features are expanses of natural bedrock that have been used to process plant foods or hides. The bedrock surfaces are worn smooth by these activities.

Cairns

Cairns are piles of rocks of various sizes, typically ranging from several stones to larger stacks of rocks (Figure 11-4) and are one of the most common site types identified in the APE. Cairns may be associated with ceremonial or other important functions such as burials, commemoration of people or events, and directional references such as trail marking.

Historic Water-Associated Structures

These types of features consist of human-made structures used to direct or retain water. Dams—earthen and made of wood or stone—are a common example of this site type, in addition to canals and water-retention basins. These features are most often constructed through some scale of excavation and piling of local sediment.

Historic Trail or Fence

These are linear human-made features on the landscape. Trail and road sites are linear alignments used for movement of individuals and material. Trails are unimproved alignments and often associated with pedestrian, equestrian, and wagon movement. Roads are typically associated with motorized vehicle use. Both trails and roads may consist of simple dirt alignments. Fences are constructed alignments usually used for partitioning land and/or enclosing livestock. Milled wood, local trees and brush, and barbed wire are the most common materials used for fence construction.

Potential Eligibility of Tribal Resources

Tribal resources include locations with religious and cultural significance to tribes. OEA acknowledges that tribes possess special expertise identifying cultural resources with religious and/or cultural significance. OEA presumes all newly identified tribal resources are eligible for listing in the National Register for the purposes of this Draft EIS. The evaluation of these resources for the National Register would not be undertaken unless the Board licenses a build alternative, and would follow the procedures set forth in the Programmatic Agreement, which would involve participation by the tribes.

Figure 11-4. View of a Cairn



Archaeological Resources

Other archaeological resources found in small numbers in the APE include stone alignments, rockshelters, depressions, historic period refuse scatters, building remains, survey markers, and hillcuts.

Stone Alignments

Stone alignment sites are generally linear straight to curving arrangements of piles and/or intentionally aligned stone. Alignments may be associated with bison drivelines, trail alignments, effigies, or ceremonial practices, among others. Figure 11-5 shows an alignment for a fasting circle.

Rockshelters

Rockshelters are natural rock formations, typically semi-enclosed, associated with cultural activities. These activities include general habitation, lithic tool procurement, petroglyphs/pictographs, quarries, and burials.

Depressions

Depressions are areas that may be associated with lookout or hunting activities, both by Native Americans and/or European Americans.

Refuse Scatters

This site type consists of general waste material generated through cultural activities. Refuse scatters can range in density from very sparse to highly concentrated dumps. Typically material present at this type of site are from the historic era and include cans, bottles, domestic ceramics, clothing (e.g., boots, shoes), construction material (e.g., nails, milled wood), among other items.

Building Remains

Building remains refers to foundations or other features associated with a once-standing structure. These resources are historical and may include chimney remnants, historic debris, privies, collapsed walls, or other structural elements associated with the structure.

Figure 11-5. Rocks Aligned for a Fasting Circle



Survey Markers

Historic survey markers are typically small metal posts purposefully set in the ground during land surveys to act as a geographic reference and evidence of surveying activities. The posts are set in the ground until flush with ground level, and usually contain inscribed information about the location and survey (date and responsible party/agency for the survey) on the visible cap. However, in some cases these may simply be corners marked by rocks with the location chiseled into it.

Hillcuts

Hillcuts are areas where sediment has been physically removed from a slope, by manual and/or mechanical means.

Potential Eligibility of Archaeological Resources

OEA presumes all newly identified archaeological resources are eligible for listing in the National Register for the purposes of this Draft EIS because OEA is conducting a phased process for identification and evaluation in accordance with 36 C.F.R. § 800.4(b)(2). The final phase of evaluation of these resources for National Register eligibility would not be undertaken unless the Board licenses a build alternative, and would follow the procedures for completing the phased identification and evaluation effort set forth in the Programmatic Agreement. Although the majority of sites in the APE have not been evaluated, some have been previously studied and determined eligible or not eligible for other undertakings. This previous excavation and evaluation of precontact archaeological resources indicates in general terms which resource types are more likely to yield important scientific information, and thus to be eligible for the National Register.

Isolated artifacts by their nature as single items or a very sparse collection of items are rarely considered eligible. Very rare artifact types, such as fluted projectile points, may be an exception to this rule. Similarly, *lithic scatters* are usually not eligible. However, if the provisions for evaluating these resources for National Register eligibility in the Programmatic Agreement are implemented, test excavations at a small percentage of sites recorded as lithic scatters would uncover subsurface features and components and significant archaeological materials.

Sites recorded as *lithic scatters with other components*, especially habitation-related components such as hearths or stone circles, are usually eligible under Criterion D. For example, one type of important information that can be gained at sites of this type is datable material recovered in hearths, with radiocarbon dates adding important information to scientific understanding of the region. As noted above, some small number of lithic scatters would be determined to be sites of this types, and likely eligible. Similarly, *stone circles* often prove to indicate habitation sites, and these are, in turn, considered eligible under Criterion D. However, some stone circles would be excavated, and no other archaeological artifacts or features would be found in association. These circles would not yield further

scientific information, being isolated single-use features, and thus would not be considered eligible under Criterion D. However, if this isolated use is of a spiritual nature, these features may be eligible as tribal resources under other criteria. This would require evaluation and additional consultation with tribal representatives.

Rock cairns and *rock alignments* are feature types that can be eligible under Criterion D depending on what other archaeological artifacts or features are found in association with the cairns or alignments, in a manner similar to stone circles. A cairn marking human remains would obviously be eligible, while an isolated trail marker might not be. Similarly, *rock shelters and depressions* may be eligible depending on what archaeological items and information could be recovered from them, if any. However, again, if this use is of a spiritual nature, any features of these types may be eligible as tribal resources under other criteria.

Historical archaeological resources also fall into broad categories in terms of eligibility for the National Register. *Refuse scatters and building remains* are typically not eligible but can be eligible under Criterion D if sufficient new information can be gathered from the site. Sparse refuse or very fragmentary remains would be not eligible. *Historic water-associated structures* and *historic trail or fence* sites are usually not eligible under Criterion D. However, some trails and irrigation structures would be eligible under Criterion A, associated with events that have made a significant contribution to the broad patterns of history. *Survey markers* and *hillcuts* on the other hand, are usually considered not eligible under Criterion D.

In summary, while all archaeological sites identified in this Draft EIS are presumed eligible for listing in the National Register, none has been formally evaluated. However, there are some indications—such as possible burial remains or other indications noted previously—that suggest some sites may address research issues and meet Criterion D or Criterion A, including the following.

- Lithic scatters with other components
- Stone circles
- Rock cairns and rock alignments
- Rock shelters and depressions

11.4.3.2 Field Survey Results-Built Resources

The field surveys resulted in the recording of 51 new built resources in the APE for all build alternatives in addition to those identified in the records search (Table 11-8). The impacts on these sites are discussed further by build alternative in Section 11.5, *Environmental Consequences*.

Table 11-8. Newly Recorded Built Resources

Barn	Bridge	Dam/ Levee	District^a	Homestead	Irrigation Ditch	Railroad	Ranch	Road/Trail	Utility	Windmill	Other^b
3	3	4	1	4	3	3	4	5	3	6	10

Notes:

^a District includes the newly identified Eastern Montana Fairgrounds Historic District

^b Other includes a pumphouse, fish hatchery, school, culvert, cattle pen, park facilities, pasture, storage shed, corrals, and a residence

OEA considers these built resources as presumed eligible for listing in the National Register for the purposes of this Draft EIS because OEA is conducting a phased process for identification and evaluation in accordance with 36 C.F.R. § 800.4(b)(2). National Register evaluation would not be undertaken unless the Board licenses a build alternative, and would be done according to the procedures in the Programmatic Agreement.

Built resources are typically evaluated for National Register eligibility under three of the register’s four criteria (36 C.F.R. Part 60), as follows.

- **Criterion A** resources are associated with events that have made a significant contribution to the broad patterns of history.
- **Criterion B** resources are associated with the lives of persons significant in our past.
- **Criterion C** resources 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.

The field survey team observed built resources in the survey areas for all build alternatives that fall within the following categories.

Ranches

Previously documented ranches are reflected in the records search and additional examples were recorded during the field surveys. A ranch is an existing group of related buildings and/or structures that represent the primary residence and operations of a working farm. The grouping most often consists of a farmstead with a main house and multiple outbuildings, such as barns, equipment sheds, and livestock corrals. A ranch might also contain the remnants of an original homestead or log cabin and be the amalgamation of multiple periods of development.

Homesteads

Previously documented homestead cabins and sites are reflected in the records search and additional examples were recorded during the field surveys. A homestead is an extant building or group of buildings (and/or structures) in a single location associated with the early settlement of the Tongue River region. Most often characterized by a log cabin, a homestead could also include a dugout, barn, or other related structures of this early period. These elements would have been constructed by a settler attempting to homestead a tract of land, and may represent the development of this land over time. Some elements of a homestead are sometimes found in close proximity to, or exist as a part of, an active ranch or farm. Figure 11-6 shows an example of a homestead in the APE.

Figure 11-6. Example of a Homestead in the APE



Fish Hatchery

The Miles City Fish Hatchery was established in late 1958 by the U.S. Fish and Wildlife Service (Figure 11-2). The Montana Department of Fish, Wildlife & Parks (Montana FWP) became the operator of the hatchery in the early 1980s. It is accessible from Main Street via Fish Hatchery Road. The geography is generally flat, although there is a low butte to the east of the buildings and ponds. There are two 1-story, midcentury residences situated parallel to the road and west of the main entrance to the facility. There is a midcentury concrete block building, the Administration Building, with an attached one-and-a-half-story, two-bay garage

just north of the entrance. Behind the Administration Building are several large garages with gable roofs, and smaller outbuildings, mostly used for equipment storage. Northeast of the Administration Building on a small rise are two large ponds with metal platforms extending out from the banks on the southern end. There is some additional utility equipment in this area. Northwest of the Administration Building are three rows of smaller, rectangular ponds lined up generally on a northeast-southwest axis. Three additional ponds are located northwest of this set. Most of the ponds are not visible from the Administration building area, and are only accessed by a series of internal gravel roads.

Eastern Montana Fairgrounds

The Eastern Montana Fairgrounds (Figure 11-7) are bounded by Garryowen Road on the west, Pacific Avenue on the south, Tongue River on the east, and Miles City Main Street on the north. The geography is flat. The fairgrounds have been operating at this location since at least 1928. The fairgrounds are accessed via three primary entrances, one from each road, and identified by two-story-high masonry pillars. This is a large property, encompassing approximately 0.12 square mile with buildings clustered in the center. At the center of the property is an oval dirt racetrack with a grandstand on the southwest corner. In addition to the racetrack, the site includes a grandstand, an exhibition hall, stables, an office, possible residence, a variety of barns, and more than 20 buildings and structures on the site of varying sizes and uses. Most of these are clustered on either side of an interior road that leads in from Pacific Avenue.

Figure 11-7. Eastern Montana Fairgrounds, Miles City



Hogback Pasture

Hogback Pasture is located on the USDA Agricultural Research Service facility at Fort Keogh (Figure 11-2). The pasture is associated with experimental techniques developed on site that have been widely adopted across the country. The most significant feature of Hogback Pasture is the unique arrangement of pastures around a central feeding area. Otherwise, the site is almost entirely undeveloped, except for gravel roads, transmission lines, windmills, corrals, and fences. USDA is currently preparing a study to determine if Hogback Pasture is eligible for listing in the National Register.

Lee Community Historic District

The Lee Community Historic District is identified in the records search as a homesteading community defined by historic school district number 19 as constituted in 1920 and encompassing approximately 248 square miles (Figure 11-3). Located south of the town of Colstrip, the period of significance spans the 1880s to the 1930s. The site record only nominally recorded the district and describes it as “temporarily defined as including those homesteads, community buildings, travel routes, which were located within Lee School District 8 (later District 19), and or were served by the Lee Post Office. This description is generalized; further research may result in a more refined boundary for the historic district.” The site record does not identify specific contributors (Ferguson 2002).

Tongue River Valley Rural Historic District

The Tongue River Valley Rural Historic District covers a large area along the Tongue River Valley extending just north of the town of Birney to the Tongue River Reservoir (Figure 11-3). This district includes contributing buildings, structures, and clusters and consists of homestead sites, ranches, ranching-related resources, transportation, and water resources. Ranches included in this district include Diamond Cross, 4D Ranch, and Quarter Circle Ranch (Renewable Technologies 2006:109–133). The Tongue River Valley Rural Historic District and Birney Ranching Rural Historic District, discussed below, boundaries overlap (Renewable Technologies 2006).

Birney Ranching Rural Historic District

The Birney Ranching Rural Historic District covers a large area centered on the Town of Birney (Figure 11-3). It is bisected by the Tongue River and includes at least eight significant contributing ranches: the Knobloch Ranch, U Cross Nance Ranch, Three Circle Ranch, Quarter Circle Ranch, 4D Ranch, and Diamond Cross Ranch (Montana Preservation Alliance 2007).

Main Street Historic District (Miles City)

The Main Street Historic District in Miles City consists predominantly of two-story commercial buildings constructed between 1882 and 1940 (Figure 11-3). As one of the

oldest cities in the Yellowstone River Valley, Miles City was developed as an important hub for commerce in the area. Serving as the city's central business district during this important period of its development, the Main Street Historic District reflects a variety of architectural styles popular during the three main growth periods: 1882 to 1887, 1905 to 1920, and 1935 to 1940. In addition to the commercial buildings lining Main Street and its side streets, Riverside Park is an important landscape feature of the district (McDaniel and Sanford 1989).

Transportation and Water Conveyance

A variety of resources including roads, trails, bridges, dams, levees, windmills, pumphouses, and park facilities have been identified in the Tongue River Valley. Figure 11-8 depicts a windmill in the APE.

Figure 11-8. Example of a Windmill in the APE



Potential Eligibility of Built Resources

OEA presumes all newly identified built resources are eligible for listing in the National Register for the purposes of this Draft EIS. A full evaluation of these resources by formally applying the National Register criteria would not be undertaken unless the Board licenses a build alternative; OEA would then follow the procedures set forth in the Programmatic Agreement to complete the historic research, review by consulting parties, and concurrence by SHPO. To meet National Register criteria, built resources would need to demonstrate

quality of significance within an important historic context and have retained the characteristics and integrity necessary to convey that significance. A formal evaluation of each resource would be necessary to determine eligibility under National Register Criteria A, B, or C. However, although the majority of built resources in the APE have not been evaluated, some have been previously studied and determined eligible or not eligible for other undertakings. It is therefore possible to make general statements for some categories of property types.

Homesteads, which consist of one or more elements (such as log homes and cabins) built by original homesteaders and settlers, are becoming increasingly rare. Most of the homesteads identified in the APE are likely eligible under Criteria A and C. A finding of National Register eligibility would likely apply to most homesteads erected prior to 1950, particularly those built in the late 19th and early 20th centuries, a significant period of tribal resettlement and European-American settlement in the region.

The remnants of several railroad lines that pass through the APE are generally considered not eligible for listing in the National Register, due to loss of integrity or a lack of significant association. Exceptions would be mainline routes that were a part of or associated with the transcontinental railroad, or routes that were particularly important to the development of a particular local community. Remnants of the North and South Railway, which exist in the APE between Miles City and Birney, exemplify the latter. However, the remnants' loss of integrity likely prevents them from meeting the National Register thresholds as an eligible resource. The northern transcontinental railroad is still active and was previously determined eligible for the National Register under Criterion A. The resource was recorded as the Northern Pacific Railroad, and is composed of two segments: the BNSF main line from Miles City to Billings and the Nichols to Colstrip branch line, also known as the BNSF Colstrip Subdivision.

Roads, trails, and bridges are other transportation-related resources identified in the APE. The identified roads and trails primarily consist of road traces and former road alignments that often related to existing highways and routes. The identified bridges consist of existing road bridges over the Tongue River or existing railroad lines. Most of these resources are considered not eligible for the National Register, either due to lack of significant association or as common examples of engineering or bridge type.

Extant irrigation ditches and dam/levee structures are generally considered not eligible for listing in the National Register, unless associated with the early management and conveyance of water in the region.

Ranches are complex properties that may be eligible for the National Register when they have associations with important historic events or personages, or retain a good representation of historic-era buildings, structures, and objects. When isolated, individual ranch structures, such as cattle corrals, barns, and other ancillary ranch structures are generally considered not eligible for the National Register. If these resources have significant associations with the history of ranching in the region or are good representations

of a significant property type, they could be considered eligible under Criteria A or C if they retain integrity.

Several electricity transmission lines are located in the APE. Transmission lines are commonplace structures and typically subject to frequent maintenance and changes in materials. These are generally considered not eligible for listing in the National Register, unless they are associated with a historically significant hydroelectric or other type of power-generating project.

Most of the windmills identified in the APE are of a similar type, design, and construction and were erected circa 1920 to 1940. Many were reportedly produced by the same company and installed by the same individuals or vendors operating out of Colstrip, Miles City, or another local community. Given their commonplace occurrence, the windmills identified in the APE would generally not be considered for the National Register unless they have a unique design or retain a remarkably high level of integrity.

Finally, several districts described above are located in or immediately adjacent to the APE. These include the Lee Community Historic District, the Eastern Montana Fairgrounds, the Tongue River Valley Rural Historic Landscape District, and the proposed Birney Ranching Historic Rural District. Each of these resources has associations with the history and development of the region or individual communities; however, integrity is a factor. The Eastern Montana Fairgrounds, for example, is likely eligible for the National Register under both Criteria A and C, because it is a cohesive collection of buildings with a unique use built in a similar historic period. The Miles City Main Street Historic District is already listed in the National Register. The Lee Community District, however, is likely not eligible for the National Register because it does not appear to retain a cohesive collection of contributing buildings, and lacks physical integrity.

In summary, while all built resources identified in this Draft EIS are presumed eligible for listing in the National Register, none has been formally evaluated. More research and field survey would be needed to adequately apply the National Register criteria and determine their eligibility. However, based on the above discussions, the following categories of built resources are more likely to be eligible for the National Register under Criteria A, B, or C.

- Homesteads
- Irrigation ditches with important historic associations
- Ranches with important historic associations or many historic-era components
- Districts with cohesion and integrity
- Other properties with unique historic associations, such as the Hogback Pasture

11.4.3.3 Predicted Resources in Surveyed and Unsurveyed Areas

Archaeological Resources

OEA defined archaeologically sensitive areas of unsurveyed areas of the APE by synthesizing previous research, analyzing survey data, and examining project geographic data such as soils and slope. This analysis was facilitated by GIS, which allows for data from multiple sources to be easily related geospatially to address the following questions.

- What is the range and relative frequency of archaeological site types in the APE?
- Are there local environmental factors that correspond with differential distributions of archaeological sites?

OEA used geologic mapping to determine if specific site types were more likely to be present on specific geologic units. Most precontact sites were located on Tertiary-age geologic units, and this corresponds with areas that are relatively flat. Other factors such as distance from water, elevation, soils, and visual topography based on aerial imagery did not seem to influence site locations.

Because 76 percent of precontact sites were recorded on relatively flat land (slope of 0 to 20 degrees), OEA considered this the most differentiating factor, and analyzed the terrain of each build alternative according to its slope. OEA derived the acreage of unsurveyed areas by slope category and build alternative by performing a series of spatial analysis tools on a preexisting digital elevation model. This was done by first identifying regions in the survey area for each build alternative that were unsurveyed, then extracting the elevation values from the digital evaluation model within these areas, and reclassifying them into the three categories as follows.

- 0 to 10 degrees of slope being highly likely
- 10 to 20 degrees of slope being moderately likely
- Greater than 20 degrees of slope being not likely

Once this classification by slope was completed, OEA used it to calculate the acreage of each category of likely presence separated by build alternative. In order to compare acreage of both surveyed and unsurveyed property, OEA carried this assessment over to surveyed land, thereby adding comparability based on acreage.

Based on the classification by slope, the likely presence of archaeological resources on both surveyed and unsurveyed property was estimated for each build alternative in Table 11-9. The terms *highly likely*, *moderately likely*, and *not likely* are general terms and do not represent an exact predicted number of resources (Figure 11-9). The percentages given represent the likelihood (highly likely, moderately likely, not likely) that archaeological sites

are located on unsurveyed property in the APE. For instance, 57 percent of the Tongue River Alternative is highly likely to contain precontact archaeological resources.

The acreage of highly likely areas for precontact sites varies by build alternative. Most of the build alternatives have about 50 to 60 percent of acreage categorized as highly likely for the presence of precontact archaeological sites, with the exception of the Decker Alternatives, both of which have closer to 41 percent on flat acreage and high percentage of steeper slopes (both at 37 percent).

Table 11-9. Likelihood of Archaeological Sites on Surveyed and Unsurveyed Property by Build Alternative

Build Alternative	Acres in the APE	0–10-Degree Slope (Highly Likely) within ROW^a	10–20-Degree Slope (Moderately Likely) within ROW^a	Over 20-Degree Slope (Not Likely) Within ROW^a
Tongue River				
Acres	7,924	2,164	812	807
Percentage		57	22	21
Tongue River East				
Acres	8,097	2,220	847	736
Percentage		58	22	19
Colstrip				
Acres	4,133	1,028	447	565
Percentage		50	22	28
Colstrip East				
Acres	4,369	1,106	495	493
Percentage		53	24	24
Tongue River Road				
Acres	8,368	2,532	889	813
Percentage		60	21	19
Tongue River Road East				
Acres	8,491	2,547	924	748
Percentage		60	22	18
Moon Creek				
Acres	8,086	2,366	870	791
Percentage		59	22	20
Moon Creek East				
Acres	8,262	2,422	905	720
Percentage		60	22	18
Decker				
Acres	5,420	1,150	632	1,045
Percentage		41	22	37
Decker East				
Acres	5,229	1,097	599	999
Percentage		41	22	37

Notes:

^a Calculated using GIS and based on the acreage of the right-of-way

ROW = right-of-way

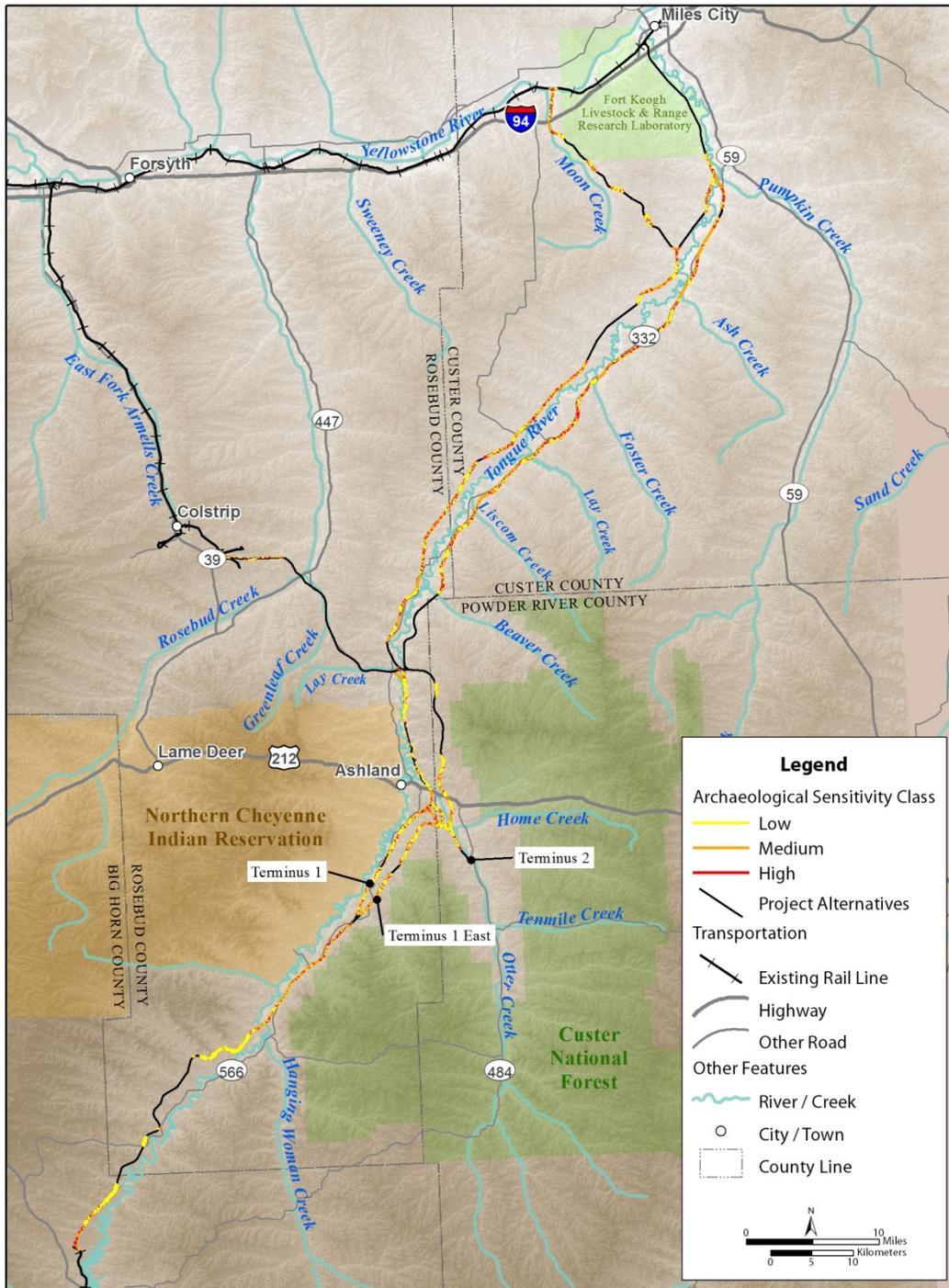


Figure 11-9. Slope Analysis in Tongue River Railroad APE

Built Resources

OEA analyzed tax assessor data and Google Earth Pro satellite imagery, which indicated that areas not accessed may contain buildings or structures old enough to be potentially eligible for listing in the National Register (over 50 years old). Table 11-10 indicates the distribution among the build alternatives in the right-of-way.

Table 11-10. Built Resources over 50 Years Old in the Right-of-Way of Areas Not Accessed

Build Alternative	Built Resources^a
Tongue River	6
Tongue River East	7
Colstrip	0
Colstrip East	1
Tongue River Road	5
Tongue River Road East	6
Moon Creek	9
Moon Creek East	10
Decker	2
Decker East	2

Notes:
^a Calculated using county assessor's data and Google Earth Pro available for areas that were not accessed

11.5 Environmental Consequences

Impacts on cultural resources could result from construction and operation of any build alternative. The impacts common to all build alternatives are presented first, followed by impacts specific to the build alternatives.

11.5.1 Impacts Common to All Build Alternatives

Impacts on cultural resources that are common to all build alternatives are described below. Although OEA has not fully evaluated specific cultural resources for National Register eligibility at this time, cultural resources can be categorized into the cultural resource types shown in Tables 11-11 and 11-12. The tables include construction and operation activities, the applicable Criteria of Adverse Effect discussed in the Section 106 regulations (36 C.F.R. § 800.5(a)(1)), and the resource types affected by that activity.

11.5.1.1 Construction

Table 11-11 provides examples of potential impacts on cultural resources that could result from construction of the proposed rail line.

Table 11-11. Examples of Potential Construction Impacts on Cultural Resources

Construction Activity	Archaeological and Tribal Resources	Built Resources	Possible Adverse Effect/ Impact
Board licensing, property acquisition, lease, or easement	All types on federal lands, i.e., BLM and USDA	All types on federal lands	Transfer, lease, or sale of federal ownership or control
Clearing railroad footprint within right-of-way for staging and construction grading, cuts, excavating earth and rock on previously undisturbed land; excavating footings for structures including communications towers, and power lines	All types that are in the railroad footprint, path of construction, grading, staging, or excavation	All types that are in the railroad footprint, path of construction, grading, staging or excavation	Physically destroy or damage all or part of the property
Railbed construction-fill areas of with lower topography	All types that can be altered by compression or spreading of fill	Districts; linear features that need to be rerouted (e.g., roads and trails)	Alter a property...not consistent with the Secretary's Standards for the Treatment of Historic Properties (36 C.F.R. Part 68)
Bridges, culverts and other surface water crossings; re-routing of irrigation or drainage	All types in the path of rerouting; Some water sources are considered sacred to tribes	Water conveyance features that need to be altered or re-routed	Alter a property...not consistent with the Secretary's Standards for the Treatment of Historic Properties
Existing road relocation	Properties whose setting contributes to its significance	Properties whose setting contributes to its significance	Change the character of the property's use or of physical features within the property's setting that contribute to its historic significance
Pile driving or heavy construction equipment that generates temporary noise or vibration; fugitive dust	All types sensitive to temporary visual, noise, vibration, or atmospheric elements	All types sensitive to temporary visual, noise, vibration, or atmospheric elements	Introduce visual, atmospheric or audible elements that diminish the integrity of the property's significant historic features

Notes:

NA = not applicable; BLM = U.S. Bureau of Land Management; USDA = U.S. Department of Agriculture

11.5.1.2 Operation

Table 11-12 provides examples of common impacts on cultural resources that could result from operation of the proposed rail line.

Table 11-12. Examples of Potential Operational Impacts on Cultural Resources

Operational Activity	Archaeological and Tribal Resources	Built Resources	Possible Adverse Effect/ Impact
Changes in water flow from culverts, and other drainage structures may lead to erosion or flooding	Types that could be damaged by erosion or flooding	Types that could be damaged by erosion (irrigation ditches) or flooding (buildings)	Physically destruct or damage all or part of the property
Permanent change of setting from railroad grade, bridges and structures	Properties where setting contributes to its significance (e.g., tribal sites, petroglyphs, and rock art sites)	Properties where setting contributes to its significance (e.g., districts, ranches, and homesteads)	Change the character of the property's use or of physical features within the property's setting that contribute to its historic significance
Visibility of railroad grade and structures (e.g., tracks, sidings, trestles, bridges, communications towers, and power lines); Atmospheric elements-engine emissions; Long-term railroad noise	All types sensitive to visual, noise, vibration, or atmospheric elements	All types sensitive to visual, noise, vibration, or atmospheric elements	Introduce visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features
Change in land use that results in abandonment	Not applicable	Some ranches, buildings or structures if their continued use becomes no longer practical	Neglect a property which causes its deterioration
Access limitation that results in abandonment	Not applicable	Some ranches, buildings or structures if their continued use becomes no longer practical	Neglect a property which causes its deterioration
Notes: NA = not applicable			

11.5.2 Impacts by Build Alternative

The impacts on cultural resources that are specific to each build alternative are described below and are represented in the following tables and figures.

- Table 11-13 summarizes and compares the impacts of the build alternatives on archaeological sites, tribal resources, and built resources.
- Tables 11-14 to 11-33 list the number of archaeological, tribal, and built resources in the APE for each build alternative.
- Figure 11-10 shows the archaeological resources in the APE.

Table 11-13. Cultural Resources Impacts by Build Alternative

Build Alternative	Property Accessed				Property Not Accessed/Unsurveyed				Total Acreage in APE (surveyed and unsurveyed)										
	Resources Intersected by ROW		Resources Within the APE-Not in ROW ^a		Acres with Likelihood of Archaeological Sites on Property Not Accessed in ROW ^a				Acres with Likelihood of Archaeological Sites on Property in ROW ^a			Totals of Acreage Surveyed							
	Archaeological Sites	Tribal Resources	Built Resources	Total	Archaeological Sites	Tribal Resources	Built Resources	Total	Built Resources over 50 Years Old in the ROW of Acres Not Accessed	0-10 Degree Slope (Highly Likely)	10-20 Degree Slope (Moderately Likely)	Over 20 Degree Slope (Not Likely)	0-10 Degree Slope (Highly Likely)	10-20 Degree Slope (Moderately Likely)	Over 20 Degree Slope (Not Likely)	Acreage Accessible	Acreage Surveyed	Percent of Accessible Alternative Surveyed	Percent of Alternative Surveyed
Tongue River	58	5	7	70	35	5	26	66	6	1,413	599	513	2,164	812	807	4,226	2,674	63	34
Tongue River East	61	6	5	72	50	8	18	76	7	1,396	550	412	2,220	847	736	4,353	3,080	71	38
Colstrip	46	3	9	58	34	12	13	59	0	433	253	307	1,028	447	565	2,913	2,124	73	51
Colstrip East	68	4	7	79	55	5	5	65	1	405	210	205	1,106	495	493	3,156	2,590	82	59
Tongue River Road	51	4	8	63	36	3	30	69	5	1,880	648	492	2,532	889	813	3,641	2,493	68	30
Tongue River Road East	53	5	6	64	51	2	22	75	6	1,867	598	390	2,547	924	748	3,714	2,834	76	33
Moon Creek	63	3	5	71	27	2	19	48	9	1,593	617	537	2,366	870	791	4,299	2,456	57	30
Moon Creek East	65	4	3	72	42	5	11	58	10	1,576	568	436	2,422	905	720	4,426	2,862	65	35
Decker	54	8	3	65	18	6	6	30	2	851	385	629	1,150	632	1,045	2,555	1,699	66	31
Decker East	49	8	3	60	23	5	2	30	2	796	362	601	1,097	599	999	2,560	1,683	66	32

Notes:

^a The APE for archaeological sites and tribal resources encompasses the right-of-way plus 200 feet. The APE for built resources encompasses the right-of-way and a 1,500-foot buffer zone measured from the outer edges of both sides of the right-of-way.

ROW = right-of-way

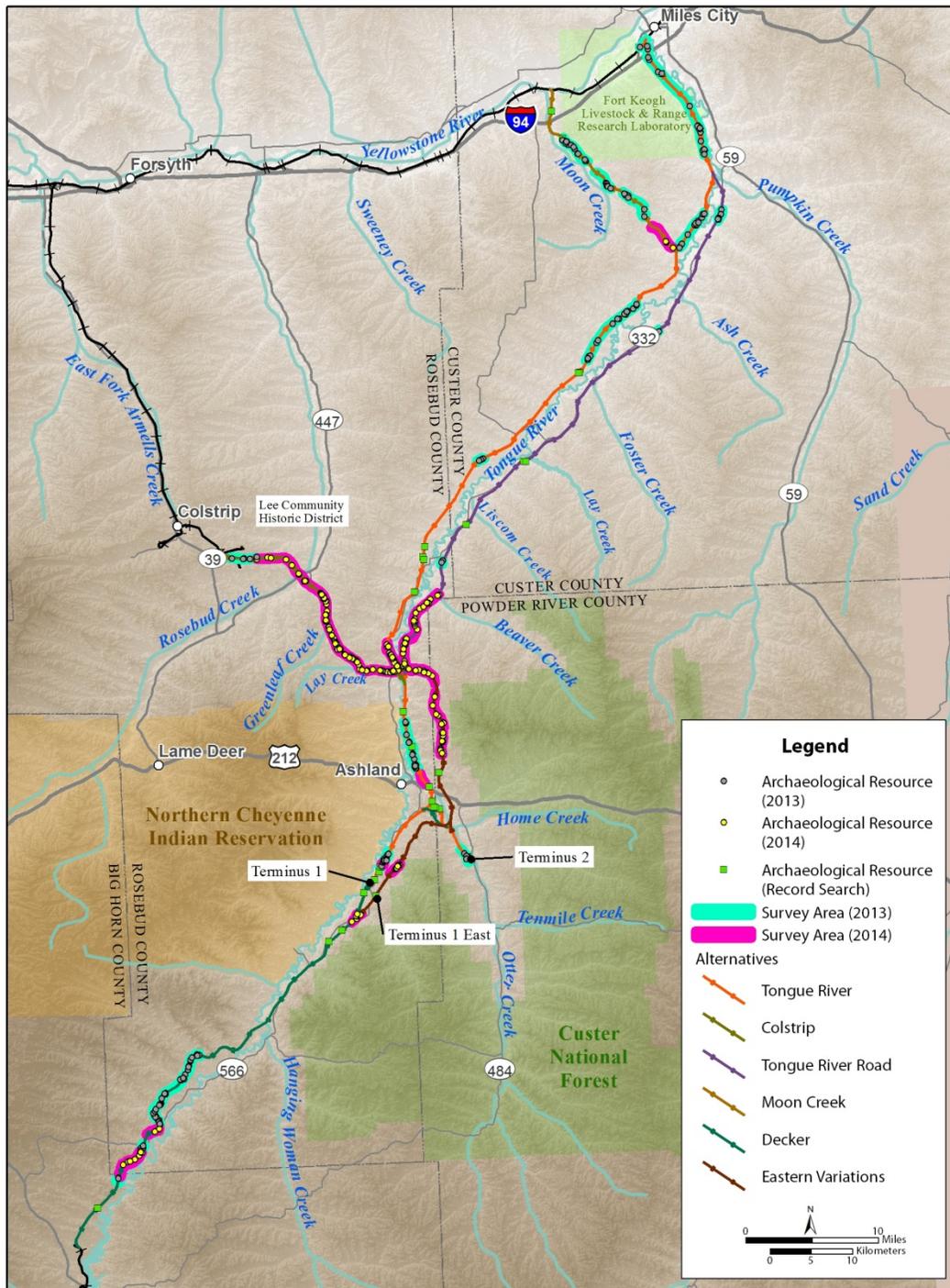


Figure 11-10. Newly and Previously Identified Cultural Resources in the APE

11.5.2.1 Tongue River Alternatives

Tongue River Alternative

Construction and operation of the Tongue River Alternative would destroy or damage 70 cultural resources (58 archaeological resources, five tribal resources, and seven built resources) identified where surveys were conducted in the right-of-way. In addition, OEA identified 66 cultural resources (35 archaeological resources, five tribal resources, and 26 built resources) where surveys were conducted in the APE but not in the right-of-way. Some of these resources would be indirectly affected by this build alternative. Of the properties not accessed in the right-of-way, there appears to be a varying likelihood of them containing archaeological sites based on the slope of the terrain: 2,164 acres are highly likely (0-to-10-degree slope), 812 acres are moderately likely (10-to-20-degree slope), and 807 acres are not likely (over-20-degree slope) to contain archaeological sites.

With areas categorized as highly likely and moderately likely to contain archaeological resources (calculated from both surveyed and unsurveyed slope analysis), the Tongue River Alternative has 2,976 acres of archaeologically sensitive topography. Six built resources identified through satellite imagery on inaccessible property may be located in the right-of-way that was not surveyed.

Archaeological Resources

Construction of the Tongue River Alternative would damage or destroy 58 archaeological sites identified where surveys were conducted in the right-of-way, mostly lithic scatters and isolates. Of the types most likely to be eligible for listing in the National Register located where surveys were conducted in the right-of-way, OEA identified nine lithic scatters with other components (such as formal projectile points), two stone circles, and five rock cairns. OEA identified additional sites that included two historic water features, two historical trails or fences, a survey marker, historical refuse scatter, a rock shelter, and an unidentified building foundation in the right-of-way. The Tongue River Alternative would affect 35 archaeological sites, mostly lithic scatters and isolates, where surveys were conducted in the 200-foot APE but not within the right-of-way (Table 11-15).

The variable terrain is on lower slopes above the floodplain. Given the topography and the number of sites OEA identified during the archaeological survey, the APE would likely contain additional archaeological resources. In addition to resources identified during the survey along 34 percent of the 84-mile alignment (2,674 acres and 28 miles), 60 percent of the unsurveyed Tongue River Alternative right-of-way would be highly sensitive for archaeological resources and 23 percent would be moderately sensitive.

Tribal Resources

Tribal participants identified five tribal resources where surveys were conducted in the right-of-way and five where surveys were conducted outside the right-of-way but within the APE.

All tribal resources in the right-of-way would be damaged or destroyed by construction of the proposed rail line. The five tribal resources outside of the right-of-way but in the APE could be affected; however, the specific nature of the impact cannot be determined at this time.

Built Resources

The Tongue River Alternative would affect seven built resources where surveys were conducted in the right-of-way and may affect 26 where surveys were conducted outside of the right-of-way but in the APE where surveys were conducted (Table 11-16). The built resources located in the right-of-way that would likely be removed by construction include a homestead, part of a former CCC camp, and park buildings associated with Spotted Eagle Park. This alignment would join the BNSF (formerly Northern Pacific) main line, which could affect features that contribute to its significance; it was previously determined eligible for the National Register. The alignment would also traverse the Miles City Fish Hatchery property along its north and east boundaries; although no buildings or structures would be removed as a result of construction of this build alternative, defining characteristics in those areas of the property could be affected. Old Highway 10 is a linear feature that would be crossed by some portion of the right-of-way.

The right-of-way for this build alternative would cross Hogback Pasture, which is characterized by its unique and deliberate arrangement of trapezoidal grazing pastures arranged in spoke-like fashion around a central hub. The right-of-way would cross several pastures along the eastern side of the property, disturbing its hub and spoke design. The right-of-way would cross the Birney Ranching Rural Historic District, but because the proposed district is so large, it is unlikely that any major contributing elements would be affected.

One of the resources located in the APE but outside the right-of-way is the Miles City Main Street Historic District, which is listed in the National Register. Potential impacts on the historic district would be minimal because only a small corner of the historic district boundary overlaps the APE, and no contributing buildings are located in the APE. The Eastern Montana Fairgrounds is also located in the APE but outside the right-of-way. No buildings or structures associated with the property would be removed, and the visual impact on the resource would be minimal. Six buildings or clusters of buildings more than 50 years old are located on parcels that were not accessed.

Three homesteads and six buildings or clusters of ranch-related resources are located outside of the right-of-way but in the APE. The arrangement of these buildings and structures, and their relationships to one another and to the surrounding landforms can be important characteristics. The introduction of the railroad could alter these spatial relationships by introducing a new and incompatible visual element.

As shown in Tables 11-14 and 11-15, the Tongue River Alternative could adversely affect 70 cultural resources where surveys were conducted in the right-of-way and are presumed to meet National Register criteria.

Table 11-14. Number of Archaeological Sites and Tribal Resources Identified through Surveys—Tongue River Alternative

	Lithic Scatter	Lithic Scatter with other components	Stone Circle	Cairn	Historic Water Associated	Historic Trail or Fence	Other ^a	Isolate	TOTAL Archaeological Resources	Tribal Resources	TOTAL
Intersected by the right-of-way	19	9	2	5	2	2	3	16	58	5	63
Within 200-foot APE	9	0	0	1	0	0	8	17	35	5	40
Total	28	9	2	6	2	2	11	33	93	10	103

Notes:

^a Other includes rock shelter, historic refuse, building remains, and survey marker.

Table 11-15. Number of Built Resources—Tongue River Alternative

	Barn	Bridge	Dam/Levee	District ^{a,b}	Homestead	Irrigation Ditch	Railroad ^c	Ranch	Road/Trail	Utility	Windmill	Other ^d	TOTAL
Intersected by the right-of-way	0	0	0	1	1	0	1	0	1	0	0	3	7
Within 1,500-foot APE	2	3	0	2	3	0	1	6	2	3	1	3	26
Total	2	3	0	3	4	0	2	6	3	3	1	6	33

Notes:

^a The right-of-way would cross the Proposed Birney Ranching Rural Historic District.

^b The southwest corner of Miles City Main Street Historic District boundary nominally overlaps the study area for this build alternative. The Eastern Montana Fairgrounds Historic District is also in the APE but not the right-of-way.

^c The right-of-way would connect with the BNSF main line, previously determined eligible for the National Register as the Northern Pacific Railroad, the northern transcontinental railroad.

^d Other includes fish hatchery, culvert, Hogback Pasture, former CCC camp, residence, pumphouse, park facilities.

Tongue River East Alternative

Construction and operation of the Tongue River East Alternative would destroy or damage 72 cultural resources (61 archaeological resources, six tribal resources, and five built resources) where surveys were conducted in the right-of-way. In addition, 76 cultural resources (50 archaeological resources, eight tribal resources, and 18 built resources) are located where surveys were conducted in the APE but not in the right-of-way. Some of these resources could be affected but to a lesser degree than those in the right-of-way. Seven built resources may be located in the right-of-way that was not field surveyed. Of the properties not accessed in the right-of-way, there appears to be a varying likelihood of them containing archaeological sites based on the slope of the terrain: 1,396 acres are highly likely (0-to-10-degree slope), 550 acres are moderately likely (10-to-20-degree slope), and 412

acres are not likely (over-20-degree slope), to contain archeological sites.

Similar to the Tongue River Alternative, Tongue River East Alternative has 4,422 acres of land on what has been categorized and highly or moderately sensitive for archaeological resources. This includes both surveyed and unsurveyed land.

Archaeological Resources

The Tongue River East Alternative would affect 61 archaeological sites where surveys were conducted in the right-of-way, mostly lithic scatters and isolates. Of the types most likely to be eligible for listing in the National Register where surveys were conducted in the right-of-way, OEA identified eight lithic scatters with other components (such as formal projectile points), two stone circles, and seven rock cairns. In addition, a historical road, two historic water features, a survey marker, a historical refuse scatter, a rock shelter, and an unidentified building foundation were identified in the right-of-way. This build alternative would affect 50 archaeological sites where surveys were conducted in the 200-foot APE but not within the right-of-way, mostly lithic scatters and isolates (Table 11-16).

In addition to resources identified during the survey on 38 percent of the acreage of the 86-mile alignment (3,080 acres and 33 miles), 59 percent (1,396 acres out of a total unsurveyed of 2,358 acres) of the unsurveyed portion in the right-of-way of the Tongue River East Alternative likely would be highly sensitive for archaeological resources and 23 percent would be moderately sensitive, based on the slope.

Tribal Resources

Tribal participants identified six tribal resources where surveys were conducted in the right-of-way and eight where surveys were conducted outside of the right-of-way but in the APE.

Built Resources

The Tongue River East Alternative would affect five built resources where surveys were conducted in the right-of-way and may affect 18 where surveys were conducted outside of the right-of-way but in the APE (Table 11-17). The built resources located in the right-of-way that would likely be removed by construction include park buildings and part of a former CCC camp associated with Spotted Eagle Park and portions of the Miles City Fish Hatchery. The Old Highway 10 Alignment is a linear feature that would be crossed by a portion of the right-of-way. This alignment would join the BNSF (formerly Northern Pacific) main line, which could affect features that contribute to its significance; it was previously determined eligible for the National Register.

This build alternative would cross several pastures along the eastern side of the Hogback Pasture, as described for the Tongue River Alternative, disturbing its hub and spoke design. As with the Tongue River Alternative, the Miles City Main Street Historic District nominally overlaps the APE for the Tongue River East Alternative and the Eastern Montana Fairgrounds Historic District is in the APE but not the right-of-way.

Two barns and four buildings or clusters of ranch-related resources are located outside of the right-of-way but in the APE.

As shown in Tables 11-16 and 11-17, the Tongue River East Alternative could adversely affect 72 cultural resources where surveys were conducted in the right-of-way and are presumed to meet National Register criteria.

Table 11-16. Number of Archaeological Resources and Tribal Resources—Tongue River East Alternative

	Lithic Scatter	Lithic Scatter with other components	Stone Circle	Cairn	Historic Water Associated	Historic Trail or Fence	Other ^a	Isolate	TOTAL Archaeological Resources	Tribal Resources	TOTAL
Intersected by the right-of-way	20	8	2	7	2	0	5	17	61	6	67
Within 200-foot APE	10	0	3	2	0	0	11	24	50	8	58
TOTAL	30	8	5	9	2	0	16	41	111	14	125

Notes:

^a Other includes historic refuse, building remains, and survey markers.

Table 11-17. Number of Built Resources—Tongue River East Alternative

	Barn	Bridge	Dam/Levee	District ^a	Homestead	Irrigation Ditch	Railroad ^b	Ranch	Road/Trail	Utility	Windmill	Other ^c	TOTAL
Intersected by the right-of-way	0	0	0	0	0	0	1	0	1	0	0	3	5
Within 1,500-foot APE	2	2	0	2	0	0	0	4	2	3	1	2	18
TOTAL	2	2	0	2	0	0	1	4	3	3	1	5	23

Notes:

^a The southwest corner of Miles City Main Street Historic District boundary nominally overlaps the APE for this build alternative. The Eastern Montana Fairgrounds Historic District is also in the APE but not the right-of-way.

^b The right-of-way would connect with the BNSF main line, previously determined eligible for the National Register as the Northern Pacific Railroad, the northern transcontinental railroad.

^c Other includes Hogback Pasture, pumphouse, park facilities, a former CCC camp, a culvert, and a fish hatchery.

11.5.2.2 Colstrip Alternatives

Colstrip Alternative

Construction and operation of the Colstrip Alternative would destroy or damage 58 cultural

resources (46 archaeological resources, three tribal resources, and nine built resources) where surveys were conducted in the right-of-way. In addition, 59 cultural resources (34 archaeological resources, 12 tribal resources, and 13 built resources) are located where surveys were conducted in the APE but not in the right-of-way. Some of these resources could be affected but to a lesser degree than those in the right-of-way. A review of satellite imagery indicated that no built resources appear to be in the right-of-way that was not field surveyed. Of the properties not accessed in the right-of-way there appears to be a varying likelihood of them containing archaeological sites based on the slope of the terrain: 433 acres are highly likely (0-to-10-degree slope), 253 acres are moderately likely (10-to-20-degree slope), and 307 acres are not likely (over-20-degree slope).

Archaeological Resources

The Colstrip Alternative would affect 46 archaeological resources where surveys were conducted in the right-of-way, mostly lithic scatters with or without other components such as rock shelters, isolates and other. Of the types most likely to be National Register eligible in the right-of-way, OEA identified one lithic scatter with other components (such as formal projectile points or other formal tools), four stone circles, and six rock cairns. In addition, two historic water features, two historical trails, a historical hillcut, and an area of historical refuse were identified in the right-of-way. This build alternative would affect 34 archaeological resources, including seven cairns, but mostly lithic scatters and isolates where surveys were conducted in the 200-foot APE but not in the right-of-way (Table 11-18).

Given the topography and the number of sites identified during archaeological survey, the APE would likely contain archaeological resources. In addition to resources identified during the survey of 51 percent of the 42-mile build alternative (2,124 acres and 22 miles), 44 percent of the unsurveyed portion in the right-of-way of the Colstrip Alternative (433 out of 993 acres) would be highly sensitive for archaeological resources and 26 percent would be moderately sensitive.

Approximately 75 percent of surveyed and unsurveyed acreage in the Colstrip Alternative (2,363 acres) is categorized as highly likely or moderately likely to contain archaeological resources.

Tribal Resources

Tribal participants identified three tribal resources where surveys were conducted in the right-of-way and 12 where surveys were conducted outside of the right-of-way but in the APE. The Colstrip Alternative would damage or destroy all tribal resources in the right-of-way. The tribal resource outside of the right-of-way but in the APE may be affected; however, the specific nature of the impact cannot be determined at this time.

Built Resources

The Colstrip Alternative would affect nine built resources where surveys were conducted in the right-of-way and may affect 13 where surveys were conducted outside of the right-of-way but in the APE (Table 11-19). The right-of-way would likely remove a portion of 5.5-mile-long irrigation ditch that dates to 1948 or earlier. This alignment would join and continue north along the BNSF Colstrip Subdivision to reach the BNSF main line (formerly Northern Pacific Nichols to Colstrip branch line and main line, respectively), which could affect features that contribute to its significance. It was previously determined eligible for the National Register under Criterion A for its association with significant events. The 2007 reevaluation of eligibility noted the materials comprising the trackage were replaced over the years, so upgrades to the tracks and ties of the Colstrip Subdivision would not have an adverse effect. One homestead located on the Green Kirk Ranch is in the right-of-way and would likely be removed.

The right-of-way would traverse the Birney Ranching Rural Historic District. The introduction of a railroad could alter the characteristic features of the proposed district, compromising its significance.

The right-of-way would cross the Lee Community Historic District, which was nominally recorded and has not been evaluated for eligibility of listing in the National Register but is associated with the broad pattern of homesteading in the area between the 1880s and 1920s. This district is characterized by homesteads, community buildings, circulation routes, and other features associated with this context.

A residence, four homesteads and two buildings or clusters of ranch-related resources are located outside of the right-of-way but in the APE. The arrangement of these buildings and structures, and their relationships to one another and to the surrounding landforms can be important characteristics. The introduction of the railroad could alter these spatial relationships by introducing a new and incompatible visual element. Seven buildings or clusters of buildings more than 50 years old are located on parcels that were not accessed. None of these resources is listed in the National Register.

As shown in Tables 11-18 and 11-19, the Colstrip Alternative could adversely affect 58 cultural resources where surveys were conducted in the right-of-way and are presumed to meet National Register criteria.

Table 11-18. Number of Archaeological Resources and Tribal Resources—Colstrip Alternative

	Lithic Scatter	Lithic Scatter with other Components	Stone Circle	Cairn	Historic Water Associated	Historic Trail or Fence	Other ^a	Isolate	TOTAL Archaeological Resources	Tribal Resources	TOTAL
Intersected by the right-of-way	8	1	4	6	2	2	13	10	46	3	49
Within 200-foot APE	4	4	0	7	0	0	6	13	34	12	46
TOTAL	12	5	4	13	2	2	19	23	80	15	95

Notes:

^a Other includes historic refuse, foundations, pond, pump, historic-period petroglyph, fox holes, and borrow pits

Table 11-19. Number of Built Resources—Colstrip Alternative

	Barn	Bridge	Dam/Levee	District ^a	Homestead	Irrigation Ditch	Railroad ^b	Ranch	Road/Trail	Utility	Windmill	Other ^b	TOTAL
Intersected by the right-of-way	0	0	2	2	1	2	1	0	0	0	0	1	9
Within 1,500-foot APE	0	1	1	0	4	0	2	2	0	0	1	2	13
TOTAL	0	1	3	2	5	2	3	2	0	0	1	3	22

Notes:

^a District includes the proposed Birney Ranching Rural Historic District and the nominally recorded Lee Community Historic District

^b The right-of-way would join and continue north along the BNSF Colstrip Subdivision, which was previously determined eligible for the National Register as the Nichols to Colstrip branch line segment of the Northern Pacific Railroad

^c Other includes a residence, storage shed, and corral

Colstrip East Alternative

Construction and operation of the Colstrip East Alternative would destroy or damage 79 cultural resources (68 archaeological resources, four tribal resources, and seven built resources) where surveys were conducted in the right-of-way. In addition, 65 cultural resources (55 archaeological resources, five tribal resources and five built resources) are located where surveys were conducted in the APE but not in the right-of-way. Some of these resources could be affected but to a lesser degree than those in the right-of-way. One built resource may be located in the unsurveyed portion of the right-of-way. Of the properties not accessed in the right-of-way, there appears to be a varying likelihood of them containing archaeological sites based on the slope of the terrain: 405 acres are highly likely (0-to-10-degree slope), 210 acres are moderately likely (10-to-20-degree slope), and 205 acres are not likely (over-20-degree slope).

The Colstrip East Alternative has 2,656 acres considered archaeologically sensitive (at less than 20 degrees of slope). Similar to the Colstrip Alternative, this accounts for about 75 percent of the build alternative as a whole.

Archaeological Resources

The Colstrip East Alternative would affect 68 archaeological resources where surveys were conducted in the right-of-way, including the following types most likely to be National Register eligible: five lithic scatters with other components, four stone circles, and ten rock cairns. In addition, two historic water features, two historical trails, and one historical hillcut were identified where surveys were conducted in the right-of-way. This build alternative would affect 55 archaeological sites where surveys were conducted in the 200-foot APE but not in the right-of-way, including four lithic scatters with other components, three stone circles, and eight cairns (Table 11-20).

In addition to resources identified during the survey of 59 percent of the 45-mile alignment (2,590 acres and 27 miles), 51 percent of the remaining 41 percent in the right-of-way of the Colstrip East Alternative would be highly sensitive for archaeological resources and 26 percent would be moderately sensitive.

Tribal Resources

Tribal participants identified four tribal resources where surveys were conducted in the right-of-way, and five where surveys were conducted outside of the right-of-way but in the APE.

Built Resources

The Colstrip East Alternative would affect seven built resources where surveys were conducted in the right-of-way and may affect five where surveys were conducted outside of the right-of-way but in the APE (Table 11-21).

Two dams/levees, two irrigation ditches and one flume structure are located within the right-of-way. This alignment would join and continue north along the BNSF Colstrip Subdivision to reach the BNSF main line (formerly Northern Pacific Nichols to Colstrip branch line and main line, respectively), which could affect features that contribute to its significance. It was previously determined eligible for the National Register under Criterion A for its association with significant events. The 2007 reevaluation of eligibility noted the materials comprising the trackage were replaced over the years, so upgrades to the tracks and ties of the Colstrip Subdivision would not have an adverse effect. One built resource may be located in the unsurveyed portion of the right-of-way. None of these resources is listed in the National Register.

The right-of-way would cross the Lee Community Historic District, which was nominally recorded and has not been evaluated for listing in the National Register but is associated with the broad pattern of homesteading in the area between the 1880s and 1920s.

As shown in Tables 11-20 and 11-21, the Colstrip East Alternative could adversely affect 79 cultural resources where surveys were conducted in the right-of-way and are presumed to meet National Register criteria.

Table 11-20. Number of Archaeological Resources and Tribal Resources—Colstrip East Alternative

	Lithic Scatter	Lithic Scatter with other components	Stone Circle	Cairn	Historic Water Associated	Historic Trail or Fence	Other ^a	Isolate	TOTAL Archaeological Resources	Tribal Resources	TOTAL
Intersected by the right-of-way	16	5	4	10	2	2	15	14	68	4	72
Within 200-foot APE	8	4	3	8	0	0	10	22	55	5	60
TOTAL	24	9	7	18	2	2	25	36	123	9	132

Notes:

^a Other includes historic refuse, foundations, pond, pump, historic-period petroglyph, fox holes, and borrow pits

Table 11-21. Number of Built Resources—Colstrip East Alternative

	Barn	Bridge	Dam/Levee	District ^a	Homestead	Irrigation Ditch	Railroad ^b	Ranch	Road/Trail	Utility	Windmill	Other ^c	TOTAL
Intersected by the right-of-way	0	0	2	1	0	2	1	0	0	0	0	1	7
Within 1,500-foot APE	0	0	1	0	1	0	1	0	0	0	1	1	5
TOTAL	0	0	3	1	1	2	2	0	0	0	1	2	12

Notes:

^a District includes the nominally recorded Lee Community Historic District

^b The right-of-way would join and continue north along the BNSF Colstrip Subdivision, which was previously determined eligible for the National Register as the Nichols to Colstrip branch line segment of the Northern Pacific Railroad.

^c Other includes irrigation system, a storage shed and corral

11.5.2.3 Tongue River Road Alternatives

Tongue River Road Alternative

Construction and operation of the Tongue River Road Alternative would destroy or damage 63 cultural resources (51 archaeological resources, four tribal resources, and eight built resources) where surveys were conducted in the right-of-way. In addition, 69 cultural resources (36 archaeological resources, three tribal resources, and 30 built resources) are located where surveys were conducted in the APE but not in the right-of-way. Some of the resources could be affected but to a lesser degree than those in the right-of-way. Five built resources may be located in the unsurveyed portion of the right-of-way. Of the properties not accessed there appears to be a varying likelihood of these areas containing archaeological sites based on the slope of the terrain in the right-of-way: 1,880 acres are highly likely (0-to-10-degree slope), 648 acres are moderately likely (10-to-20-degree slope), and 492 acres are not likely (over-20-degree slope).

With areas categorized as highly likely and moderately likely to contain archaeological resources (calculated from both surveyed and unsurveyed slop analysis), the Tongue River Road Alternative has the second largest land area considered sensitive, with 4,487 acres on slopes less than 20 degrees.

Archaeological Resources

The Tongue River Road Alternative would affect 51 archaeological resources where surveys were conducted in the right-of-way, mostly lithic scatters with or without other components such as rock shelters and isolates. Of the types most likely to be National Register eligible where surveys were conducted in the right-of-way, OEA identified 11 lithic scatters with

other components (such as formal projectile points or other formal tools), three stone circles and two cairns. Other resources included three historical trails, an area of historical refuse, survey markers, and a historical petroglyph (carved initials in a rock face). This build alternative would affect 36 archaeological sites where surveys were conducted in the 200-foot APE but not in the right-of-way, including four cairns, but mostly lithic scatters and isolates (Table 11-22).

Given the topography and the number of sites identified during the archaeological survey, this build alternative would likely contain archaeological resources. In addition to resources identified during the survey of 30 percent of the 84-mile alignment (2,493 acres and 25 miles), 62 percent of the unsurveyed portion in the right-of-way of the Tongue River Road Alternative would be highly sensitive for archaeological resources and 21 percent would be moderately sensitive.

With areas categorized as highly likely and moderately likely to contain archaeological resources (calculated from both surveyed and unsurveyed slope analysis), the Tongue River Road Alternative has the second-largest land area considered sensitive, with 4,487 acres in the right-of-way on slopes less than 20 degrees.

Tribal Resources

Tribal participants identified four tribal resources where surveys were conducted in the right-of-way and three where surveys were conducted outside of the right-of-way but in the APE. Construction of the Tongue River Road Alternative would damage or destroy all tribal resources in the right-of-way. The three tribal resources outside of the right-of-way but in the APE could be affected; however, the specific nature of the impact cannot be determined at this time.

Built Resources

The Tongue River Road Alternative would affect eight built resources where surveys were conducted in the right-of-way and may affect 30 where surveys were conducted outside of the right-of-way but in the APE (Table 11-23). The built resources in the right-of-way that would likely be removed by construction include a homestead on Green Kirk Ranch, park buildings and part of a former CCC camp associated with Spotted Eagle Park, and a portion of the Hogback Pasture. This alignment would join the BNSF main line (formerly Northern Pacific Railroad), which could affect features that contribute to its significance; it was previously determined eligible for the National Register. Old Highway 10 is a linear feature that would be crossed by some portion of the right-of-way.

The right-of-way would traverse the Miles City Fish Hatchery property along the property's north and east boundaries. Although no buildings or structures would be removed because of this build alternative, other defining characteristics in those areas of the property could be affected.

The right-of-way would traverse the Birney Ranching Rural Historic District. The introduction of a railroad could alter the characteristic features of the proposed district, compromising its significance.

The right-of-way would cross several pastures along the eastern side of the Hogback Pasture property, disturbing the property's hub-and-spoke design.

One of the resources located in the APE but outside the right-of-way is the Miles City Main Street Historic District, which is listed in the National Register. Potential impacts on the historic district would be minimal because only a small corner of the historic district boundary overlaps the APE, and no contributing buildings fall in the APE. The Eastern Montana Fairgrounds property is also located in the APE but outside the right-of-way. No buildings or structures associated with this property would be removed, and the visual impact on the resource would be minimal.

Two barns, five homesteads, and four buildings or clusters of ranch-related resources are located outside of the right-of-way but in the APE. The arrangement of these buildings and structures, and their relationships to one another and to the surrounding landforms can be important characteristics. The introduction of the railroad could alter these spatial relationships by introducing a new and incompatible visual element. Twenty-three buildings or clusters of buildings more than 50 years old are located on parcels that were not accessed.

As shown in Tables 11-22 and 11-23, the Tongue River Road Alternative could adversely affect 63 cultural resources where surveys were conducted in the right-of-way and are presumed to meet National Register criteria.

Table 11-22. Number of Archaeological Resources and Tribal Resources—Tongue River Road Alternative

	Lithic Scatter	Lithic Scatter with other components	Stone Circle	Cairn	Historic Water Associated	Historic Trail or Fence	Other ^a	Isolate	TOTAL Archaeological Resources	Tribal Resources	TOTAL
Intersected by the right-of-way	14	11	3	2	0	3	5	13	51	4	55
Within 200-foot APE	8	3	0	4	0	0	8	13	36	3	39
TOTAL	22	14	3	6	0	3	13	26	87	7	94

Notes:

^a Other includes historic refuse, historic-period petroglyph, rockshelter, and survey markers

Table 11-23. Number of Built Resources—Tongue River Road Alternative

	Barn	Bridge	Dam/Levee	District ^a	Homestead	Irrigation Ditch	Railroad ^b	Ranch	Road/Trail	Utility	Windmill	Other ^c	TOTAL
Intersected by the right-of-way	0	0	0	1	1	1	1	0	1	0	0	3	8
Within 1,500-foot APE	2	4	0	2	5	1	1	4	2	3	1	5	30
TOTAL	2	4	0	3	6	2	2	4	3	3	1	8	38

Notes:

^a The right-of-way would traverse the Birney Ranching Rural Historic District. The southwest corner of Miles City Main Street Historic District boundary nominally overlaps the APE for this build alternative. The Eastern Montana Fairgrounds property is also located in the APE but outside the right of-way.

^b The right-of-way would connect with the BNSF main line, previously determined eligible for the National Register as the Northern Pacific Railroad, the northern transcontinental railroad.

^c Other includes pumphouse, school, park facilities, a former CCC camp, culvert, residence, fish hatchery, Hogback Pasture, and corral

Tongue River Road East Alternative

Construction and operation of the Tongue River Road East Alternative would affect 64 cultural resources (53 archaeological resources, five tribal resources, and six built resources) where surveys were conducted in the right-of-way and 75 cultural resources (51 archaeological resources, two tribal resources, and 22 built resources) where surveys were conducted in the APE but not in the right-of-way. Construction of this build alternative would result in the same types and quantities of impacts on cultural resources as described for the Tongue River Road Alternative, except as follows. Six built resources may be located in the unsurveyed portion of the right-of-way.

Of the properties not accessed, there appears to be a varying likelihood of these areas containing archaeological sites based on the slope of the terrain in the right-of-way: 1,867 acres are highly likely (0-to-0-degree slope), 598 acres are moderately likely (10-to-20-degree slope), and 370 acres are not likely (over-20-degree slope). Combining unsurveyed with surveyed acreage, 4,657 acres of the Tongue River Road East Alternative contain the greatest number of acres categorized as highly likely and moderately likely to contain archaeological resources (calculated from both surveyed and unsurveyed slope analysis).

Archaeological Resources

The Tongue River Road East Alternative would affect 53 archaeological resources where surveys were conducted in the right-of-way, mostly isolates and lithic scatters with or without other components such as rock shelters. Of the types most likely to be National Register eligible where surveys were conducted in the right-of-way, OEA identified 10 lithic scatters with other components (such as formal projectile points or other formal tools), three stone circles, and four cairns. Other resources included one historical trail, an area of historical refuse, survey markers, and a historical petroglyph (carved initials in a rock face). This build alternative would also affect 51 archaeological sites where surveys were conducted in the 200-foot APE but not in the right-of-way, mostly lithic scatters, isolates, and other resources (Table 11-24).

In addition to resources identified during the survey of 36 percent of the 86-mile alignment (2,834 acres and 31 miles), 65 percent of the remaining (1,867 acres in the right-of-way out of 2,856 acres) Tongue River Road East Alternative would be highly sensitive for archaeological resources and 21 percent would be moderately sensitive.

Tribal Resources

Tribal participants identified five tribal resources where surveys were conducted in the right-of-way and two where surveys were conducted outside of the right-of-way but in the APE. The two tribal resources outside of the right-of-way but in the APE could be affected; however, the specific nature of the impact cannot be determined at this time.

Built Resources

The Tongue River Road East Alternative would affect six built resources where surveys were conducted in the right-of-way and may affect 22 where surveys were conducted outside of the right-of-way but in the APE (Table 11-25). The built resources located in the right-of-way that would likely be removed by construction include park buildings and part of a former CCC camp associated with Spotted Eagle Park. Six built resources may be located in the unsurveyed portion of the right-of-way. This alignment would join the BNSF (formerly Northern Pacific) main line, which could affect features that contribute to its significance; it was previously determined eligible for the National Register. The Old Highway 10 alignment is a linear feature that would be crossed by some portion of the right-of-way.

No historic districts would be crossed by the right-of-way.

Two barns, two homesteads, and two buildings or clusters of ranch-related resources are located outside of the right-of-way but in the APE. The Miles City Main Street Historic District and the Eastern Montana Fairgrounds Historic District are also located in the APE but outside the right-of-way. No buildings or structures associated with these districts would likely be removed, and the visual impact on the resource would be minimal. Six built resources may be located in the unsurveyed portion of the right-of-way.

As shown in Tables 11-24 and 11-25, the Tongue River Road East Alternative could adversely affect 64 cultural resources where surveys were conducted in the right-of-way and are presumed to meet National Register criteria.

Table 11-24. Number of Archaeological Resources and Tribal Resources—Tongue River Road East Alternative

	Lithic Scatter	Lithic Scatter with other components	Stone Circles	Cairn	Historic Water Associated	Historic Trail or Fence	Other ^a	Isolate	TOTAL Archaeological Resources	Tribal Resources	TOTAL
Intersected by the right-of-way	14	10	3	4	0	1	7	14	53	5	58
Within 200-foot APE	9	3	3	5	0	0	11	20	51	2	53
TOTAL	23	13	6	9	0	1	18	34	104	7	111

Notes:

^a Other includes historic refuse, historic-period petroglyph, and survey markers

Table 11-25. Number of Built Resources—Tongue River Road East Alternative

	Barn	Bridge	Dam/Levee	District ^a	Homestead	Irrigation Ditch	Railroad ^b	Ranch	Road/Trail	Utility	Windmill	Other ^c	TOTAL
Intersected by the right-of-way	0	0	0	0	0	1	1	0	1	0	0	3	6
Within 1,500-foot APE	2	3	0	2	2	1	0	2	2	3	1	4	22
TOTAL	2	3	0	2	2	2	1	2	3	3	1	7	28

Notes:

^a The southwest corner of Miles City Main Street Historic District boundary nominally overlaps the study area for this build alternative. The Eastern Montana Fairgrounds property is also located in the APE but outside the right of-way.

^b The right-of-way would connect with the BNSF main line, previously determined eligible for the National Register as the Northern Pacific Railroad, the northern transcontinental railroad.

^c Other includes park facilities, a former CCC camp, school, pumphouse, fish hatchery, pasture, culvert, and corral.

11.5.2.4 Moon Creek Alternatives

Moon Creek Alternative

Construction and operation of the Moon Creek Alternative would destroy or damage 71 cultural resources (63 archaeological resources, three tribal resources, and five built resources) where surveys were conducted in the right-of-way. In addition, 48 cultural resources (27 archaeological resources, two tribal resources, and 19 built resources) are located where surveys were conducted in the APE where surveys were conducted but not in the right-of-way. Some of these resources could be affected, but to a lesser degree than those in the right-of-way. Nine built resources may be located in the unsurveyed portion of the right-of-way.

Of the properties not accessed, there appears to be a varying likelihood of these areas containing archaeological sites based on the slope of the terrain in the right-of-way: 1,593 acres are highly likely (0-to-10-degree slope), 617 acres are moderately likely (10-to-20-degree slope), and 537 acres are not likely (over-20-degree slope). The Moon Creek Alternative also has more than 4,000 acres of surveyed and unsurveyed land (combined) under 20 degrees of slope. This build alternative has 4,232 acres rated as highly likely and moderately likely to contain archaeological resources.

Archaeological Resources

The Moon Creek Alternative would affect 63 archaeological resources where surveys were conducted in the right-of-way, mostly isolates and lithic scatters with or without other components such as rock shelters. Of the types most likely to be National Register eligible where surveys were conducted in the right-of-way, OEA identified eight lithic scatters with other components (such as formal projectile points), two stone circles, and six rock cairns. In addition, two historical trails, three historic water features, a historical refuse scatter, a rock shelter, survey markers, and an unidentified building foundation were identified in the right-of-way. This build alternative would also affect 27 archaeological resources where surveys were conducted in the 200-foot APE but not in the right-of-way, mostly lithic scatters and isolates (Table 11-26).

The variable terrain is on lower slopes above the floodplain. Given the topography and the number of sites identified during the archaeological survey, the APE would likely contain archaeological resources. In addition to resources identified during the survey of 30 percent of the 82-mile alignment (2,456 acres and 25 miles), 61 percent of the unsurveyed portion in the right-of-way of the Moon Creek Alternative would be highly sensitive for archaeological resources and 22 percent would be moderately sensitive.

The Moon Creek Alternative also has more than 4,000 acres of surveyed and unsurveyed land under 20 degrees of slope. This build alternative has 4,232 acres rated as highly likely and moderately likely to contain archaeological resources.

Tribal Resources

Tribal participants identified three tribal resources where surveys were conducted in the right-of-way and two where surveys were conducted outside of the right-of-way but in the APE. All archaeological and tribal resources in the right-of-way would be damaged or destroyed by construction. The two tribal resources outside of the right-of-way but in the APE may be affected; however, the specific nature of the impact cannot be determined at this time.

Built Resources

The Moon Creek Alternative would affect five built resources where surveys were conducted in the right-of-way and may affect 19 where surveys were conducted outside of the right-of-way but in the APE (Table 11-27). The built resources located in the right-of-way that would likely be removed or disturbed by construction include a homestead on the Green Kirk Ranch. This alignment would join the BNSF (formerly Northern Pacific) main line, which could affect features that contribute to its significance; it was previously determined eligible for the National Register. The Old Highway 10 Alignment is a linear feature that would be crossed by some portion of the right-of-way.

The right-of-way would traverse the Birney Ranching Rural Historic District. The introduction of a railroad could alter the characteristic features of the district and compromise its historical significance.

A barn, a house, three homesteads, and five buildings or clusters of ranch-related resources are located outside of the right-of-way but in the APE. The arrangement of these buildings and structures, and their relationships to one another and to the surrounding landforms can be important characteristics. The introduction of the railroad could alter these spatial relationships by introducing a new and incompatible visual element. A road segment, dam, and three windmills are located outside of the right-of-way but in the APE, and impacts on them would likely be minimal. Nine built resources may be located in the unsurveyed portion of the right-of-way. As shown in Tables 11-26 and 11-27, the Moon Creek Alternative could adversely affect 71 cultural resources where surveys were conducted in the right-of-way and are presumed to meet National Register criteria.

Table 11-26. Number of Archaeological Resources and Tribal Resources—Moon Creek Alternative

	Lithic Scatter	Lithic Scatter with other components	Stone Circle	Cairn	Historic Water Associated	Historic Trail or Fence	Other ^a	Isolate	TOTAL Archaeological Resources	Tribal Resources	TOTAL
Intersected by the right-of-way	23	8	2	6	3	2	2	17	63	3	66
Within 200-foot APE	6	1	0	2	0	0	3	15	27	2	29
TOTAL	29	9	2	8	3	2	5	32	90	5	95

Notes:

^a Other includes a rock shelter, historic refuse, building remains, and survey markers

Table 11-27. Number of Built Resources—Moon Creek Alternative

	Barn	Bridge	Dam/Levee	District ^a	Homestead	Irrigation Ditch	Railroad ^b	Ranch	Road/Trail	Utility	Windmill	Other ^c	TOTAL
Intersected by the right-of-way	0	0	0	1	1	0	1	0	2	0	0	0	5
Within 1,500-foot APE	1	1	1	0	3	0	1	5	2	0	3	2	19
TOTAL	1	1	1	1	4	0	2	5	4	0	3	2	24

Notes:

^a The right-of-way would traverse the Birney Ranching Rural Historic District

^b The right-of-way would connect with the BNSF main line, previously determined eligible for the National Register as the Northern Pacific Railroad, the northern transcontinental railroad

^c Other includes a residence and cattle pen

Moon Creek East Alternative

Construction and operation of the Moon Creek East Alternative would destroy or damage 72 cultural resources (65 archaeological resources, four tribal resources, and three built resources) where surveys were conducted in the right-of-way. In addition, 58 cultural resources (42 archaeological resources, five tribal resources, and 11 built resources) are located where surveys were conducted in the APE but not in the right-of-way. Construction of this build alternative would result in the same types and quantities of impacts on cultural resources as described for the Moon Creek Alternative, except as follows. Ten built resources may be located in the unsurveyed portion of the right-of-way.

Of the properties not accessed, there appears to be a varying likelihood of these areas containing archaeological sites based on the slope of the terrain in the right-of-way:

1,576 acres are highly likely (0-to-10-degree slope), 568 acres are moderately likely (10-to-20-degree slope), and 436 acres are not likely (over-20-degree slope).

Archaeological Resources

The Moon Creek East Alternative would affect 65 archaeological resources where surveys were conducted in the right-of-way. Of the types most likely to be National Register eligible where surveys were conducted in the right-of-way, OEA identified seven lithic scatters with other components (such as formal projectile points), two stone circles, and eight rock cairns. In addition, OEA identified three historic water features, a historical foundation, and survey markers in the right-of-way. This build alternative would also affect 42 archaeological sites, mostly lithic scatters and isolates, where surveys were conducted in the 200-foot APE but not in the right-of-way (Table 11-28).

The variable terrain is on lower slopes above the floodplain level. In addition to resources identified during the survey of 35 percent of the 85-mile alignment (2,862 acres and 29 miles), 61 percent of the unsurveyed Moon Creek East Alternative would be highly sensitive for archaeological resources and 22 percent in the right-of-way would be moderately sensitive.

This build alternative has slightly more flat land than the Moon Creek Alternative, with 4,472 acres as surveyed and unsurveyed acreage grouped as archaeologically sensitive based on slope analysis.

Tribal Resources

Tribal participants identified four tribal resources where surveys were conducted in the right-of-way and five where surveys were conducted outside of the right-of-way but in the APE. The five tribal resources outside of the right-of-way but in the APE may be affected; however, the specific nature of the impact cannot be determined at this time.

Built Resources

The Moon Creek East Alternative would affect three built resources where surveys were conducted in the right-of-way and may affect 11 built resources where surveys were conducted outside of the right-of-way but in the APE (Table 11-29). This alignment would join the BNSF (formerly Northern Pacific) main line, which could affect features that contribute to its significance; it was previously determined eligible for the National Register. The Old Highway 10 alignment is a linear feature that would be crossed by some portion of the right-of-way. Ten built resources may be located in the unsurveyed portion of the right-of-way. No historic districts would be crossed by the right-of-way or the APE.

A barn and three buildings or clusters of ranch-related resources are located outside of the right-of-way but in the APE. Three windmills and a road trace are located outside of the right-of-way but in the APE and impacts on them would likely be minimal.

As shown in Tables 11-28 and 11-29, the Moon Creek East Alternative could adversely affect 80 cultural resources where surveys were conducted in the right-of-way and are presumed to meet National Register criteria.

Table 11-28. Number of Archaeological Resources and Tribal Resources—Moon Creek East Alternative

	Lithic Scatter	Lithic Scatter with other components	Stone Circle	Cairn	Historic Water Associated	Historic Trail or Fence	Other ^a	Isolate	TOTAL Archaeological Resources	Tribal Resources	TOTAL
Intersected by the right-of-way	23	7	2	8	3	0	4	18	65	4	69
Within 200-foot APE	7	1	3	3	0	0	6	22	42	5	47
TOTAL	30	8	5	11	3	0	10	40	107	9	116

Notes:
^a Other includes building remains and survey markers

Table 11-29. Number of Built Resources—Moon Creek East Alternative

	Barn	Bridge	Dam/Levee	District	Homestead	Irrigation Ditch	Railroad ^a	Ranch	Road/Trail	Utility	Windmill	Other ^b	TOTAL
Intersected by the right-of-way	0	0	0	0	0	0	1	0	2	0	0	0	3
Within 1,500-foot APE	1	0	1	0	0	0	0	3	2	0	3	1	11
TOTAL	1	0	1	0	0	0	1	3	4	0	3	1	14

Notes:
^a The right-of-way would connect with the BNSF main line, previously determined eligible for the National Register as the Northern Pacific Railroad, the northern transcontinental railroad
^b Other includes a cattle pen

11.5.2.5 Decker Alternatives

Decker Alternative

Construction and operation of the Decker Alternative would destroy or damage 65 cultural resources (54 archaeological resources, eight tribal resources, and three built resources) where surveys were conducted in the right-of-way. In addition, 30 cultural resources (18 archaeological resources, six tribal resources, and six built resources) are located where surveys were conducted in the APE but not in the right-of-way. Some of the resources could

be affected, but to a lesser degree than those in the right-of-way. Two built resources may be located in the unsurveyed portion of the right-of-way.

Of the properties not accessed, there may be a varying likelihood of these areas containing archaeological sites in the right-of-way based on the slope of the terrain: 851 acres are highly likely (0-to10-degree slope), 385 acres are moderately likely (10-to-20-degree slope), and 629 acres are not likely (over-20-degree slope).

With areas categorized as highly likely and moderately likely to contain archaeological resources (calculated from both surveyed and unsurveyed slop analysis), the Decker Alternative has the least amount of acreage considered sensitive, with 2,254 acres on slopes less than 20 percent. This build alternative—along with the Decker East Alternative—has the highest percentage of land with slopes greater than 20 degrees (37 percent).

Archaeological Resources

The Decker Alternative would affect 54 archaeological sites where surveys were conducted in the right-of-way. Although terrain was generally rugged and steep, flat areas and hillcrests consistently had lithic scatters or cairns present. Of the types most likely to be National Register eligible where surveys were conducted in the right-of-way, OEA identified five lithic scatters with other components (such as formal projectile points) and six rock cairns. In addition, two historical trails, a historical refuse scatter, a historical petroglyph (carved initials in a rock face), and an unidentified building foundation were identified in the right-of-way. This build alternative would also affect 18 archaeological resources, mostly lithic scatters and isolates, where surveys were conducted in the 200-foot APE but not in the right-of-way (Table 11-30).

When OEA surveyed this build alternative, visibility was generally excellent, with most land consisting of exposed rock and very little grass. Given the topography and the number of sites identified during the archaeological survey, the APE would likely contain archaeological resources. In addition to resources identified during the survey of 31 percent of the 51-mile alignment (1,699 acres and 16 miles), 66 percent of the unsurveyed portion in the right-of-way of the Decker Alternative is expected to be highly sensitive for archaeological resources and 20 percent would be moderately sensitive. A high percentage of unsurveyed property on this build alternative (14 percent) would likely have low sensitivity, due to slopes greater than 20 degrees.

Tribal Resources

Tribal participants identified eight tribal resources where surveys were conducted in the right-of-way and six where surveys were conducted outside of the right-of-way but in the APE. All archaeological and tribal resources in the right-of-way would be damaged or destroyed by construction. The six tribal resources outside of the right-of-way but in the APE may be affected; however, the specific nature of the impact cannot be determined at this time.

Built Resources

The Decker Alternative would affect three built resources where surveys were conducted in the right-of-way and may affect six where surveys were conducted outside of the right-of-way but in the APE (Table 11-31). This build alternative would cross the Birney Ranching Rural Historic District and the Tongue River Valley Historic District, and would join the former Northern Pacific Railroad (BNSF main line), and could affect features that contribute to their significance.

One homestead and two buildings or clusters of ranch-related resources are located outside of the right-of-way but in the APE. The arrangement of these buildings and structures, and their relationships to one another and to the surrounding landforms can be important characteristics. The introduction of the railroad could alter these spatial relationships by introducing a new and incompatible visual element. A road segment and windmill are located outside of the right-of-way but in the APE and impacts on them would likely be minimal. Two built resources may be located in the unsurveyed portion of the right-of-way. None of these resources are listed in the National Register.

As shown in Tables 11-30 and 11-31, the Decker Alternative could adversely affect 65 cultural resources where surveys were conducted in the right-of-way and are presumed to meet National Register criteria.

Table 11-30. Number of Archaeological Resources and Tribal Resources—Decker Alternative

	Lithic Scatter	Lithic Scatter with other components	Stone Circle	Cairn	Historic Water Associated	Historic Trail or Fence	Other ^a	Isolate	TOTAL Archaeological Resources	Tribal Resources	TOTAL
Intersected by the right-of-way	18	5	0	7	0	2	4	18	54	8	62
Within 200-foot APE	9	0	0	1	0	1	2	5	18	6	24
TOTAL	27	5	0	8	0	3	6	23	72	14	86

Notes:

^a Other includes historic refuse, building remains, historic-period petroglyph, depression, and survey markers

Table 11-31. Number of Built Resources—Decker Alternative^a

	Barn	Bridge	Dam/Levee	District ^b	Homestead	Irrigation Ditch	Railroad	Ranch	Road/Trail	Utility	Windmill	Other	TOTAL
Intersected by the right-of-way	0	0	0	2	0	0	1	0	0	0	0	0	3
Within 1,500-foot APE	0	1	0	0	1	0	0	2	1	0	1	0	6
TOTAL	0	1	0	2	1	0	1	2	1	0	1	0	9

Notes:

^a Wolf Mountain Battlefield National Historic Landmark is adjacent to, but not in, the APE for the Decker Alternative

^b Districts include the Birney Ranching Rural Historic District and the Tongue River Valley Rural Historic District

Decker East Alternative

Construction and operation of the Decker East Alternative would destroy or damage 60 cultural resources (49 archaeological resources, eight tribal resources, and three built resources) where surveys were conducted in the right-of-way. In addition, 30 cultural resources (23 archaeological resources, five tribal resources, and two built resources) are located where surveys were conducted in the APE but not in the right-of-way. Construction of this build alternative would result in the same types and quantities of impacts on cultural resources as described for the Decker Alternative, except as follows. Two built resources may be located in the unsurveyed portion of the right-of-way. None of these resources is listed in the National Register.

Of the properties not accessed, there appears to be a varying likelihood of these areas containing archaeological sites based on the slope of the terrain in the right-of-way: 796 acres are highly likely (0-to-10-degree slope), 362 acres are moderately likely (10-to-20-degree slope), and 601 acres are not likely (over 20-degree slope).

With the least number of acres on land with a 0-to-20-degree slope, the Decker East Alternative has 2,182 acres that are considered archaeologically sensitive. Identical to the Decker Alternative, 37 percent of this build alternative is within areas of 20-degree slope or greater.

Archaeological Resources

The Decker East Alternative would affect 49 archaeological resources where surveys were conducted in the right-of-way. Of the types most likely to be National Register eligible where surveys were conducted in the right-of-way where surveys were conducted, OEA identified six lithic scatters with other components (such as formal projectile points) and six rock cairns. In addition, OEA identified a historical refuse scatter, an unidentified building foundation, and a historic petroglyph (carved initials in a rock face) in the right-of-way. This

build alternative would also affect 23 archaeological resources, mostly lithic scatters and isolates, where surveys were conducted in the 200-foot APE but not in the right-of-way (Table 11-32).

In addition to resources identified during the survey of 32 percent of the 50-mile alignment (1,683 acres and 16 miles), 50 percent of the unsurveyed portion in the right-of-way of the Decker East Alternative likely would be highly sensitive for archaeological resources and 30 percent would be moderately sensitive. As with the Decker Alternative, this build alternative has a higher percentage of steep terrain.

Tribal Resources

Tribal participants identified eight tribal resources where surveys were conducted in the right-of-way and five where surveys were conducted outside of the right-of-way but in the APE. The five tribal resources outside of the right-of-way but in the APE may be affected; however, the specific nature of the impact cannot be determined at this time.

Built Resources

The Decker East Alternative would affect three built resources where surveys were conducted in the right-of-way and may affect two where surveys were conducted outside of the right-of-way but in the APE (Table 11-33). This build alternative would cross the Birney Ranching Rural Historic District and the Tongue River Valley Historic District, and would join the former Northern Pacific Railroad (BNSF main line), and could affect features that contribute to their significance.

No homesteads, buildings, or clusters of ranch-related resources are located outside of the right-of-way or in the APE; however, a windmill is located outside of the right-of-way but in the APE and impacts on it would likely be minimal. Two built resources may be located in the unsurveyed portion of the right-of-way. None of these resources is listed in the National Register.

As shown in Tables 11-32 and 11-33, the Decker East Alternative could adversely affect 60 cultural resources where surveys were conducted in the right-of-way and are presumed to meet National Register criteria.

Table 11-32. Number of Archaeological Resources and Tribal Resources—Decker East Alternative

	Lithic Scatter	Lithic Scatter with other components	Stone Circle	Cairn	Historic Water Associated	Historic Trail or Fence	Other ^a	Isolate	TOTAL Archaeological Resources	Tribal Resources	TOTAL
Intersected by the right-of-way	17	6	0	6	0	0	4	16	49	8	57
Within 200-foot APE	9	1	0	1	0	1	2	9	23	5	28
TOTAL	26	7	0	7	0	1	6	25	72	13	85

Notes:

^a Other includes building remains, historic-period petroglyph, depression, and survey markers

Table 11-33. Number of Built Resources—Decker East Alternative^a

	Barn	Bridge	Dam/Levee	District ^b	Homestead	Irrigation Ditch	Railroad	Ranch	Road/Trail	Utility	Windmill	Other	TOTAL
Intersected by the right-of-way	0	0	0	2	0	0	1	0	0	0	0	0	3
Within 1,500-foot APE	0	0	0	0	0	0	0	0	1	0	1	0	2
TOTAL	0	0	0	2	0	0	1	0	1	0	1	0	5

Notes:

^a Wolf Mountain Battlefield National Historic Landmark is adjacent to, but not in, the APE for the Decker East Alternative

^b Districts include the Birney Ranching Rural Historic District and the Tongue River Valley Rural Historic District

11.5.3 No-Action Alternative

Under the No-Action Alternative, TRRC would not construct and operate the proposed Tongue River Railroad, and there would be no impacts on cultural resources from construction or operation of the proposed rail line.

11.5.4 Mitigation and Unavoidable Environmental Consequences

To avoid or minimize the environmental impacts on cultural resources from the proposed rail line, OEA is recommending that the Board impose two mitigation measures, including one volunteered by TRRC (Chapter 19, Section 19.2.8, *Cultural Resources*). These measures would require TRRC to develop protocols to inform construction supervisors of the

importance of protecting and identifying cultural resources discovered as construction takes place and to comply with the terms of the Programmatic Agreement.

In accordance with 36 C.F.R. § 800.6(a), OEA would continue consultation to avoid, minimize, and mitigate the impacts of the proposed rail line on all cultural resources. Should the Board license a build alternative, OEA—in collaboration with the ACHP, SHPO, and consulting parties—would develop a treatment plan as an amendment to the Programmatic Agreement outlining the specific measures that would be implemented to mitigate the impacts for that build alternative.

Even with the implementation of OEA’s mitigation measure and TRRC’s voluntary measure, construction and operation of the proposed rail line would cause unavoidable impacts on cultural resources. These impacts could include damage to archaeological sites in the right-of-way and footprint through surface and subsurface disturbances, loss of and changes to access within the right-of-way, and the introduction of auditory and visual impacts depending on the resource and location. OEA concludes that these adverse impacts would be moderate.

11.6 Regulatory Setting

Different federal, state, and local entities are responsible for the regulation of cultural resources. These entities and the regulations and guidance related to cultural resources are described in Table 11-34.

The primary laws that govern the Board’s consideration of cultural resources are NEPA and NHPA (54 U.S.C. § 300101 *et seq.*). The Board is coordinating Section 106 of NHPA and NEPA for the proposed rail line. The regulations that implement Section 106, Protection of Historic Properties (36 C.F.R. Part 800), encourage agencies to do so to prevent redundant reviews.

Other applicable laws include the Antiquities Act of 1906 (16 U.S.C. § 431); the Archaeological Resources Protection Act of 1979 (54 U.S.C. § 300101 *et seq.*); the National Trails System Act (16 U.S.C. § 1241); the American Indian Religious Freedom Act of 1978 (42 U.S.C. § 1996); Section 4(f) of the Department of Transportation Act (49 U.S.C. § 303); the Archaeological and Historic Preservation Act of 1974 (Moss-Bennett Act) (16 U.S.C. § 469); Indian Sacred Sites, Executive Order 13007, 61 *Federal Register* (Fed. Reg.) 25131 (May 17, 1996); and the Native American Graves Protection and Repatriation Act (25 U.S.C. §§ 3001–3013). The Board is also guided by regulations at 49 C.F.R. Part 1105.

Table 11-34. Regulations and Guidance Related to Cultural Resources

Regulation, Statute, Guideline	Explanation
Federal	
National Environmental Policy Act (42 U.S.C. § 4321 <i>et seq.</i>)	<p>Requires the consideration of potential environmental effects, including potential effects of (or on) contaminated sites in the environmental impact statement for any proposed major federal agency action. NEPA implementation procedures are set forth in the President’s Council on Environmental Quality’s Regulations for Implementing NEPA (40 C.F.R. Part 1500). NEPA requires federal agencies to consider the effects of a project on the environment, including historic and cultural resources (40 C.F.R. § 1508.8). NEPA states that agencies must take into account “the degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places (National Register) or may cause loss or destruction of significant scientific, cultural, or historical resources.” (40 C.F.R. § 1508.27(b)(8))</p> <p>If reasonable alternatives exist, NEPA requires agencies to rigorously explore and objectively evaluate them. Agencies should give a similar level of attention to cultural resources as that given to other types of resources for all alternatives to establish a baseline of information to consider during consultation and review (Council on Environmental Quality and Advisory Council for Historic Preservation 2013:13).</p> <p>NEPA requires a review of major federal actions for impacts on the cultural environment. The NHPA was signed into law on October 15, 1966, for the preservation of historic properties around the nation. The NHPA established the ACHP, SHPOs, and National Register.</p> <p>NEPA does not provide detailed regulations or a process for how a federal agency identifies and evaluates cultural resources or how it considers project impacts on such resources. Section 106 regulations, however, do set forth a detailed four-step process for reviewing historic properties (Advisory Council on Historic Preservation 2013).</p> <ul style="list-style-type: none"> • Establish the undertaking. • Identify and evaluate historic properties. • Assess effects on historic properties, and resolve any adverse effects. • Solicit public involvement and consult with the SHPO or THPO; appropriate state, local, and tribal officials; Native American tribes; applicants; and any other consulting parties in identifying historic properties, assessing effects, and resolving adverse effects. <p>OEA followed the more detailed Section 106 regulations to identify and evaluate cultural resources by reviewing existing information on recorded historic properties, conducting background research, consulting with appropriate entities, seeking information from knowledgeable individuals and organizations, and conducting a field survey. OEA is coordinating the NEPA analysis with the Section 106 consultation and review.</p>
National Historic Preservation Act (54 U.S.C. § 300101 <i>et seq.</i>) Section 106 (Public Law 102-575, 54 U.S.C. § 306108) and its implementing	Requires federal agencies to take into account the effects of their actions on historic properties listed in, or eligible for listing in the National Register. Section 106 applies when a federal agency determines its action to be an undertaking,

Regulation, Statute, Guideline	Explanation
regulations (36 C.F.R. Part 800)	which may include issuing a federal license (36 C.F.R. 800.16(y)). In considering project impacts, federal agencies consult with their applicants, the appropriate state historic preservation officer/tribal historic preservation officer, tribes, other interested parties, and members of the public. Federal agencies must also provide the Advisory Council an opportunity to comment on the undertaking. The ACHP is an independent federal agency created under authority of the NHPA (16 U.S.C. 470). It is responsible for advocating consideration of historic preservation in federal agency decision-making, promulgating regulations to implement Section 106 of NHPA, and overseeing the Section 106 review process.
National Historic Preservation Act Section 101 (54 U.S.C. § 54; U.S.C. § 306108)	States, "Properties of religious and cultural significance to Indian Tribes may be determined to be eligible for inclusion on the National Register." (16 U.S.C. § 470a (d)(6(A))). In addition, the Section 101 regulations state, "The [federal] agency official shall acknowledge that Indian Tribes...possess special expertise in assessing the eligibility of historic properties that may possess religious and cultural significance to them." Section 101 of the NHPA also established the office of the SHPO.
Antiquities Act of 1906 (16 U.S.C. § 431 <i>et seq.</i>)	Restricts the use of particular public land owned by the federal government.
Archaeological Resources Protection Act of 1979 (54 U.S.C. § 300101 <i>et seq.</i>)	Secures, for the present and future benefit of the American people, the protection of archaeological resources and sites which are on public lands and Indian lands, and to foster increased cooperation and exchange of information between governmental authorities, the professional archaeological community, and private individuals (§ 2(4)(b)).
National Trails System Act (Public Law 90-543)	Established the Appalachian and Pacific Crest National Scenic Trails and authorized a national system of trails to provide additional outdoor recreation opportunities and to promote the preservation of access to the outdoor areas and historic resources of the nation.
American Indian Religious Freedom Act of 1978 (Public Law 95-341)	Protects and preserves the traditional religious rights and cultural practices of American Indians, Eskimos, Aleuts, and Native Hawaiians. These rights include, but are not limited to, access of sacred sites, freedom to worship through ceremonial and traditional rights and use and possession of objects considered sacred.
Section 4(f) of the Department of Transportation Act (49 U.S.C. § 303)	Protects historic resources from potentially adverse impacts of federal transportation projects.
Archaeological and Historic Preservation Act of 1974 (Moss-Bennett Act)	Requires that federal agencies provide for "...the preservation of historical and archeological data (including relics and specimens) which might otherwise be irreparably lost or destroyed as the result of...any alteration of the terrain caused as a result of any Federal construction project of federally licensed activity or program (Section 1)."
Executive Order 11593, Protection and Enhancement of the Cultural Environment	Preserves, restores, and maintains the historic and cultural environment of the nation.
Executive Order 13007, Indian Sacred Sites Native American Graves Protection and Repatriation Act (25 U.S.C. §§ 3001 to 3013)	Requires that federal agencies administer cultural properties under their control and direct their policies, plans, and programs in such a way that federally owned sites, structures, and objects of historical, architectural, or archeological significance were preserved, restored, and maintained.

Regulation, Statute, Guideline	Explanation
Federal Land Policy and Management Act of 1976 (as amended 2001) (43 U.S.C. 1701] (a) § 102 (8)	U.S. Department of the Interior and Bureau of Land Management declaration of policy that states, in part, the public lands be managed in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values; that, where appropriate, will preserve and protect certain public lands in their natural conditions.
<p>State</p> <p>The Montana Historical Society and Montana SHPO have jurisdiction over cultural resources. The following state statutes and regulations apply to cultural resources.</p>	
Montana Constitution, Article IX, Section 4 Cultural Resources	SHPOs administer the national historic preservation program at the state level, review National Register nominations, maintain data on historic properties that have been identified but not yet nominated, and consult with federal agencies during Section 106 review. SHPOs are designated by the governor of their respective state or territory. The Montana State Antiquities Act and the Montana SHPO's Administrative Rules address the responsibilities of the Montana SHPO and other state agencies regarding historic and prehistoric sites on state-owned lands. Each state agency is responsible for establishing rules and procedures regarding the preservation of such sites within its purview.
Montana State Antiquities Act (MCA §§ 22-3-421 to 22-3-442)	Require state agencies and the Montana university system to submit a biennial report to the Preservation Review Board on their stewardship, as well as the status and maintenance needs of the agencies' heritage properties.
Montana SHPO Administrative Rules 10.121.901 to 10.121.916	Addresses the responsibilities of the Montana SHPO and other state agencies regarding historic and prehistoric sites (i.e., buildings, structures, paleontological sites, and archaeological sites) on state-owned lands. Each state agency is responsible for establishing rules and procedures regarding the preservation of historic resources under their jurisdiction.
<p>Local</p> <p>The Miles City Historic Preservation Commission is the only local agency in the study area that oversees the preservation of historic and prehistoric properties at the city level. Duties of the City of Miles City preservation officer, who is appointed by the mayor, include coordinating local historic preservation programs; helping develop local surveys and preservation planning documents; and providing assistance to the local commission, government agencies, and the public.</p>	
<p>Notes:</p> <p>U.S.C. = United States Code; NEPA = National Environmental Policy Act; C.F.R. = Code of Federal Regulations; NHPA = National Historic Preservation Act; ACHP = Advisory Council on Historic Preservation; SHPO = State Historic Preservation Officer;; National Register = National Register of Historic places; THPO = Tribal Historic Preservation Officer; MCA = Montana Code Annotated</p>	