

United States Department of the Interior
National Park Service

NATIONAL REGISTER OF HISTORIC PLACES REGISTRATION FORM

JAN 4 2001

38

1. Name of Property

historic name: Charter Oak Mine and Mill

other name/site number: 24PW0476

2. Location

street & number: Forest Road 227 B-1, Helena National Forest, USDA Forest Service

vicinity: n/a

city/town: N/A Near Elliston

state: Montana code: MT county: Powell code: 077 zip code: 59728

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act of 1986, as amended, I hereby certify that this ☒ nomination ☐ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property ☒ meets ☐ does not meet the National Register Criteria. I recommend that this property be considered significant ☒ nationally ☒ statewide ☒ locally.

William H. Reiter Regional Archaeologist December 21, 2000
Signature of certifying official/Title Date

USDA Forest Service, Northern Region
State or Federal agency or bureau (☐ See continuation sheet for additional comments.)

In my opinion, the property ☒ meets ☐ does not meet the National Register criteria.

Mark F. J. J. J.
Signature of commenting or other official

12/4/2000
Date

Montana State Historic Preservation Office
State or Federal agency and bureau

4. National Park Service Certification

I, hereby certify that this property is:

- ☒ entered in the National Register
☐ see continuation sheet
☐ determined eligible for the National Register
☐ see continuation sheet
☐ determined not eligible for the National Register
☐ see continuation sheet
☐ removed from the National Register
☐ see continuation sheet
☐ other (explain _____)

Signature of the Keeper

Cal B. Jorgensen

Date of Action

2/6/01

5. Classification

Ownership of Property:	Public-Federal	Number of Resources within Property	
Category of Property:	District	Contributing	Noncontributing
Number of contributing resources previously listed in the National Register: n/a		8	0 building(s)
		5	0 sites
		4	5 structures
		0	0 objects
Name of related multiple property listing: n/a		17	5 TOTAL

6. Function or Use

Historic Functions:
INDUSTRY/PROCESSING/EXTRACTION: extractive facility

Current Functions:
Vacant/not in use

7. Description

Architectural Classification:
OTHER: vernacular

Materials:
foundation: STONE; WOOD
walls: WOOD - log, rough-cut timber, dimensional lumber;
METAL
roof: ASPHALT - rolled roofing; METAL
other:

Narrative Description

The Charter Oak Mine and Mill (24PW0476) is located approximately 25 miles southwest of the City of Helena, Montana, on lands administered by the USDA Forest Service, Helena Ranger District, Helena National Forest. The property's legal location falls within the NE1/4, SE1/4, and SW1/4 of Section 36, Township 9 North, Range 7 West, MPM in Powell County, Montana. The site is situated at 46°29'27" north latitude and 122°25'04" west longitude. Elevation ranges from 5400 to 5600 feet above mean sea level. Access to the site is gained by traveling west from the City of Helena on U.S. Highway 12 for 22 miles to the Little Blackfoot River turnoff (marked). Turn south off the highway and drive for 2.9 miles until it forks. Follow the right fork (Forest Road #227) for 1.3 miles. At this point, turn left on to Forest Road #227 B-1 and drive for .2 miles, passing through two gates. Both gates are locked and require a Forest Service key to open. Continue beyond these gates for an additional mile to the Charter Oak Mine and Mill.

Present and Historical Appearance

The Charter Oak Mine and Mill site (24PW476) is located near the base of Negro Mountain and adjacent to the Little Blackfoot River on forested lands administered by the Helena National Forest. The site area is approximately 82 acres. The upper half of the site lies in Douglas fir and spruce forest. The lower half occupies a grass and aspen-covered bench above the Little Blackfoot River floodplain. The Little Blackfoot River is a relatively constricted drainage whose headwaters lie in the Boulder Mountains west of Helena. The river flows northeast past Charter Oak until it turns west near the community of Elliston near Highway 12 West. From that point, the river flows west until it discharges into the Clark Fork of the Columbia River near Garrison. The Charter Oak site has a northwest facing aspect and receives summer sunshine through most of the day. During the winter the amount of sunlight diminishes and the site is exposed to severe winter storms coming in from the southwest. The site's mountain setting, elevation, and exposure to winter storms have affected the structural integrity of the wood and log buildings at Charter Oak.

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The mountainous physiography of southwest Montana is controlled by Precambrian Belt series and later Paleozoic and Mesozoic sedimentary rocks, by the Boulder Batholith and later igneous intrusions, by Pleistocene glaciations, and by the Willow Creek Fault ("Perry Line") marking the north-south boundary between two major geological provinces (Knight 1989:37). The Charter Oak site is located within the Boulder Mountains, a mostly low (7,000' to 8,300' above sea level) and rounded mountain range located to the south and west of the community of Helena. The Boulder Mountains are underlain by Cretaceous and Tertiary volcanic rocks and the Boulder Batholith (Ruppel 1963:6-9). The Boulder Batholith is an enormous, highly mineralized body of granite which intruded as molten magma between 70 and 75 million years ago when the northern Rocky Mountains were first being formed (Alt and Hyndman 1972:87). Abundant precious metals in the Boulder Batholith are the primary reason that southwestern Montana has been mined so extensively since the 1860's. The area has since undergone uplift, erosion, and the accompanying deposition of alluvial sediments on the floodplains of the Little Blackfoot River and adjacent drainage systems.

The Charter Oak Mine, like some 15 other major lode mines in the Little Blackfoot drainage and Elliston Mining District, was situated to take advantage of the precious metals and minerals embedded in the granitic/quartz gangue of the Boulder Batholith. The Charter Oak mine was primarily a lead and zinc producer but some silver, gold and copper was also produced. The ore was low-grade and "spotty." Minerals mined at the site included argentiferous galena (lead sulphide with silver), boulangerite (lead-antimony sulphide), arsenopyrite (iron-arsenic sulphide), pyrite (iron sulphide), sphalerite (zinc sulphide with iron and manganese), plumbogarsite (hydrous sulphate of iron and potassium, with lead-antimony sulphide), and malachite (a secondary weathered zone of primary copper sulphides). These sulphide ores were produced as part of a metamorphic contact zone, and were found in a quartz gangue. The rock was very unstable and caved easily. The sulphide ores required flotation for concentration. The sulphides, lead and arsenic are the reason the mill tailings and waste rock are toxic to humans (MSE-HKM Inc., 1996, 1998).

The toxicity of the tailings produced at Charter Oak had environmental effects that could not have been known to the early miners who worked there. As the mill processed ore, the resultant tailings were deposited on the floodplain below the site. Continuing runoff and erosion eventually caused the tailings to move toward the edge of a large beaver pond that served as a natural buffer between the tailings and the Little Blackfoot River.

In 1992, a fisherman observed a plume of mill tailings and dead fish in the Little Blackfoot River near a beaver pond. In view of the potential liability and cost of toxic waste cleanup, the owners of the Charter Oak Mine turned the property over to the federal government in 1993. This eventually led to a multi-year abandoned mine reclamation effort on the part of the USDA Forest Service and Montana State Department of Environmental Quality from 1995-1999 to clean-up the environmental hazards at the Charter Oak Mine. This abandoned mine restoration work included site stabilization and other historic preservation work (Davis 1996, 1998, 1999).

Description of Resources

The Charter Oak Mine and Mill was a small-scale operation from its beginnings in 1912 to its final demise in the early 1990's. Throughout its history, the mine complex underwent numerous modifications to meet changing mining and milling technologies. The most significant change occurred in the late 1930's when the mill building and milling equipment were upgraded in anticipation of accelerated metals production created by World War II. The first flotation mill was torn down and its equipment was moved to nearby machinery "bone-yards" and trash heaps. The Wilfley table, gasoline compressor, Dorr Thickener, wood flotation cells and other equipment still on-site are direct evidence of this earlier milling operation.

The Charter Oak site was also a repository for mining and domestic equipment and parts throughout the waning days of the mine's life. A former State Highways bulldozer located near the site entrance is the best example. In 1998, two metal trailers attached to the assay office, deteriorated equipment, and domestic refuse clearly dating to the 1960s onward were removed as part of the reclamation effort. Abandoned mine reclamation has likewise altered, but not significantly changed, the site's overall appearance. The mill tailings pile was entirely removed in 1996. In 1998, the waste rock piles surrounding the mill were partially removed and "stepped" to prevent them from sloughing downhill toward the Little Blackfoot River floodplains and the mill complex. One open adit was grouted and several collapsed adits were permanently closed.

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Today, the Charter Oak Mine and Mill is an amalgam of mine buildings, structures, equipment and artifacts dating from roughly 1912 to 1993. However, the mine complex most clearly reflects the mine's primary production period during World War II—1938 to 1946—and it is to this period of significance that Forest Service mine preservation and interpretation is being directed.

Standing buildings and structures at Charter Oak include the: flotation mill; reagent/work shed; electrical storage shed; compressor building; steel water tank and pipe; assay office; bunkhouse; residence cabin; garage; tramway; adits; waste rock piles; mill tailings; and abandoned equipment "boneyards". These buildings and structures are described below based on details, measurements and drawings included with the Charter Oak heritage resource site form prepared in 1995 by Helena National Forest Archaeologist Lance Foster (1995), and documentation prepared in advance of abandoned mine reclamation.

Flotation Mill (1 contributing building)

Mr. J. Hopkins built the 50-ton flotation mill at Charter Oak in ca. 1936 or 1937 on the site of the original Hopkins Mill. The single-story ball mill building measures 152' long and 74' wide at its widest. It is built of rough timber and dimensional lumber, and rests on a post and stone cobble foundation. Vertical board and batten siding enclose the building. The roof is composed of plank sheathing, rolled asphalt, and tin. The roof slopes gently downhill. A wide assortment of fixed, single pane and fixed, six pane windows on all elevations provide ample sunlight into the building interior. Rectangular, single, double and six panel doors give access to all sections of the building. The windows and doors were salvaged from elsewhere and used as needed at Charter Oak. A cache of extra window frames is located in the mill and adjacent reagent building. The building was a dirty and noisy place to work and was under constant need of repair, as exemplified by the patchwork of tarpaper, shingles, metal and various kinds of lumber throughout the building. The ball mill was no doubt a "work in progress" throughout its use-life.

The ball mill was a gravity-fed system. The mill is divided into seven sections that progress down from the ore load-out deck near the adit to the storage and loading area at the bottom of the hill. The milling process began at the ore load-out deck, which measures 18' x 16'. Ore was pulled onto the load-out in a mine cart by means of a cable pulley (still intact) and dumped into the ore bin below. The ore bin, measuring 6' x 16', separated ore either into the mill or into a tailing pile according to size and grade. The discarded ore was then sorted by hand and the higher-grade ore was moved to the crusher within the covered structure.

Powered by an electrical motor, the Jaw Crusher (Alloy & Metals Co. Los Angeles, CA) crushed ore. It is located in the first covered structure of the flotation mill in a room that measures 18' x 26'. Following crushing, the ore was then separated again and placed on either the higher conveyor belt (for the coarser ore), which carried it to a storage bin above, or the lower conveyor belt (for the finer ore) which carried it directly to the ball mill below.

The ball mill room is divided into three sections (upper, middle, and lower levels), the first of which measures 37' x 51'. In this upper level ore was crushed into a fine powder in the ball mill. The ball mill used fist-sized and larger balls of iron to crush the ore in the large steel ball crusher. Discarded milling balls are found both inside and outside of the mill building.

The finely crushed ore was then transported to the flotation cell to separate the valuable minerals from the rock. The middle level measures 25' x 63' and contains a series of metal flotation cells. Here chemical reagents within the cell bath were agitated with the concentrate, with the resulting foam being skimmed off with paddles. The sulfide-bearing froth was discarded from the launder (trough), the crushed gangue (waste) was discarded into a tailing pile, and the metal concentrate was placed on large tables to dry in the concentrate storage area. It is likely that the concentrate was then dried out using a vacuum press but this machinery is not present at the site today. Ore was dried before shipping to the East Helena (ASARCO Inc.) smelter in order to reduce transportation costs.

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The lowest level of the mill, the storage and loading area, measures 21' x 56' and held the dried ore until it was ready to ship to smelters in East Helena. The ore was loaded onto trucks through the connected 15' x 18' garage, and it left from here, on its way to be weighed, measured, and subsequently refined and processed.

In 1999, the Forest Service put new rolled roofing atop the mill building and replaced badly deteriorated, underlying wood planks. Windows were cleaned and repaired throughout the entire building. New board and batten siding was put on the building exterior where planks were rotted. Waste rock piled up against the building was removed and drainage channels were excavated to direct run-off away from the building. New front and back steps were also built. The steps were built "in-kind" to match material type, dimension and character (Davis 1999).

The mill building, containing ore crushing and flotation equipment, is an important contributing resource within the Charter Oak Mine and Mill site.

Reagent Shed (1 contributing building)

The reagent shed is located just to the northwest of the flotation mill. It is a single-story building that measures 17' x 13' in plan. It sits directly on pad of crushed waste rock and has no foundation. The floor is dirt. It is built of dimensional lumber framing and rough sawn, horizontal siding (balloon frame construction). The building has a gabled roof covered with asphalt rolled roofing. Fixed, horizontal 6/6 pane windows are located on three elevations. A rectangular door on the south elevation provides ready access to the mill.

The building dates to J. Bonner's renewed operation of the Charter Oak Mine in 1936-1939. The reagent shed stored chemicals used in the flotation cells and milling process. It was also a workshop. A 50-gallon barrel drum fireplace is located in one corner; two workbenches, old drill bits, and various tools are still found inside. The building was apparently used for storage during the waning years of the mine's operation as the building was filled with post-1960's tools, machinery parts and domestic furniture prior to abandoned mine reclamation. This building is in good structural condition, and is a contributing resource within the Charter Oak Mine and Mill site.

Electrical Storage Building (1 contributing building)

The electrical storage building is located just north of the mill building. During mine waste cleanup electrical equipment was found in the building, giving it its informal name, but it no doubt stored a wide range of equipment during the mine's operational life. The building consists of the original log building and an attached garage made of dimensional lumber. The original, single-story log building measures 16' x 31' in plan. Its walls are composed of 8-10 logs that are held together with "saddle and V" corner-notching. It has a gabled roof covered with rolled asphalt roofing on one side and metal (flattened cyanide drums) on the other. Fixed four and six pane windows are present on three building elevations. Solid, rectangular doors made of rough planks access the east and west ends of the building. The building has plank flooring. The interior of the building contains industrial-scale shelving made of rough dimensional lumber. The shelves were filled with an enormous amount of industrial and domestic equipment and refuse prior to cleanup during the 1998 mine reclamation project. This log structure dates to the early operation of the Charter Oak mine (1916-1936) and was probably built in conjunction with the main residence cabin.

A garage made of dimensional lumber was later added to the north end of this building. It measures 14'6" x 31' in horizontal dimension. A small (5' x 8'3") storage extension has been added to the back. The roof of the garage is nearly flat and covered with asphalt rolled roofing. Two fixed, double four pane windows are located on the garage's north elevation. The garage has a dirt floor. Large double doors access the garage on east elevation. Post-1960s refuse and equipment were removed during mine reclamation. The garage was added to the original log building sometime between 1936 and 1941 when the mine was upgraded to meet the demands of World War II strategic metals production. The building contributes to the integrity and significance of the site.

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Compressor Building (1 contributing building)

The compressor house lies on a bench directly above the flotation mill. This single-story building measures 16' x 32' in plan. It rests on a pad of crushed rock and has a dirt floor, and features dimensional lumber framing and rough sawn, horizontal siding (balloon frame construction). Plank Sheathing and rolled asphalt cover the gabled roof. Compared to the other buildings at Charter Oak, the compressor building has few windows. Two fixed, six pane windows are located on the north and south elevations. The east elevation has a rectangular door made of dimensional lumber planks. The north elevation has a large, rectangular, double door that provided easy access to the compressor and electrical equipment. Ventilation and outlet pipes from the compressor extend through the south wall but are now disconnected from the pipe systems outside the building.

The compressor building was also constructed sometime between 1936-or 1939 and supported Bonner's eventual World War II operation of the mine. It is almost completely intact with the Ingersoll-Rand compressor, flywheel, belt, gauge, and electric motor still inside. Drill bits, machinery parts and other mining refuse are located inside the building. Little cleaning occurred here during the mine reclamation, although scattered equipment located directly outside the building was either removed (if it was clearly post-1960 in age) or re-arranged around the building exterior. The compressor building is a contributing resource within the Charter Oak Mine and Mill property.

Steel Water Tank and Pipe (1 contributing structure)

A steel water tank is located just south and above the compressor building and the mid-level adit. It is 20' in diameter and 15' high. It was filled via a spring and creek located just behind the tank. A water pipe extends from the tank down slope to the mill building. The water was used in the flotation process. The placement and rusted condition of the tanks suggests it was probably built during the earlier 1920-1930's flotation operation. It continued to support the flotation mill built by Bonner just prior to World War II. This structure is contributing resource within the Charter Oak Mine and Mill property.

Assay Office (1 contributing building)

The assay office is located to the north of the mill and adjacent to the dirt road that accesses the compressor shed, adit and upper part of the mill. The assay office is a single-story building and measures 32'6" x 16' 3", including a covered front porch. It rests on a leveled earth and crushed rock pad. It is framed with dimensional lumber and covered with horizontal, rough sawn plank siding. The office's south exterior is covered with aluminum siding. The building has a gabled roof covered with plank sheathing and rolled asphalt roofing. Fixed, four and six pane and double-hung, four pane windows are found on all elevations. A rectangular, four-panel door accesses the building through the covered front porch. The interior of the building features wood flooring and paneling, clearly reflecting a 1960s-vintage effort to modernize this building. Two modern metal trailers were attached to the back of the assay office during the latter part of the mine's history. The trailers and an abundance of modern domestic refuse were removed as part of the reclamation effort in 1998.

The assay office was used for weighing and measuring the quality of concentrate from the mill. It was built sometime during J. Bonner's revival of the Charter Oak flotation plant in the late 1930s or early 1940s. For a few years during World War II, the office served as the assay station for most of the Elliston Mining District. Assaying continued to be done through the 1980s in an effort to keep the Charter Oak enterprise afloat. It contained much of the laboratory equipment and technical literature used in the glory days of the Charter Oak mine during World War II. These artifacts are being restored off-site and eventually will be used in the interpretation of the site. Overall, the building is in good physical condition but requires a thorough cleaning to eliminate the threat of Hantavirus and chemical contamination before it can be opened for public visitation. Though the interior of the building represents the waning days of the Charter Oak operation from the 1960s to 1990s, the exterior, despite the application of metal siding on the non-primary elevation, retains integrity, and is representative of the period of significance. The building is a contributing resource within the Charter Oak Mine and Mill district.

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Bunkhouse (1 contributing building)

A small, single-story bunkhouse is located midway between the assay office and the main residence cabin. It measures 12' by 14' in plan and sits on a pad of earth and crushed rock. The building features balloon frame construction and is enclosed with horizontal dimensional lumber siding. Rolled asphalt covers the gabled roof. Fixed single, double, and six-pane windows are located on each elevation, reflecting the ad hoc character of all buildings at Charter Oak. A badly deteriorated, rectangular four-panel door accesses the building. The age of the bunkhouse is unclear but it probably was built sometime during the busy World War II period when extra help was needed. The building was being used for storing domestic furniture (mattresses, bed frames) when the site was turned over the Forest Service in 1993. It is in good physical condition. This building is a contributing resource to the Charter Oak Mine and Mill property.

Main Residence Cabin (1 contributing building)

The main residence cabin is the oldest building on the site. It is the original homestead built by the Hopkins family in the early 1910s. This single-story log cabin originally measured 29'5" x 15'6". However, a bedroom (11' x 15') was added to the north elevation, a storage shed (9' x 11'8") was added to the south elevation, and a covered porch (19' x 6'3") was added to the east elevation in later years, giving the cabin a "hodge-podge" appearance. The entire building sits directly on an earth and crushed rock pad. Walls are made of 8 to 10 logs that were probably cut on-site. The corners of the original log cabin are trimmed, sawn and saddle-notched. The original mud and mortar daubing has been repaired with a commercial mortar mix. Wood shakes are present on the gable ends. The roofed is composed of plank sheathing and rolled asphalt roofing. It has been patched numerous times. A metal chimney pipe extends through the roof. Fixed four and six pane windows are found on all elevations. The interior of the cabin is accessed through a rectangular door and covered porch on the cabin's east elevation. The later additions were constructed with dimensional lumber, probably as part of the late 1930s renovation of the mine complex. The roof over the bedroom addition is gabled, while the storage shed and porch roofs are flat. The roofs over all three additions are covered with rolled asphalt roofing. The rough appearance of the cabin exterior is testament to its age, and the effects of weathering, rodents, and hard human use. Sill logs are badly deteriorated, daubing is cracked or missing, siding is in disrepair, and the roof leaks.

The cabin interior has been modernized over the years with carpet, linoleum flooring, and low ceilings. Due to the threat of Hantavirus contamination, furniture, appliances and domestic refuse were removed from the cabin during the 1998 reclamation project. The cabin interior requires repair and cleaning before it can be opened for public visitation. The cabin exterior retains better integrity, and plans are to use the glass-enclosed entrance porch to house interpretive signs and information. However, substantial repairs (i.e., foundation and sill log replacement) are needed to prevent this building from further deterioration. This building is a contributing resource within the Charter Oak Mine and Mill property.

Garage (1 contributing building)

The garage was built sometime between 1938-1940 when the Hopkins' were upgrading the mill plant. It is located northeast of the main residence cabin near the site entrance. This single-story building measures 18' x 20'6" and rests on a pad of crushed waste rock. It is constructed of balloon framing consisting of 6" x 6" beams and scrap lumber. Sheathing is rough-sawn, inch-thick timber planks. The gabled roof is covered with rolled asphalt roofing. The garage has two stalls with one door remaining, which is opened with an iron counterweight located on its eastern corner. An abundance of abandoned machine parts, appliances, domestic furniture and other essentially modern refuse filled this building prior to the 1998 reclamation project. The garage's plank walls are in more deteriorated condition than others on-site, though it is not in an imminent state of collapse. This building is a contributing resource within the Charter Oak Mine and Mill property.

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Tramway (1 contributing structure)

The remains of a tramway system, linking the upper adits with the mill, are visible on the waste rock piles directly above the ball mill. The age of the tram is uncertain; best evidence suggests that a tram system was used in the pre-World War II mine operation. The tramway includes the highly deteriorated remains of a wooden tower and platform near one of the upper adits, pieces of the mid-slope tower, and cable extending down the entire face of the waste rock pile. Two tram buckets are located near the compressor building. The mid-slope tower remnants were partially removed during waste rock stabilization work in 1998. The cable and tower parts were placed back on the slope following these reclamation activities. This structure is a contributing resource within the Charter Oak Mine and Mill property.

Adits (2 contributing structures)

Seven mine adits were originally located at Charter Oak. All but two adits collapsed sometime prior to 1995 and therefore were filled with waste rock and earth during abandoned mine reclamation work in 1998. One remaining intact adit is located at mid-slope near the compressor building. A filter discharge system was placed at the adit entrance in 1998. To protect both the historical integrity of the feature and bat habitat, a metal sleeve was placed inside the mouth of the adit and a portal was built with logs and dimensional lumber in order to replicate its original appearance. The adit is covered with metal grating to allow bats to pass through. The second intact adit is located north of the compressor building. It lacks a portal (entrance) and framing. It emits a substantial flow of acid discharge and is therefore fenced for public and wildlife safety. Federal and state reclamation agencies are currently determining the best way to close and clean this adit. Although both adits have been modified to address water quality and human safety issues, both structures retain enough integrity to be contributing resources within the Charter Oak Mine and Mill property.

Waste Rock Pile (2 contributing sites, 1 non-contributing structure)

Some 18,000 cubic yards of waste rock were located on the steep slope directly above and surrounding the mill building. The waste rock actually occurred in several discrete or overlapping piles below each mine adit at Charter Oak but for descriptive convenience they are treated as two distinct dump sites here. Waste rock is very low-grade ore or non-mineralized rock matrix that is discarded at the mouth of the adit during excavation of an underground mine tunnel. The exposed and weathering waste rock piles release elevated levels of arsenic, cadmium and lead and are prone to severe erosion and mass slumping during spring snow melt and after severe summer thunderstorms. In 1996, a small waste rock pile was completely removed because it was partially in a small creek behind the compressor building and main mine complex. In 1998, another small waste rock pile located below the open, leaking adit was also entirely removed. The former locations of these two waste rock piles are recognizable today (2000) by newly seeded vegetation and obvious evidence of mechanical activity.

The waste rock piles were stabilized by a combination of partial removal, contouring, and replanting (Davis 1998). Eight non-contiguous, 10'-12' wide horizontal benches were excavated across the most visible waste rock piles located directly above the mill. The bench cuts follow the tracks of the original bulldozer cuts and old adit/load-out access roads across the face of the dumps. Some 10,000 cubic yards of waste rock were removed via equipment staged on these bench cuts. The benches were seeded with grass and small bushy vegetation. Despite these recent (1998) modifications, the waste rock piles, which appear in two distinct locations on the hill above the building complex, are important, recognizable, and contributing sites within the mine complex. In 1998, a small rock-lined "catch basin" was constructed at the toe-slope of the waste rock pile to prevent waste rock from eroding onto the parking area at the base of the mill and ultimately, the floodplain of the Little Blackfoot River. This modern (1998) engineering structure is a non-contributing resource within the mine complex.

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Mill Tailings Pile (1 contributing site)

Approximately 12,000 cubic yards of tailings were located on the Little Blackfoot River floodplain below the mill site. Tailings, composed of water, fine-grained ore and sediment, and chemicals are the final waste product of flotation technology. At Charter Oak, they occurred as a large mound of fine-to-gritty white soil laced with buried cyanide drums, tires and discarded equipment parts. The tailings were deposited as wet slurry using metal and plastic pipes connected to the flotation cells located inside the mill. The tailings were removed in 1996 to a repository located about 1.1 miles from the mine complex. The work was completed under a programmatic agreement among the Forest Service, the Montana SHPO, and the Advisory Council on Historic Preservation (Davis 1996). Large format, black and white photographs and color slides were taken of this site feature prior to its removal. The location of the former tailings pile is visible as a level, grassy plain adjacent to beaver ponds and the Little Blackfoot River. Partially buried black filter cloth surrounds this area to abate leakage of any remaining tailings into the river. Given the obvious location of the tailings, coupled with its importance to understanding the overall mine operation, the grassy floodplain below Charter Oak is considered a contributing resource within the Charter Oak Mine complex.

Abandoned Equipment Boneyards (2 contributing sites)

Numerous objects and artifacts associated with mining litter the site. Two "boneyards" of discarded equipment are located behind the main residence and assay office. An inventory of all abandoned equipment and artifacts at Charter Oak has not been completed. The most obvious, non-historic objects dating to after the 1960's were removed during mine reclamation in 1998.

Historic objects readily visible on-site include: a Fagergren Flotation machine, a Dorr Thickner, a Dorr pump, a WemCo Classifier, a Union Ironworks wood flotation cell, a Kimball-Krogh Co. pump, a homemade slusher, Stopping drills, gasoline and diesel engines, metal railing and ore buckets. The machinery and related artifacts were clearly abandoned on-site when the mill was refurbished in the late 1930's. These two "bone yards" of picturesque equipment are contributing sites within the mine complex.

Concrete Footings (1 non-contributing structure)

Concrete footings are located just below the entrance road to Charter Oak and adjacent to the reclaimed mill tailings pile on the floodplain. The footings measure 6' by 5' in plan view and stand about 4' high. Some wood scrap and nails are associated with this small structural feature. The footings were left intact during reclamation of the mill tailings pile and creation of a drainage ditch in 1996. They are now obscured by bushy vegetation.

The origin of the concrete footings is unclear. Henry Lauri began work at Charter Oak mine in 1891. Informant Lee Adams, the last claimant at Charter Oak, stated that Lauri constructed a stamp mill in 1899 to process silver, lead and zinc, and enclosed it in 1912. The concrete footings may identify this stamp mill. If this information is accurate, the stamp mill was soon abandoned and entirely removed except for the footings once Fred Hopkins began ball mill operations at Charter Oak in April of 1912. In fact, there is no reference to the stamp mill in existing mining records, and its exact location was unknown to Adams and other informants contacted by the Forest Service. It is probable that the concrete footings are the only surviving remnants of a stamp mill, but lack of physical integrity (complete absence of milling equipment, wood enclosure), inconclusive supporting historical documentation, and probable construction date outside the period of significance result in its status as a non-contributing resource.

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Parking Area (3 non-contributing structures)

In 1998, the road entrance to the Charter Oak site was reconstructed to facilitate placement of a drainage system and the waste rock "catch basin" described above. Subsequent to these construction activities, the area was widened, contoured and graded to provide a parking area for visitors to Charter Oak. The parking area is wide enough to allow public school buses to safely turn-around (a problem encountered by guided school class visits in the recent past), and the parking lot grade meets accessibility standards for physically challenged site visitors. The X-CEL class of Helena High School built a wood interpretive kiosk near the parking lot in May 2000. A modern wood outhouse (1970's or later vintage) is located behind the main residence. The parking lot, kiosk and outhouse are not considered to be contributing resources within the mine complex.

Integrity

Charter Oak retains a high degree of physical integrity. It has been largely unaltered since the WWII period. It retains the original mill design but also displays its evolution in technology and equipment over time. The materials used to build the mine such as rough-sawn lumber and timbers, are within the character of early hardrock mines, and its original workmanship has been well preserved. In fact, many mines in southwestern Montana have been "cannibalized" for their milling equipment, parts, and scrap metal following their closure. This did not happen at Charter Oak, thanks in part to the consistent occupancy and use of the mill up to the early 1990's. Despite its proximity to the popular Little Blackfoot River recreation corridor, the site has not suffered a high degree of vandalism nor natural degradation. Recent reclamation work at Charter Oak has been specifically directed at preserving as much of the site as possible while also removing toxic mill tailings and waste rock. Site cleanup and stabilization projects have (and will be) focused on retaining the World War II-Strategic Metals Era character of the site. When combined, these factors have left a mine and mill site that is uniquely preserved both inside and out. The mine's integrity is easily appreciated by anyone who visits the site.

8. Statement of Significance

Applicable National Register Criteria: A and C

Areas of Significance: INDUSTRY

Criteria Considerations (Exceptions): N/A

Periods of Significance: 1912-1951

Significant Persons: N/A

Significant Dates: 1916, 1936, 1941

Cultural Affiliation: N/A

Architect/Builder: N/A

Narrative Statement of Significance

National Register of Eligibility Justification

The Charter Oak Mine is eligible for listing in the National Register of Historic Places under Criteria A and C. The district retains an exceptional degree of physical integrity. It is significant locally as an excellent example of small hardrock mining operations in the Elliston Mining district during the first half of the twentieth century. The property bears testament to the evolutionary nature of mining in that area, and the importance of that industry to the surrounding communities. The mine and mill are also a rare, surviving, intact example of 1930-1940's flotation mill technology as well as World War II "strategic metals" mining. It is located on public lands, is easily accessible from nearby communities such as Helena, and is therefore an excellent candidate for site stabilization, enhancement and interpretation. National Park Service mining historians (Bunyak 1998:47, 55) consider the Charter Oak Mine to be one of the best-preserved, standing, small-scale flotation mills in the western United States, and it is therefore of national and regional significance.

Criterion A: Association with World War II and Strategic Metals Production

The Charter Oak Mine is eligible for listing in the National Register of Historic Places under Criterion A. It is associated with an event--World War II--that significantly affected all world history thereafter. It was a major producer in the Elliston Mining District of strategic metals that were vital to that war effort. Its productivity was based on flotation technology that enabled miners to process low-grade ore. This technological advancement in the early twentieth century was the salvation of mining in the American West as high-grade ore bodies played out. Under Criteria A, the Charter Oak Mine can be associated with two important mining themes identified in National Register Bulletin 42: Engineering/Technology (flotation technology), and Politics/Government (World War II, and Government Order L-208 closing all mines but those producing "strategic metals" such as Charter Oak). The mine is also an excellent example of the evolution of mining activities throughout the first half of the twentieth century, with structures and buildings associated with mining operations there beginning in 1912.

Criterion C: Association with Flotation Technology and Mining Vernacular Architecture

The Charter Oak Mine is also eligible for listing under Criterion C. It embodies the distinctive architectural and technological characteristics of a World War II "strategic metals" mine and flotation mill in the Northern Rocky Mountains. In fact, it is a rare example of an abandoned hardrock mine and flotation mill in Montana where the majority of the milling machinery remains intact in largely unaltered buildings. The integrity of its simple but functional vernacular architecture can be attributed to: 1) it was an operating mill during the Great Depression and World War II when other mines were being salvaged for mine parts and scrap metal; 2) family ownership protected it from corporate changes, investor whims and liquidation; 3) its near continuous occupation from the turn of the 20th century to mid-1990's insured its upkeep and deterred vandalism and theft; and 4) the mine was never patented and thus came into public rather than private ownership in 1995.

Because Charter Oak exists as an intact mine complex, it provides a deeper feeling of mining history than can be as realized at most other mining ruins in Montana. Charter Oak Mine and its surroundings have few modern intrusions. The site location provides a feeling of isolation and self-reliance that were once an everyday aspect of a miner's life. Cut off from the rest of society for extended periods of time, the miners of Charter Oak had to adapt to isolation and harsh weather to work and survive. Construction materials and methods echo the nature of this primitive setting. The expediency of the rough-sawn lumber, rolled asphalt roofing, and miscellaneous repairs completed on the various structures of the site, illustrate its primary purpose--mining, not aesthetics--and the need to make due with what was at hand. This does not imply that workmanship was poor, only thrifty and expedient. The site's high degree of integrity in a harsh environment is testimony to its solid original construction.

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Summary Statement of Significance

Mining holds an important place in Western history, whether viewed from a traditional (i.e., Young 1970) or revisionist perspective (i.e., White 1991). The simple shovel and sluice box technology of the early 1860's gold rush in southwestern Montana quickly gave over to more aggressive and efficient hydraulic mining involving water, ditches, flumes and hoses by the early 1870's (Rohe 1985). Free gold and silver mixed in placer deposits were extracted in enormous quantities by this method in rivers and streams throughout this region of Montana. As the rich placers played out, the search for parent veins or the "mother lode" began in earnest, hailing the advent of hardrock lode mining (Malone et al. 1988; Sahinen 1938).

From the 1880's through the 1920's, underground lode mines produced millions of dollars worth of precious metals from high-grade ore but steady production eventually necessitated mining of lower grade ore bodies. Not coincidentally, experiments first undertaken in Australia in 1911 led to the eventual development and widespread use of flotation technology in the United States whereby precious metals were extracted from pulverized low-grade ore in oil or water mixed with chemicals in flotation cells (Hardesty 1985). This new technology was the economic salvation of mining in Montana and the West, and fostered mining of low-grade ore through the precipitous years of World War I and the Great Depression (Bunyak 1998). World War II gave the mining industry a much-needed economic boost. Government Order L-208 closed all mines not engaged in production of "strategic metals" for the war effort and Government-sanctioned mines such as Charter Oak flourished in lead, zinc and copper production. However, by the mid-1950's, mining throughout the West was undergoing another technological change to open-pit mining. In this new economic climate, most small operations were bought out by larger corporations or were non-competitive and permanently closed. From this time forward, mining of precious metals became a large-scale, open-pit, corporate proposition.

The history of the Charter Oak Mine, and the Elliston Mining District in general, mirrors the synopsis presented above. Placer mining within the Elliston Mining District was never extensive nor very productive (Fairchild and Horstman 1995; Lyden 1948). The district became important in the 1890's as an area productive for lode mining. The nearby community of Elliston supported this burst of underground mining, along with woodcutting for the Anaconda Copper Mining Company's smelter and quarrying and processing of lime at a nearby plant adjacent to the Northern Pacific Railway. Important early lode operations included the Big Dick (Evening Star), Julia, Monarch and Ontario mines. Gold-silver-lead ore was shipped to the East Helena and Washoe smelters. Production was sporadic in the Elliston Mining District after 1911, which undoubtedly resulted in little socioeconomic (community) development in the Little Blackfoot River drainage outside of the community of Elliston. However, Charter Oak and a handful of other lode mines were responsible for a production peak during World War II and breathed new life into the Elliston Mining District for about a ten-year period. After that, ore production at Charter Oak (and elsewhere in the Elliston District) fell off sharply, thus necessitating the operators of Charter Oak to expand their minerals assaying operation and to prospect elsewhere on the Helena National Forest.

Today, the Charter Oak Mine and Mill still looks much the same as it did during its peak period of production in the 1940's, although reclamation has resulted in some modifications. The mill tailings pile on the floodplain was entirely removed in 1996. In 1998, the waste rock dumps above the mill were partially excavated and "benched" to prevent further slumping and erosion onto the floodplain below. An abundance of recent (post- 1950's) refuse and equipment of all description was also hauled away. Buildings and equipment are in various states of deterioration. In 1999, Forest Service heritage staff and a "Passport In Time" program volunteer crew replaced the roof, repaired numerous broken windows, and added new board and batten siding to the flotation mill. An interpretive kiosk was constructed at Charter Oak by the X-CEL class of Helena High School. These various mine reclamation, stabilization and interpretation projects have all focused on protecting and preserving the World War II character of the Charter Oak mine and mill complex. Thus, a visitor to Charter Oak can still walk through a nearly intact flotation mill and easily understand the technological processes involved with lode mining and ore milling during the first half of the 20th century. The mine also provides insight into the domestic life of small-scale family mining operations in southwestern Montana.

Mining is a very polarized and contentious issue in Montana and throughout the American West. Yet all our lives depend inextricably on metal. The Charter Oak Mine allows us to better understand first-hand the basic technologies, benefits and drawbacks of underground lode mining, minerals processing and abandoned mine remediation. This information is critical to making informed decisions about the future of mining, mine reclamation, environmental health, and historic mine preservation in Montana.

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Narrative History

Charter Oak was originally located in 1912 by Fred Hopkins as a lode mine and flotation mill site. Its first reported production was in 1916. The first Charter Oak flotation mill was located on the same spot where it was rebuilt just prior to WWII, and where the second mill still stands today. There is a set of old concrete footings and rotted lumber piles near the tailings that may represent an older operation, but there is no mention of this building in any available records. Their uncertain history and lack of integrity make these concrete structures a noncontributing element of the Charter Oak site.

Small-scale production of silver-lead ores by Fred Hopkins, his brother Ralph, and their families continued through the 1920s. The log buildings at Charter Oak relate to this initial period of mining, as does much of the first milling equipment (i.e., wood flotation cells, Dorr Thickener) scattered throughout the site and "bone yards". There were good years and bad years, which was typical of small operations in the Elliston Mining District and throughout the West. Mining of the low-grade silver-lead ores was marginally profitable until the stock market crash resulted in a depressed metals market, and the mine became inactive throughout the Great Depression. In contrast to other mines in the area, the Charter Oak operation did not profit from an increase in gold prices in 1934. This was due to the complex sulphide ores present at Charter Oak, which were spotty and had limited gold in them.

The mill remained inactive until about 1936, when J. Bonner leased the mine from Fred Hopkins, who had decided to cease mine operations. Bonner had come to Montana from mines in Nevada, and brought his equipment with him. He tore down the old log mill, but left the log cabin and log electrical shed standing. The older Hopkins machines were replaced with flotation cells and ball crusher, of which the latter was installed on new concrete footings. Apparently, Bonner did not use all of the machinery and scrap that he had brought with him, and these items were put into "bone yards" along with the old Hopkins equipment. Besides the new equipment, Bonner also built the frame structures located on-site, including the bunkhouse, the assay office, the compressor house, the mill, the reagent shed, and the additions to the main residence cabin and electrical shed. Some ore was produced in 1937, but the most time was spent constructing the 50-ton flotation plant that is still in place at Charter Oak.

Charter Oak came into its own during the rush for metals like lead and zinc during World War II (Table 1). Mining for strategic metals was supported by federal subsidies, while Government Order L-208 closed all gold mines as nonessential to the war effort in 1943. These subsidies continued past the close of the war due to the rise of the Cold War and the booming post-war American industrial economy.

Although Hopkins and sons are listed as the producers, it was actually Bonner who operated the mine, with Hopkins doing the representation work needed to keep up the unpatented claim and mill site. 1943 was arguably the glory year for Charter Oak, as it produced 98% of the ore, 53% of the gold, 89% of the silver, 93% of the lead, 100% of the copper, and 82% of the zinc for the Elliston Mining District, all of which was taken from 2,208 tons of ore. Other years in this period came close to that level of production. Ore was generally shipped by truck to the Asarco smelter in East Helena, where it was usually penalized for the arsenic in the ore.

It is certain that strategic metals production during World War II at Charter Oak Mine and other government-sanctioned mines contributed to the economic well being of East Helena and surrounding communities (Table 1). Translating individual mine production records into a larger economic perspective is made complicated by poor or inaccessible (Asarco Company) tax and related records. However, research into the socio-economic impact of Charter Oak and other lode mines in southwestern Montana both prior to and after World War II would be an important contribution to Montana history.

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The aging of the Hopkins family and of Bonner (who lived onsite with his wife for years) brought the mine into its long period of decline. Fairly significant production in lead and zinc is reported from 1951-1955 but no production is reported after 1966 (Robertson 1956). Bonner was the claimant in 1959 on the Charter Oak Mine, Pine Tree, and H & H claims. Bonner spent some years at Charter Oak while others were spent on placer claims he had near Townsend. After Bonner passed away, succeeding owners attempted at times to make another go of mining at Charter Oak, but the ore was too low-grade to be of much worth when viewed in terms of shipping costs. Charter Oak never produced anything more than a single year's production here and there. Elliston resident, Swede Lundquist, sometimes worked with John Hopkins (a son of Fred Hopkins) and ran ore from other claims through the mill, which was reportedly kept operational into the 1970s.

Market forces, the development of open-pit mining as a capital-intensive endeavor, and environmental regulations all contributed to the demise of the Charter Oak Mine, as well as small-scale hardrock mining in general. The spotty, low-grade ore at the site and the ebb and flow of family life also helped to bring Charter Oak to its abandoned state. From 1984 to 1988, Lee Adams and his partner C. W. Norton tried their hands at mining as the Charter Oak Mining Co. They went into the assaying business and substantially upgraded the existing assay office with laboratory and other equipment. Trailers were also attached to this building, which have since been removed as part of the mine reclamation project. They planned to make a study of thiourea leaching, but this too failed. The remains of their efforts piled up at Charter Oak in the form of trailers, a trommel, a bulldozer, and assorted mining scrap and modern debris, all of which is considered intrusive to Charter Oak's primary period of historical significance. Adams finally quit his venture in 1992; although later developments indicate that he sold his interest to Don Overson of Lincoln, Montana, when the environmental effects and liability of mine waste clean up came to forefront.

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Table 1.
Mine productivity at Charter Oak Mine from 1916 through 1965
(From McClellan 1976:48, Table E-8)

Year	Ore (tons)	Gold (ounces)	Silver (ounces)	Copper (pounds)	Lead (pounds)	Zinc (pounds)
1916	40	7	221	--	6,658	--
1918	5	1	34	--	913	--
1921	55	10	1,360	--	24,534	--
1922	16	3	361	--	9,009	--
1925	2	1	116	--	1,606	--
1926	121	7	934	50	16,569	--
1927	164	6	414	--	8,795	--
1928	1	1	44	16	1,115	--
1929	10	1	89	--	2,070	--
1937	10	2	270	23	5,486	--
1941	63	6	1,152	108	13,064	--
1942	573	3	1,628	164	21,926	--
1943	2,208	10	4,570	1,106	72,207	25,742
1944	1,493	9	3,615	778	62,516	46,580
1945	404	3	937	171	15,247	11,622
1946	757	31	4,191	1,180	62,915	15,461
1947	610	42	4,223	1,258	67,251	13,275
1948	735	22	3,629	645	46,137	10,422
1949	920	80	6,123	2,721	129,846	20,049
1950	277	8	692	663	9,904	1,470
1951	68	5	1,058	245	5,070	1,291
1952	115	11	757	713	20,208	5,458
1953	4	4	32	--	--	--
1954	345	89	1,937	--	52,900	13,800
1955	70	16	551	--	14,000	2,500
1956	7	1	45	--	1,000	100
1964	50	1	63	200	200	100
1965	2	1	59	--	500	--
	9,127	382	39,146	10,041	672,046	168,270

1941-1951: Primary period of production at Charter Oak Mine

9. Major Bibliographic References

See continuation sheet

Previous documentation on file (NPS):

- ☐ preliminary determination of individual listing (36 CFR 67) has been requested.
☐ previously listed in the National Register
☐ previously determined eligible by the National Register
☐ designated a National Historic Landmark
☐ recorded by Historic American Buildings Survey # _____
☐ recorded by Historic American Engineering Record # _____

Primary Location of Additional Data:

- ☒ State Historic Preservation Office
☐ Other State agency
☐ Federal agency
☐ Local government
☐ University
☐ Other - Specify Repository: _____

10. Geographical Data

Acreage of Property: 82

UTM References:	Zone	Easting	Northing
Point A:	12	390759	5149448
Point B:	12	391233	5149816
Point C:	12	391542	5149355
Point D:	12	391049	5149020

Legal Location (Township, Range & Section(s)): The property is located within the SW $\frac{1}{4}$ NE $\frac{1}{4}$, SW $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$, W $\frac{1}{2}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$, NW $\frac{1}{4}$ SE $\frac{1}{4}$, NW $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$, and the E $\frac{1}{2}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$ of Section 36, Township 9 North, Range 7 West, Bison Mountain 7.5' USGS quadrangle map, 1985, see attached map.

Verbal Boundary Description

See continuation sheet

Boundary Justification

See continuation sheet

11. Form Prepared By: Stephanie Abraham, Scott Anderson, Jessica Mulette, and Claire Pichette of Helena High School; Carl Davis (Helena National Forest) and Terry Godin of Helena National Forest.

name/title: Carl Davis, Forest Archaeologist
organization: USDA Forest Service
street & number: 2880 Skyway Drive
city or town: Helena

state: MT

date: August, 2000
telephone: (406) 449-5201, extension 280
zip code: 59601

Property Owner

name/title: USDA Forest Service, Region 1, Helena National Forest
street & number: 2880 Skyway Drive
city or town: Helena

state: MT

telephone: (406) 449-5201
zip code: 59601

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Verbal Boundary Description

The boundary of the nominated property is delineated by a polygon whose vertices are marked by the following UTM reference points: A 12 390759 5149448, B 12 391233 5149816, C 12 391542 5149355, D 12 391049 5149020. The Charter Oak Mine and Mill property extends from the junction of the access road and parking area at the site entrance due west across the narrow floodplain (where the mill tailings were once located) to the Little Blackfoot River. At this point, the site boundary extends due south for several hundred yards along the geotextile fabric and snowfence separating the reclaimed floodplain from the beaver ponds and Little Blackfoot River. The boundary then turns due east across the floodplain, across the grassy bench behind the main residence (cabin) and equipment boneyards, then upslope to the an unimproved road that provides access to mining claims further up Negro Mountain. The boundary then turns northward and follows a straight line behind the reclaimed waste rock piles, closed adit, compressor building and water tank, then extends directly upslope in forested terrain for 1/8 mile. The boundary then turns west above the collapsed adits, waste rock piles, and collapsed tram system above the Charter Oak mill building and then intersects with the initial starting point at the parking area-access road at the entrance to Charter Oak.

Boundary Justification

The boundaries of the Charter Oak Mine and Mill are defined to include all buildings, structures and artifacts relating to the mine and mill operation. The boundaries encompass areas both affected and unaffected by recent abandoned mine reclamation, as described in this document, including the former location of the mill tailings pile on the floodplain adjacent to the Little Blackfoot River, partially reclaimed waste rock piles on the steep slopes above the mill complex, and all existing buildings and structures. They do not include scrap metal, discarded machinery parts, and related debris on the southeastern periphery that is part of a separate mining enterprise further up Negro Mountain.

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Building-Structure Location Map

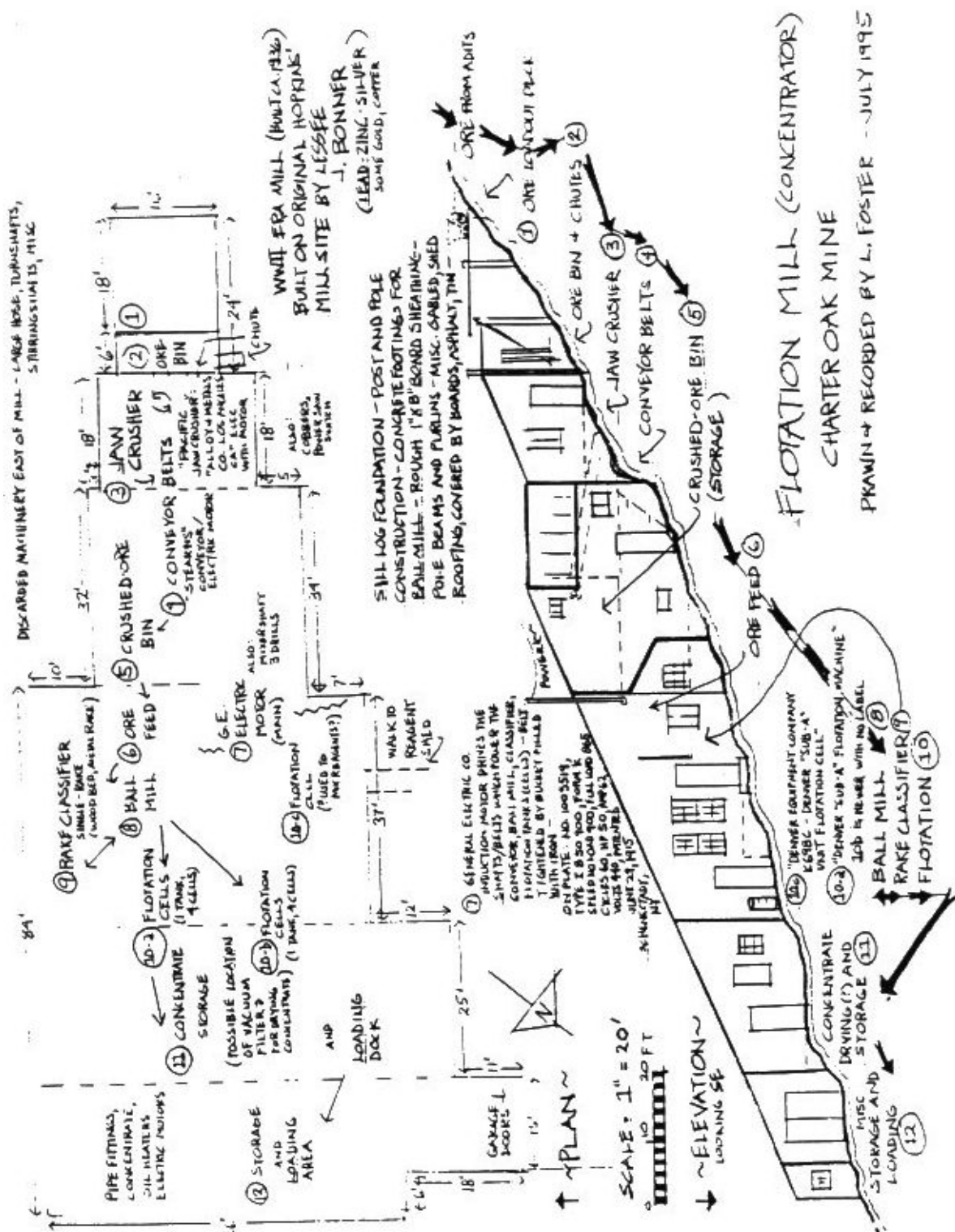
Charter Oak Mine and Mill
Powell County, Montana

The attached Xerox copy of an aerial photograph identifies the buildings and structures described in the National Register of Historic Places nomination form. Due to the photograph's scale (1 inch = 600 feet), the abandoned equipment is difficult to see and is not identified here. The photograph was taken by Montana Aerial Photography on May 23, 1995, as a prelude to mine reclamation studies undertaken by the Helena National Forest and the Montana Department of Environmental Quality. The photograph negative is on file at Montana Aerial Photography, Missoula, MT., and the Helena National Forest, Helena, MT.

This aerial photograph is the best available view of all buildings and structures at Charter Oak in their larger environmental context. However, since 1995, various mine reclamation actions at Charter Oak have modified some of the buildings and structures shown in this photograph. Specifically, the mill tailings pile (#15) was completely removed from the Little Blackfoot River floodplain in 1996. Three collapsed adits (#12) near the top of the mine workings were obliterated due to safety concerns. In 1998, the waste rock piles (#13) above the mill were partially removed and benched to prevent erosion while several others adjacent to the small creek above the compressor building were entirely removed (#14). The modern trailers attached to the assay office (#6) were also removed. The parking lot and interpretive kiosk were constructed in 1998 and 2000, respectively. The photographs included with this nomination show the post-reclamation condition of all buildings and structures at Charter Oak, as of August 2000.

<u>Buildings and Structures</u>	<u>Contributing Resources</u>	<u>Current Condition</u>
1. Ball-Flotation Mill	Contributing	Intact
2. Reagent Shed	Contributing	Intact
3. Electrical Storage Building	Contributing	Intact
4. Compressor Building	Contributing	Intact
5. Steel Water Tank	Contributing	Intact
6. Assay Office	Contributing	Intact
7. Bunkhouse	Contributing	Intact
8. Main Residence Cabin	Contributing	Intact
9. Garage	Contributing	Intact
10. Tramway	Contributing	Modified
11. Adits	Contributing	Modified
12. Adits	Non-Contributing	Removed
13. Waste Rock Piles	Contributing	Modified
14. Waste Rock Piles	Non-Contributing	Removed
15. Mill Tailings Pile	Contributing	Removed
16. Abandoned Equipment	Contributing	Intact
17. Parking Area	Non-Contributing	New
18. Interpretive Kiosk	Non-Contributing	New
19. Outhouse	Non-Contributing	New
20. Concrete footings	Non-Contributing	Modified

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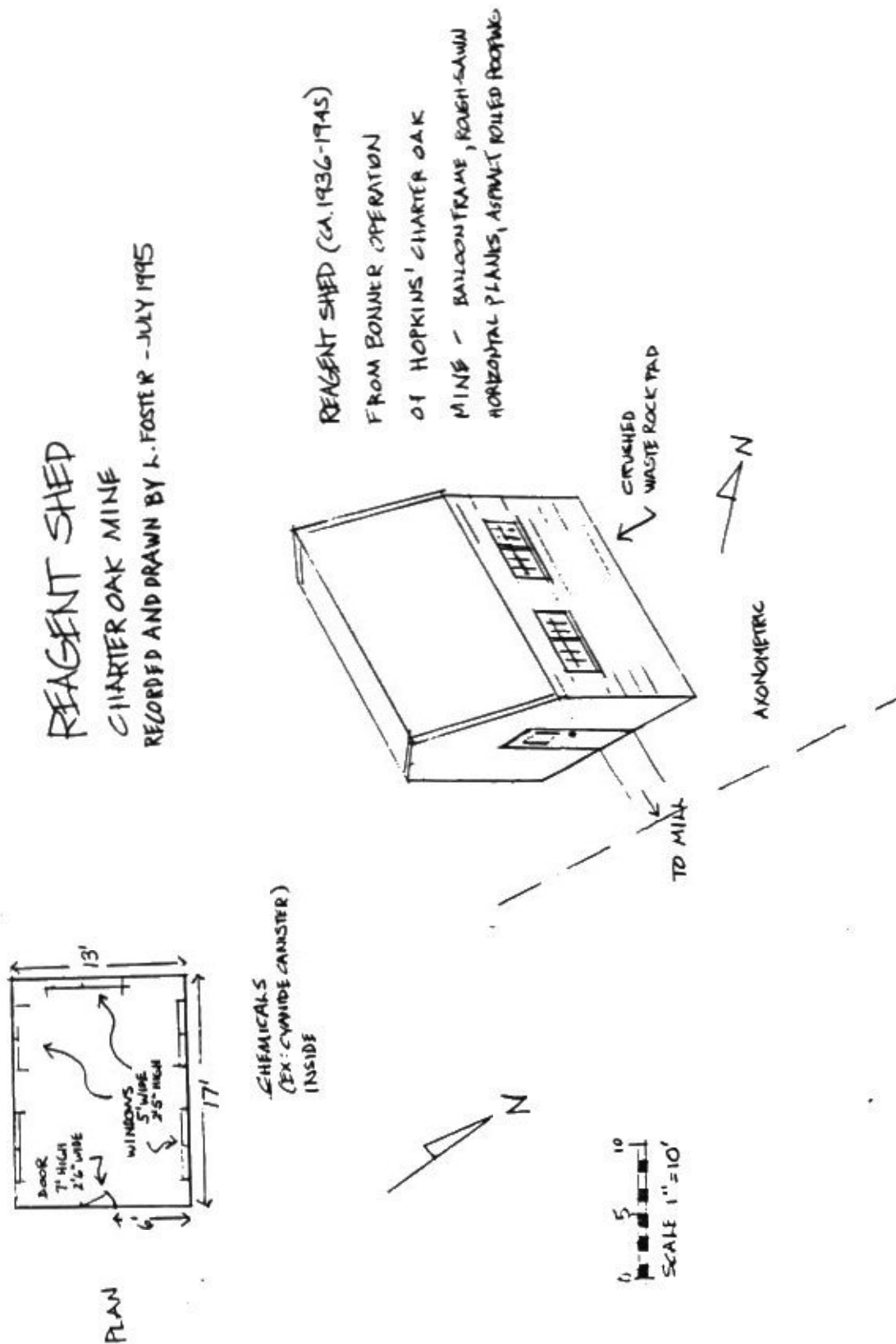
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Architectural Drawings

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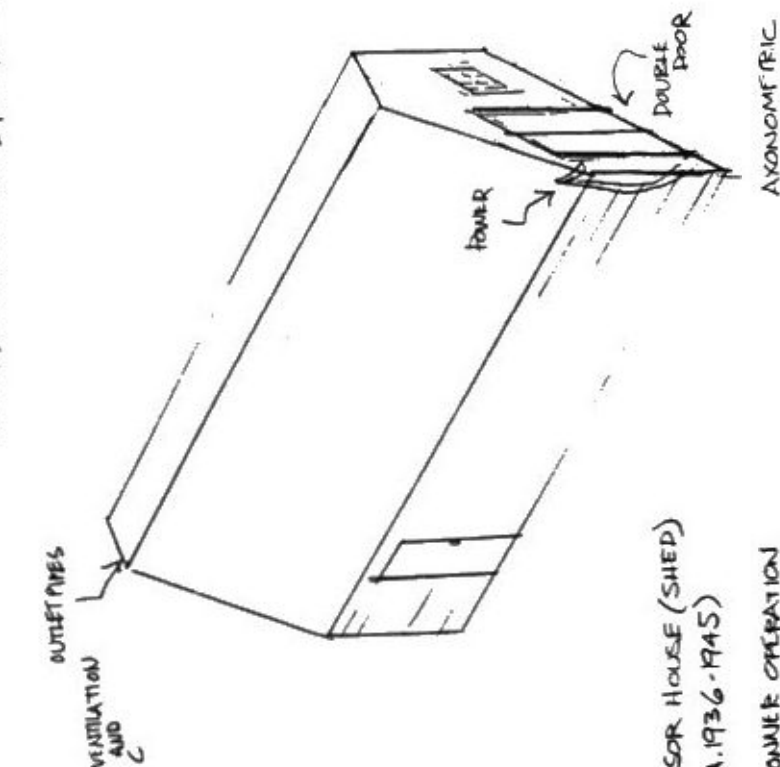
Architectural Drawings

Charter Oak Mine and Mill
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COMPRESSOR HOUSE (SHED)

CHARTER OAK MINE
RECORDED AND DRAWN BY L. FOSTER - JULY 1995



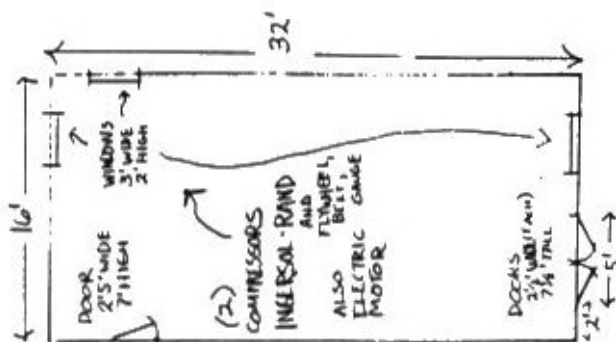
COMPRESSOR HOUSE (SHED)
(CA. 1936-1945)

FROM BONNER OPERATION

OF HOPKINS' CHARTER OAK

MINE - BALCON FRAM, ROUGH SAWN

HORIZONTAL PLANKING, ASPHALT ROLLED ROOFING



PLAN

0 5 10
SCALE 1" = 10'

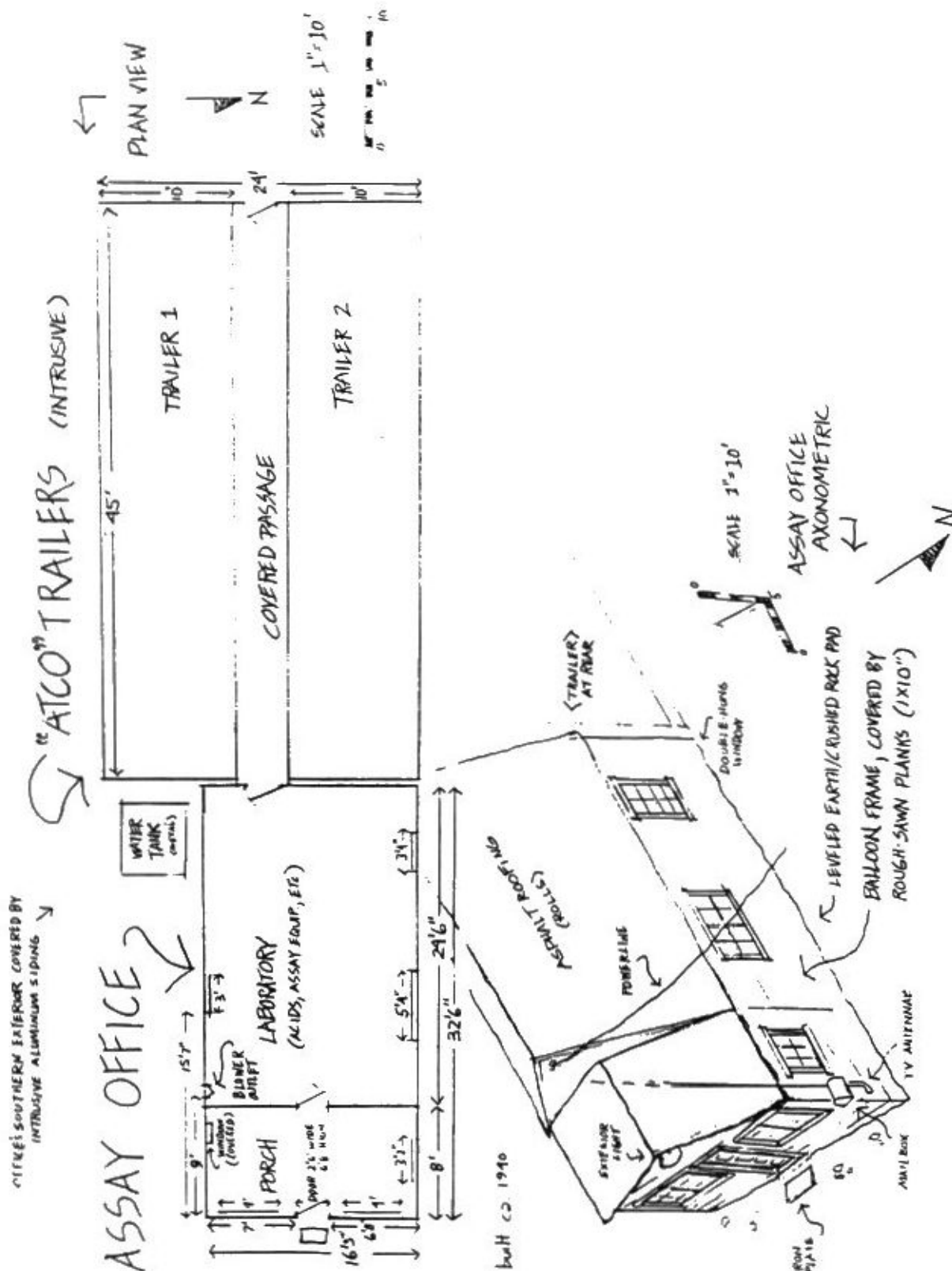
United States Department of the Interior
National Park Service

National Register of Historic Places Continuation Sheet

Architectural Drawings

Charter Oak Mine and Mill
Powell County, Montana

Page 4



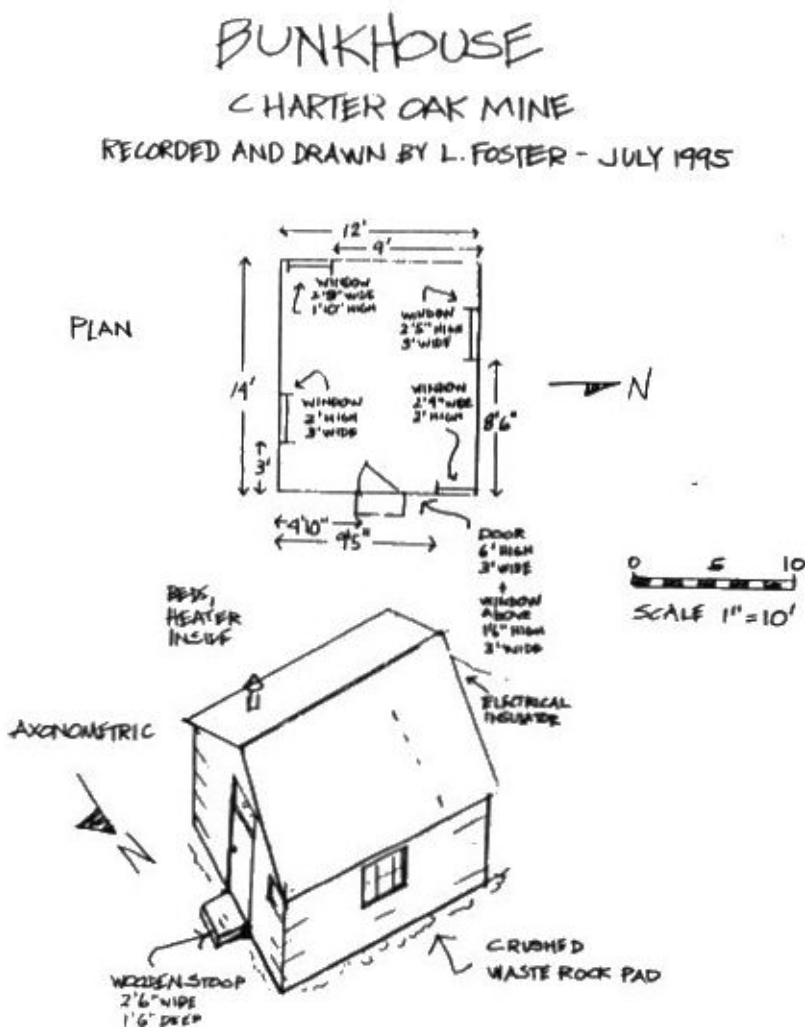
United States Department of the Interior
National Park Service

National Register of Historic Places Continuation Sheet

Architectural Drawings

Charter Oak Mine and Mill
Powell County, Montana

Page 5



BUNKHOUSE (ca. 1936-1945)

FROM BONNER OPERATION

OF HOPKINS' CHARTER OAK

MINE - BALLOON FRAME, ROUGH SAWN

HORIZONTAL PLANKS, ASPHALT ROLLED ROOFING

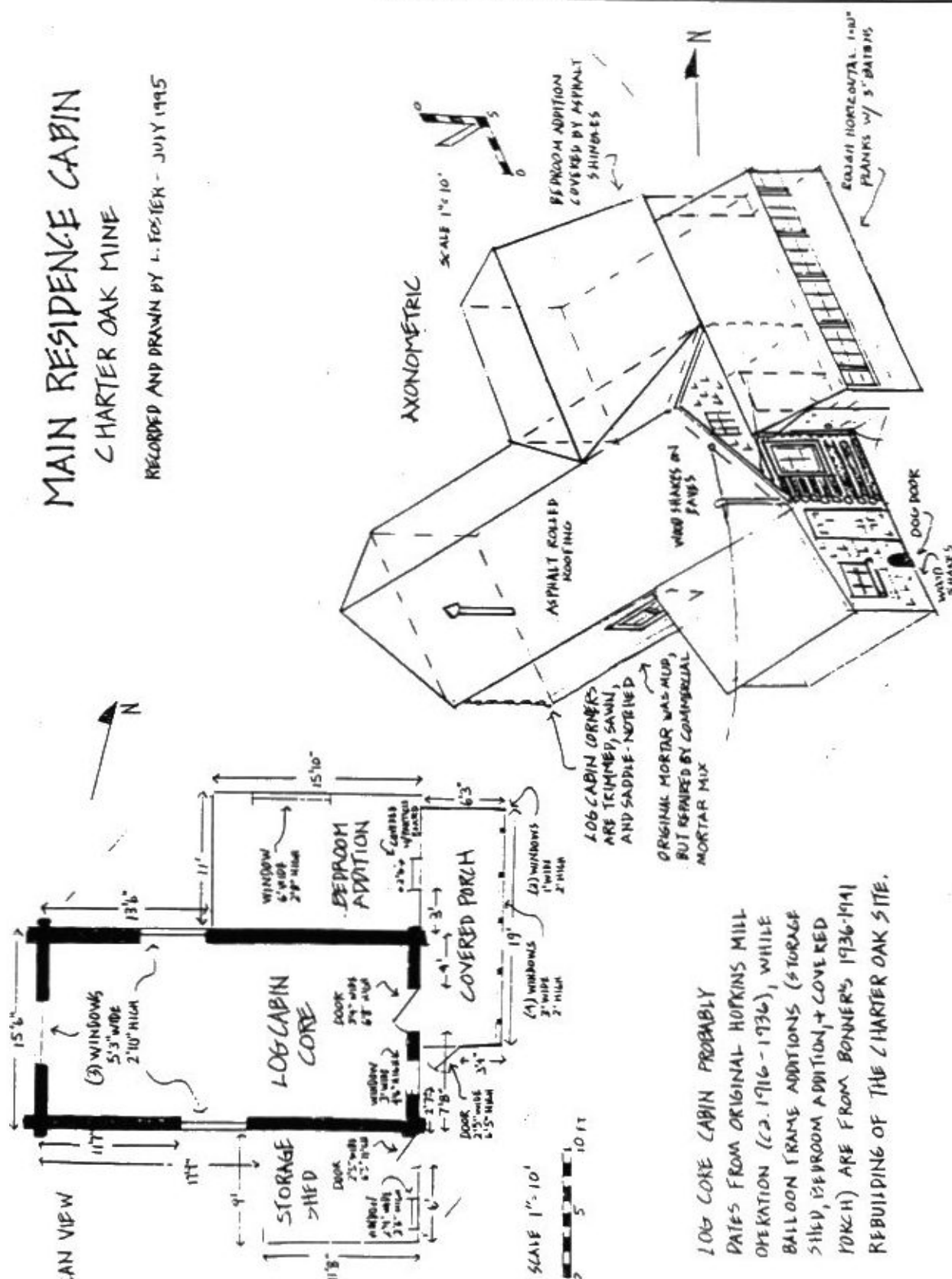
**United States Department of the Interior
National Park Service**

National Register of Historic Places Continuation Sheet

Architectural Drawings

Charter Oak Mine and Mill
Powell County, Montana

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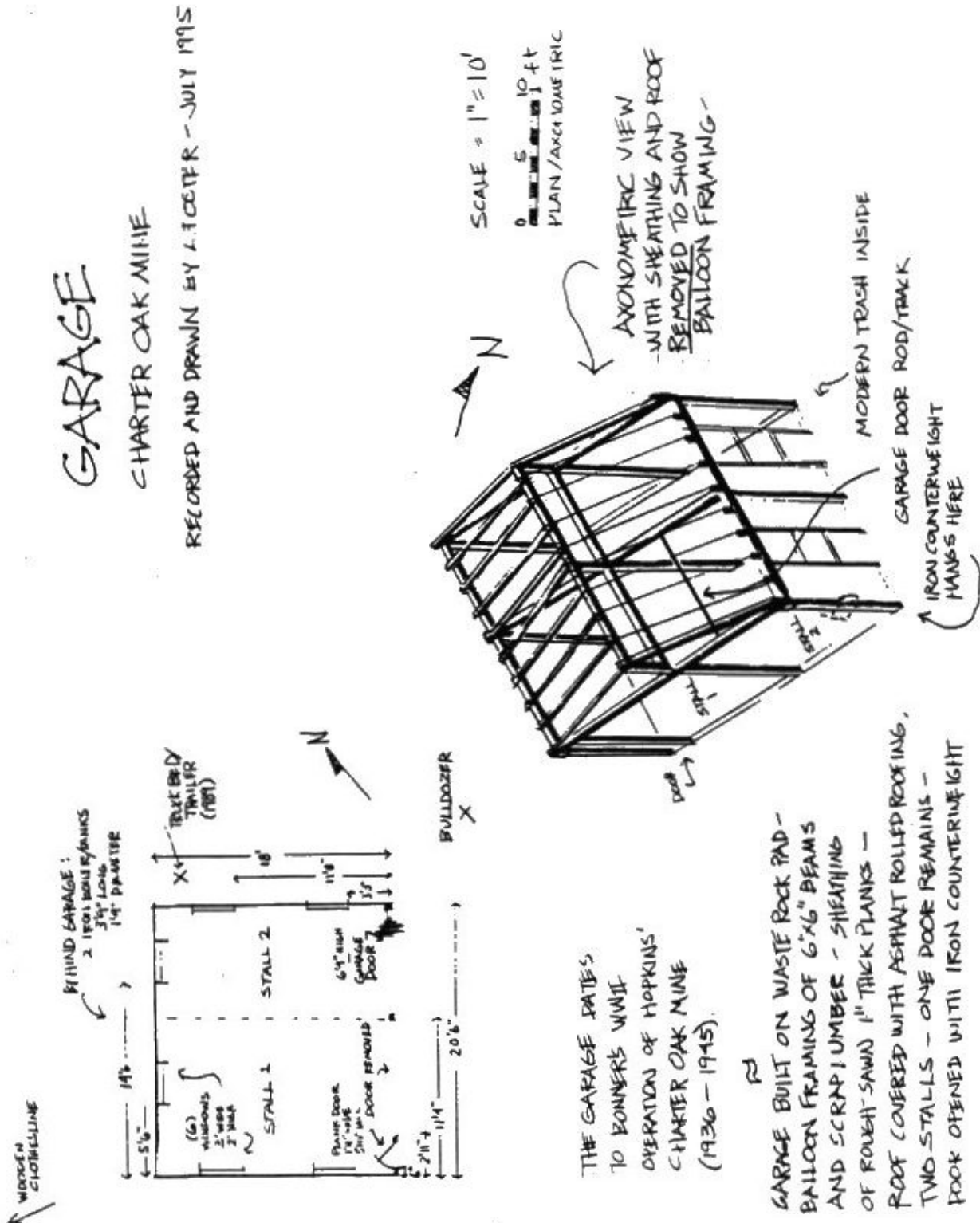
United States Department of the Interior
National Park Service

National Register of Historic Places Continuation Sheet

Architectural Drawings

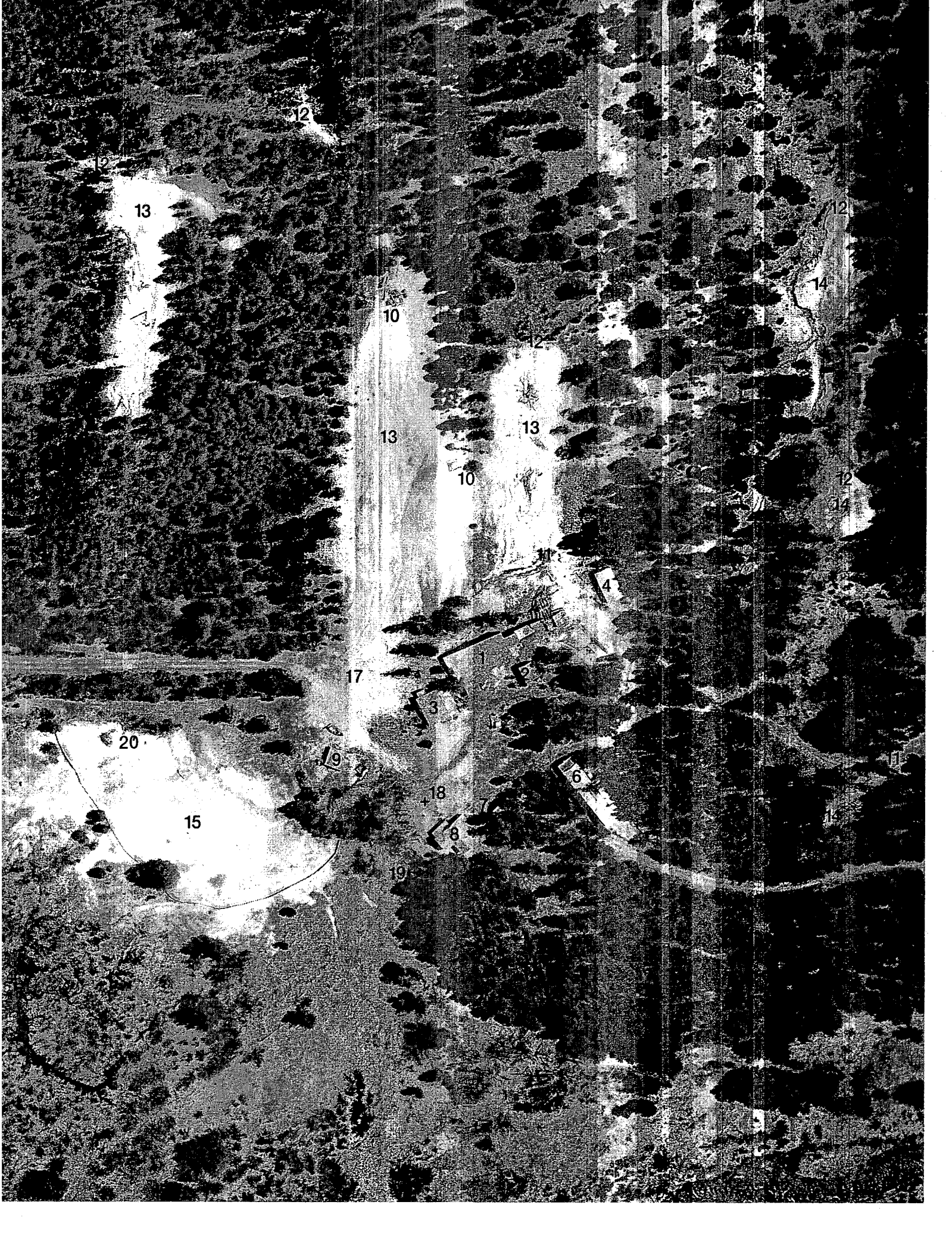
Charter Oak Mine and Mill
Powell County, Montana

Page 7



Page 8

AXONOMETRIC



Charter Oak Mine & Mill (24PW706)

Helena National Forest

Lewis & Clark County

Montana

United States Department of the Interior
National Park ServiceNational Register of Historic Places
Continuation Sheet

Section number _____ Page _____

SUPPLEMENTARY LISTING RECORD

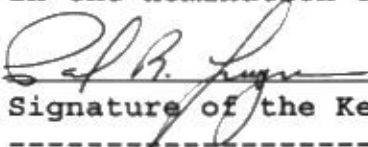
NRIS Reference Number: 01000038

Date Listed: 2/6/2001

Charter Oak Mine and Mill
Property NamePowell
CountyMT
StateN/A

Multiple Name

This property is listed in the National Register of Historic Places in accordance with the attached nomination documentation subject to the following exceptions, exclusions, or amendments, notwithstanding the National Park Service certification included in the nomination documentation.



Signature of the Keeper

2/6/01

Date of Action

Amended Items in Nomination:

Significance:

Engineering is added as an area of significance under National Register Criterion C, to reflect the significant nature of the remaining industrial resources.

The appropriate Levels of Significance are: *state and local*.

[While the property is associated with important national themes (war time industrial/mining production), the current nomination provides insufficient contextual information with which to establish national significance. Additional research and further comparative analysis may provide the necessary documentation.]

U. T. M. Coordinates:

The corrected UTM Coordinates are:

A.	12	390820	5149250
B.	12	391300	5149600
C.	12	391600	5149150
D.	12	391100	5148820

These revisions were confirmed with Carl Davis, Helena NF.

DISTRIBUTION:

National Register property file

Nominating Authority (without nomination attachment)

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES
EVALUATION/RETURN SHEET

REQUESTED ACTION: NOMINATION

PROPERTY Charter Oak Mine and Mill
NAME:

MULTIPLE
NAME:

STATE & COUNTY: MONTANA, Powell

DATE RECEIVED: 1/04/01
DATE OF 16TH DAY: 2/02/01
DATE OF WEEKLY LIST:

DATE OF PENDING LIST: 1/17/01
DATE OF 45TH DAY: 2/19/01

REFERENCE NUMBER: 01000038

NOMINATOR: STATE

REASONS FOR REVIEW:

APPEAL:	N	DATA PROBLEM:	N	LANDSCAPE:	N	LESS THAN 50 YEARS:	N
OTHER:	N	PDIL:	N	PERIOD:	N	PROGRAM UNAPPROVED:	N
REQUEST:	N	SAMPLE:	N	SLR DRAFT:	N	NATIONAL:	Y

COMMENT WAIVER: N

___ ACCEPT ___ RETURN ___ REJECT ___ DATE

ABSTRACT/SUMMARY COMMENTS:

The Charter Oak Mine and Mill is significant under National Register Criteria A and C in the areas of Industry and Engineering. First established in 1912, the site is an excellent example of early twentieth century hard-rock mining operations in Montana. The mine and mill played a particularly significant role in wartime "strategic metals" production during the 1940s and the extant resources illustrate the evolution of mining technology and engineering during the historic period, particularly the evolution of small-scale flotation mill technology.

[The current documentation establishes the significance of the complex at the state and local levels. Additional research and comparative analysis regarding the rarity of the extant mining technology illustrated at Charter Oak may reveal additional significance at the national level.]

RECOM./CRITERIA Accept Criteria A+C

REVIEWER Paul Lusignea

DISCIPLINE Historian

TELEPHONE 202-343-1628

DATE 2/6/01

DOCUMENTATION see attached comments Y/N see attached SLR (Y/N)



Charter Oak Mine

Powell Co. MT

8/15/00

overview of mine looking to SE

Photographer: Helena National Forest

Location of negative: Helena National Forest

Elliston, MT

photo 1

Charter Oak Mine

Site overview looking
to SE



Charter Oak Mine

Powell Co., MT

2/13/00

Overview of mine looking to NW

Photographer: Helena National Forest

location of negative: Helena National Forest

Elliston, MT

photo 2

Charter Oak Mine
Site overview looking
to NW



Charter Oak Mine

Powell Co., MT

8/15/00

overview of flotation mill building

looking SE

Photographer: Helena National Forest

location of negative: Helena National Forest

Elliston, MT

photo 3

Charter Oak Mine

overview of mill
building looking SE



Charter Oak Mine
Powell, Co, MT

8/15/00

overview of flotation mill
building looking E.

Photographer: Helena National Forest

Location of negative: Helena National Forest

Elliston, MT

photo 4

Charter Oak Mine
overview of mill
Bldg. looking E



Charter Oak Mine

Powell Co. MT

8/15/00

Overview of flotation mill

building looking NW

Photographer: Helena National Forest

Location of negative: Helena National Forest

Elliston, MT

photo 5

Charter Oak
mine looking
NW over mill



Charter Oak Mine

Powell Co, MT

8/15/00

west elevation of flotation mill
building looking East.

Photographer: Helena National Forest

Location of negative: Helena National Forest

Ellisten, MT

photo 6

Charter Oak Mine

Mill Bldg

west eleva.



Charter Oak Mine

Powell Co., MT

8/15/00

west elevation of flotation mill

building looking east

photographer: Helena National Forest

location of negative: Helena National Forest

Elliston, MT

photo 7

Charter Oak Mine

Mill Bldg

west eleva.



Charter Oak Mine

Powell Co, MT

8/15/00

East elevation of flotation mill

building looking SW

Photographer: Helena National Forest

Location of negative: Helena National Forest

Elliston, MT

photo 8

Charter Oak Mine

Mill Bldg

east eleva

looking SW



Charter Oak Mine

Powell Co., MT

8/15/00

East elevation of flotation mill
building looking west

Photographer: Helena National Forest

location of negative: Helena National Forest

Elliston, MT

photo 9
Charter Oak Mine
mill Bldg.
east eleva.
looking W



Charter Oak Mine
Powell Co., MT
8/15/00

mine adit and terraced hillside
looking east
Photographer: Helena National Forest
location of negative: Helena National
Forest

Elliston, MT

photo 10
Charter Oak Mine
Mine adit
and terraced
hillside



Charter Oak Mine

Powell Co., MT

8/15/00

waste rock pile

looking east

Photographer: Helena National Forest

Location of negative: Helena National
Forest

Elliston, MT

photo 11

Charter Oak Mine

waste rock
pile



Charter Oak Mine
Powell Co., MT

8/15/00

South elevation of garage

looking northwest

Location of negative: Helena National Forest

Photographer: Helena National Forest

Elliston, MT

photo 12

Charter Oak Mine

Garage

S eleva.



Charter Oak Mine

Powell Co., MT

8/15/00

South and east elevation of garage

looking north west

Photographer: Helena National Forest

Location of negative: Helena National Forest

Elliston, MT

photo 13

Charter Oak Mine

Garage

S + E elev.



Charter Oak Mine

Powell Co., MT

8/15/00

South elevation of main residence

looking north west

Photographer: Helena National Forest

location of negative: Helena National Forest

Elliston, MT

photo 14

Charter Oak Mine

Reside

S eleva



Charter Oak Mine
Powell Co., MT

8/15/00

west elevation of main residence

looking east

Photographer: Helena National Forest

Location of negative: Helena National Forest

Elliston, MT

photo 15

Charter Oak Mine

Main Residence

W. eleva.



Charter Oak Mine

Powell Co, MT

8/15/00

East elevation of main residence
looking west

Photographer: Helena National Forest

Location of negative: Helena National Forest

Elliston, MT

photo 16

Charter Oak mine

Main Residence

E elev.



Charter Oak Mine
Powell Co., MT

8/15/00

North elevation of main residence

Looking Southeast

Photographer: Helena National Forest

Location of negative: Helena National Forest

Elliston, MT

photo 17

Charter Oak Mine

Main Residence

N elevation



Charter Oak Mine

Powell Co., MT

8/15/00

West elevation of bunkhouse
looking east

Photographer: Helena National Forest

Location of negative: Helena National Forest

Elliston, MT

photo 18

Charter Oak Mine

Bunkhouse

St E eleva



Charter Oak Mine

Powell Co, MT

8/15/00

North and west elevation of
bunkhouse looking southeast.

Photographer: Helena National Forest

Location of negative: Helena National Forest

Elliston, MT

photo 19

Charter Oak Mine

Bunkhouse

N+W eleva.



Charter Oak Mine
Powell Co., MT

8/15/00

South and west elevations of electrical
storage shed looking northeast

Photographer: Helena National Forest
Location of negative: Helena National Forest

Elliston, MT

photo 20

Charter Oak Mine

Electrical Storage ~~Reservoir~~ Shed

S + W eleva.



Charter Oak Mine

Powell Co, MT

8/15/00

North elevation of electrical
storage shed looking south.

Photographer: Helena National Forest

Location of negative: Helena National Forest

Elliston, MT

photo 21

Charter Oak Mine

Electrical Storage ~~Reservoir~~ Shed

N eleva



Charter Oak Mine

Powell Co., MT

8/15/00

West elevation of electrical storage
shed looking east.

Photographer: Helena National Forest

Location of negative: Helena National Forest

Elliston, MT

photo 22

Charter Oak mine

Electrical Storage ~~Shed~~ Shed
W eleva.



Charter Oak Mine

Powell Co. MT

8/15/00

South and east elevations of
assay office facing northwest

Photographer: Helena National Forest

Location of negative: Helena National Forest

Elliston, MT

photo 23

Charter Oak Mine

assay office

S + E eleva.



Charter Oak Mine

Powell Co, MT

8/15/00

East elevation of assay office

facing west

Photographer: Helena National Forest

location of negative: Helena National Forest

Elliston, MT

photo 24

Charter Oak Mine

assay office

elev.



Charter Oak Mine

Powell Co., MT

8/15/00

North elevation of assay
office facing south.

Photographer: Helena National Forest
Location of negative: Helena National
Forest

Elliston, MT

photo 25

Charter Oak Mine
Assay office
Helena



Charter Oak Mine

Powell Co, MT

8/15/00

west elevation of assay
office facing east.

Photographer: Helena National Forest
location of negative: Helena National Forest

Elliston, MT

Photo 25A

Charter Oak Mine
Assay Office
W. eleva.



Charter Oak Mine

Powell Co, MT

8/15/00

East elevation of reagent
shed facing northwest

Photographer: Helena National Forest
Location of negative: Helena National
Forest

Elliston, MT

Photo 26

Charter Oak mine
Reagent shed to west
of Flotation mill



Charter Oak Mine

Powell, Co., MT

8/15/00

West elevation of compressor
building facing east.

Photographer: Helena National Forest

Location of negative: Helena National Forest

Elliston, MT

photo 27
compressor Bldg
Charter Oak Mine
West elevon



Charter Oak Mine

Powell Co., MT

8/15/80

East elevation of compressor
building facing west

Photographer: Helena National Forest
Location of negative: Helena National Forest

Elliston, MT

photo 28
Charter Oak Mine
Compressor Bldg.
E. elevn.



Charter Oak Mine
Powell Co., MT

8/15/00

North elevation of compressor
building facing south

Photographer: Helena National Forest
Location of negative: Helena National Forest

Elliston, MT

Photo 29
Charter Oak Mine
Compressor Bldg
N. eleva.



TO INFORMATION
FOR THE SERVICE

1944

Charter Oak Mine

Powell Co., MT

8/15/00

South elevation of compressor
building facing northeast

Photographer: Helena National Forest
Location of negative: Helena National Forest
Elliston, MT

photo 30

Charter Oak Mine
Compressor Bldg

S. eleva



Charter Oak Mine
Powell Co., MT

8/15/00

Load-out deck at south end of
flotation mill facing southwest

Photographer: Helena National Forest
Location of negative: Helena National Forest

Elliston, MT

photo 31

Charter Oak Mine
Load-out deck at
S. end of Flotation
Mill, facing SW



Charter Oak Mine

Powell Co., MT

8/15/00

load-out deck at south end of

flotation mill facing west

Photographer: Helena National Forest
location of negative: Elliston, MT
Helena National Forest

photo 32

Charter Oak Mine

Load-out deck
at S. end of
Flotation mill,
facing W



Charter Oak Mine
Powell Co. MT

8/15/00

load-out deck at south end of

flotation mill facing northeast.

Photographer: Helena National Forest
location of negative: Helena National Forest

Elliston, MT

photo 33

Charter Oak Mine
Load-out deck at
S. end of Flotation
Mill, facing NE



Charter Oak Mine
Powell Co., MT
8/15/00

Parking area at mine
facing northeast
Photographer: Helena National Forest
Location of negative: Helena National Forest
Elliston, MT

photo 34
Charter Oak Mine
Parking Area



Charter Oak Mine
Powell Co., MT

8/15/00

Interpretive Kiosk at mine
facing west

Photographer: Helena National Forest

Location of negative: Helena National Forest

Elliston, MT

Photo 35
Charter Oak Mine
Interp. Kiosk



Charter Oak Mine

Powell Co., MT

8/15/00

Portable compressor at mine site

Photographer: Helena National Forest

Location of negative: Helena National Forest

Elliston, MT

photo 36

Charter Oak Mine
portable compressor



Charter Oak Mine
Powell Co., MT
8/15/00

pre 1936
Flota tanks

Pre-1936 Flotation tanks
at mine site

Photographer: Helena National Forest
Location of negative: Helena National Forest

Elliston, MT

photo 37
Charter Oak mine
pre 1936 Flotation
Tanks



Charter Oak Mine

Powell Co., MT

8/15/00

Engine and flywheel

at mine site

Photographer: Helena National Forest

Location of negative: Helena National Forest

Elliston, MT

photo 38

Charter Oak Mine

Engine + Flywheel



Charter Oak Mine

Powell Co., MT

8/15/00

Dorr Co pump at mine site

Photographer: Helena National Forest

Location of negative: Helena National
Forest

Elliston, MT

photo 39

Charter Oak Mine

Dorr Co Pump



Charter Oak Mine

Powell Co., MT

8/15/00

WemCo classifier at
mine site

Photographer: Helena National Forest

Location of negative: Helena National Forest

photo 40

Elliston, MT

Charter Oak Mine

WemCo Classifier



Charter Oak Mine
Powell Co., MT
8/15/00

tramway +
railing

Tramway and railings on mine
site at base of waste rock pile.

Photographer: Helena National Forest
Location of negative: Helena National Forest

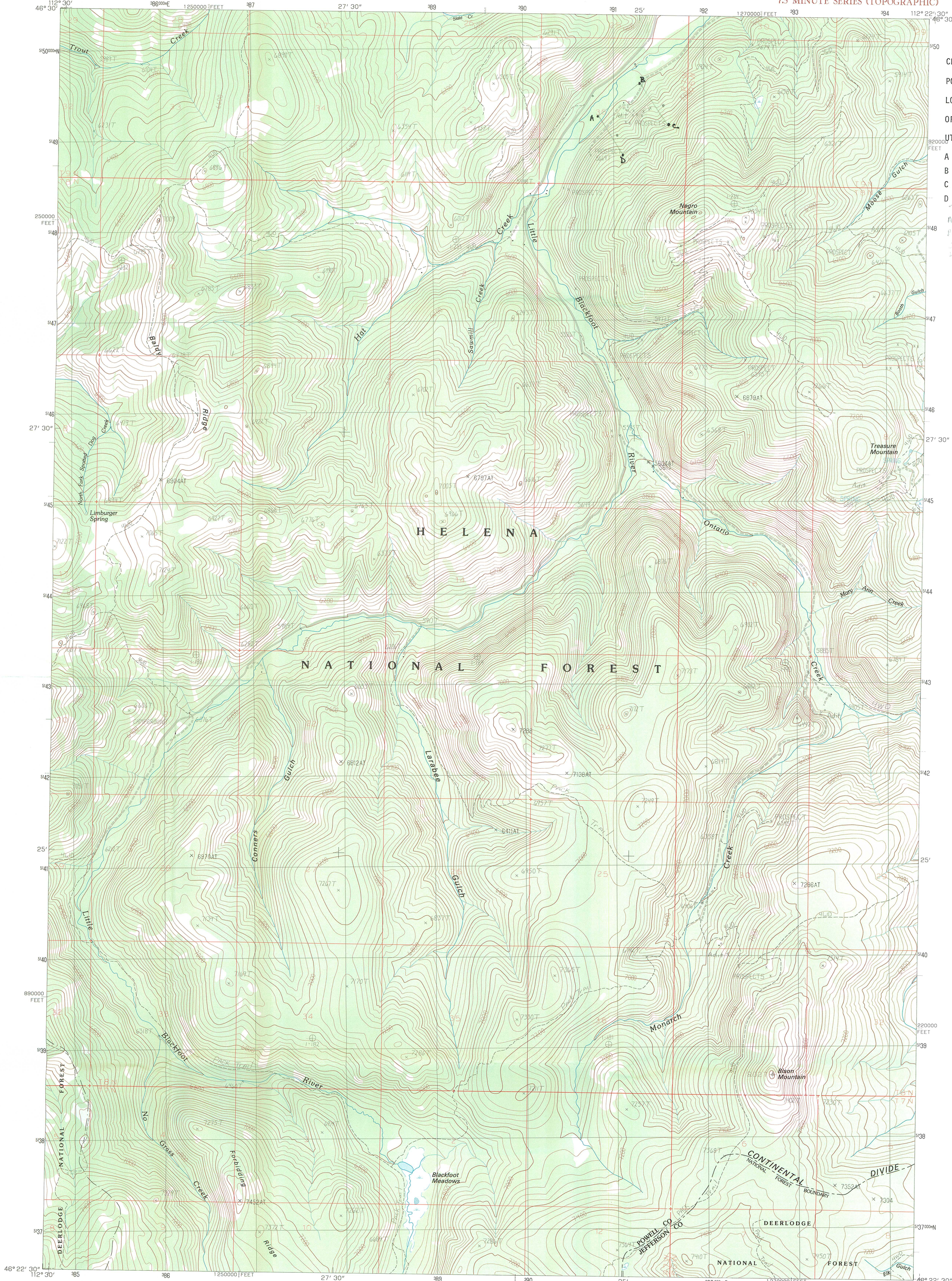
Elliston, MT

photo 41
Charter Oak mine
tramway +
railing

CHARTER OAK MINE AND MILL
POWELL COUNTY, MONTANA
LOCATED IN NE $\frac{1}{4}$, SE $\frac{1}{4}$, AND SW $\frac{1}{4}$
OF SECTION 36, T 4 N, R 1 W, MPM
UTM POINTS IN ZONE 12

A 390759E/5149448N
B 391233E/5149816N
C 391542E/5149355N
D 391049E/5149020N

A 391050E/5149020N
B 391050E/5149020N
C 391050E/5149020N
D 391050E/5149020N



PRODUCED BY THE UNITED STATES GEOLOGICAL SURVEY
CONTROL BY USGS, NOS/NOAA
COMPILED FROM AERIAL PHOTOGRAPHS TAKEN 1980
FIELD CHECKED 1981 MAP EDITED 1985
PROJECTION LAMBERT CONFORMAL CONIC
GRID DIMENSION UNIVERSAL TRANSVERSE MERCATOR ZONE 12
10000-FOOT STATE GRID TICKS MONTANA CENTRAL ZONE
AND SOUTH ZONE
UTM GRID DECLINATION 1902 WEST
1985 MAGNETIC NORTH DECLINATION 17° EAST
VERTICAL DATUM NATIONAL GEODETIC VERTICAL DATUM OF 1929
HORIZONTAL DATUM 1927 NORTH AMERICAN DATUM
To place on the predicted North American Datum of 1983,
move the projection lines as shown by dashed corner ticks
(11 meters north and 66 meters east)
There may be private inholdings within the boundaries of any
Federal and State Reservations shown on this map
All marginal data and lettering generated and positioned by
automated type placement procedures

PROVISIONAL MAP
Produced from original
manuscript drawings. Informa-
tion shown as of date of
field check. 2

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225
OR RESTON, VIRGINIA 22092



QUADRANGLE LOCATION

1	2	3	1 Avon
			2 Blinn
			3 MacDonald Pan
4		5	4 Pegg Creek
			5 Three Brothers
			6 Sugarloaf Mountain
6	7	8	7 Thunderbolt Creek
			8 Basin

ADJOINING 7.5' QUADRANGLE NAMES

ROAD LEGEND
Improved Road
Unimproved Road
Trail
Interstate Route U.S. Route State Route

BISON MOUNTAIN, MONTANA
PROVISIONAL EDITION 1985

46112-D4-TF-024