

CULTURAL RESOURCES REPORT COVER SHEET

Author: Stephen Emerson

Title of Report: Cultural Resources Survey of the Grandview Mine and Mill, Pend Oreille County, Washington

Date of Report: November 2009

County (ies): Pend Oreille Section: 22 Township: 39N Range: 43E

Quad: Metaline Falls Acres: 15

CD Submitted? Yes No PDF of Report? Historic Property Export Files?

Archaeological Site(s)/Isolate(s) Found or Amended? Yes No

TCP(s) found? Yes No

Replace a draft? Yes No

Satisfy a DAHP Archaeological Excavation Permit requirement? Yes # No

Historic Property Inventory Form:
Log Cabin at Grandview Mine

DAHP Site #:
45PO616 (Grandview Mine & Mill)

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Cultural Resources Survey of the Grandview Mine and Mill Site, Pend Oreille County, Washington

by Stephen Emerson

Principal Investigator: Stan Gough

Submitted to: Formation Environmental, LLC
CERCLA Docket No. 10-2009-0118

Short Report 1046
Archaeological and Historical Services
Eastern Washington University

December 2009

**Archaeological and Historical Services, Eastern Washington University
Cultural Resource Short Report Form**

Author: Stephen Emerson **Date:** December 2009
USGS Quadrangle(s): Metaline Falls WA 7.5', 1967 Photorevised 1986
Location (Sec., T, R): Section: 22; T39N; R43E

PROJECT DATA

Agency/Sponsor: Formation Environmental, LLC

PROJECT DESCRIPTION

Undertaking/Area of Potential Effects: The Grandview Mine and Mill Site (Grandview Site) is located about ½ mile northeast of the community of Metaline Falls, Washington (Figure 1). The area of potential effects (APE) for the Grandview Site consists of approximately 15 acres (Figure 2). The APE was determined to be the area that has been directly affected by mine and mill activities, including the mine, the mill, and tailings disposal features to their western extent at the Pend Oreille River bluff. The project is a proposed cleanup effort designed to mitigate potential exposures of human and ecological receptors to metals (arsenic, cadmium, lead, manganese, and zinc) in tailings, development rock, and possibly concentrate accumulations at the mine site, as well as to soil containing semi-volatile organic compounds. A limited number of removal action alternatives have been developed for evaluation, including excavation and on- or off-Site containment, consolidation, or treatment. Excavation of the tailings, development rock, and soil will be implemented to the depth necessary such that remaining soil contains metals concentrations not to exceed Federal or State cleanup levels. Structures associated with the former mining and milling operations will be removed only to the extent necessary to implement the removal action (Formation, 2009).

Cultural Resource Task(s): Archaeological and Historical Services (AHS), Eastern Washington University, conducted a site file search, of documents housed at the Department of Archaeology and Historic Preservation (DAHP) in Olympia, and field survey of the described project APE and prepared this report of findings and recommendations.

LOCATION

Project/locational information: The project APE is located in Pend Oreille County about ½ mile northeast of the town of Metaline Falls (see Figure 1).

Landowner(s): Washington Resources, LLC, Spokane, Washington; Teck American Incorporated, Spokane, Washington; Seattle City Light, Seattle, Washington.

ENVIRONMENTAL BACKGROUND

Setting/Landform(s)/Vegetation: The project area lies within the Okanogan Highlands physiographic province, a region repeatedly covered by glacial ice during the Pleistocene. Topography is generally mountainous, with moderate slopes and peaks, and cut by major and tributary river valleys, the largest of which run north and south. Wide valleys conducive to agriculture are found in some drainage systems (Franklin and Dyrness 1973).

The underlying geology of the project area, and of the northeastern Washington region in general, is the result of several natural processes which slowly evolved over many eons. These are briefly summarized in a bulletin released by the Washington State Division of Geology in 1924:

There appear to be four great outstanding epochs in the geological history of northeastern Washington. The earliest of these epochs is represented by a vast series of metamorphic rocks; the second by intrusive granite; the third by the intrusive dikes, largely basic, and extrusive basic lavas; and the fourth by the various evidences of ice and water, glacially carved canyons, and immense masses of sand and gravel deposits. The lack of fossil evidence in the rocks (excepting in the Tertiary lake beds which accompany the extrusive lavas) accounts for the uncertainty expressed by geologists in assigning any particular age to any particular geological formation of these four periods. It is generally believed, however, that the metamorphic rocks belong to the Paleozoic and early periods; that the granite (for the most part) forms a batholith which was intruded in the Mesozoic time; that most of the lavas and accompanying basic dikes belong to the Tertiary period; and that the signs of glaciation represent the Glacial period of Pleistocene age. Mineralization took place at a time apparently following the intrusion of the granite batholith. The rocks in which the mineralized solutions were precipitated are in part igneous rocks and part metamorphic. A large part of the precipitation took place, however, in the dolomitic limestones of this metamorphic series [Jenkins 1924:26].

Erosion exposed portions of the mineralized material, where they were discovered by prospectors in the late 1800s, leading to hard rock mining efforts in the area that came to be called the Metaline Zinc-Lead District of Pend Oreille County.

Most of the naturally occurring soils within the project APE have been removed during the course of mining activities, to such a degree that the Soil Survey of Pend Oreille County categorizes them as “pits.” Mining pits and quarries occur primarily in places where the underlying bedrock is at or very near the surface. In some instances, small areas of soil remain that have not been excavated or are on the periphery of the mined or disturbed area. At the Grandview Site, the most likely peripheral soil to be encountered is classified as Dufort silt loam, a deep well-drained soil of the foothills developed in a mantle of volcanic ash and loess over glacial drift. These soils are useful for woodland grazing, non-irrigated crops, and home site

development. The dominant evergreen species in this woodland environment are Douglas fir, ponderosa pine, western larch, and lodgepole pine, along with some western white pine and grand fir (Donaldson et al. 1992). Deciduous trees noted during the survey include aspen and cottonwood. Understory plants and introduced weeds noted include wild rose, ferns, Oregon grape, thimble berry, kinnikinnick, mullein, knapweed, sweet pea, Dalmatian toadflax, and various grasses. Cattails were found at several springs.

Ground Surface Conditions: Ground surface visibility was excellent throughout most of the project APE; 100 percent in some particularly disturbed places (Figure 3). Some areas along the periphery of the project APE were thickly vegetated, lowering visibility to 10 percent (Figure 4). Average ground surface visibility was about 80 percent. The sparse vegetation is due to several factors, including disturbance due to construction, excavation, and other mine activities and, presumably, due to the deleterious effects of the presence of metals, especially lead.

ETHNOGRAPHIC/HISTORIC BACKGROUND

The project area lies within the ancestral territory of the Kalispel or, more specifically, the Lower Kalispel, people who primarily lived along the Pend Oreille River, between Lake Pend Oreille and the mouth (Teit and Boas 1996:276). Like other Native American groups of the region, the Lower Kalispel followed a lifestyle centered on a seasonal resource procurement cycle, in which people moved to different locations to hunt, gather, and fish as various resources became available. Winters were ordinarily spent in large villages situated on major waterways, while smaller camps could be found at scattered seasonal locations. Ethnographer Verne Ray places the primary Lower Kalispel villages at points upstream from the vicinity of the project area (Ray 1936:103). However, temporary hunting or root and berry gathering camps were likely located nearby.

North West Company fur trader and geographer David Thompson first brought the fur trade to the Pend Oreille Valley in 1809. That company was later followed by the British-Canadian Hudson's Bay Company. Jesuit missionaries followed on the heels of the fur trade, establishing a mission on the river. Gold strikes in the 1850s encouraged a large number of Euro-Americans to enter the Kalispel homeland. The discovery of gold at Sullivan Lake, in 1859, brought prospectors to the site of present day Metaline Falls, where a settlement grew up due to its river location. The small community was accessible only by steamboat and trail until the first Metaline Falls Bridge was built in 1920. Lewis Larsen, who had the town platted in 1910, discovered limestone in the vicinity in 1905. Limestone mining and processing, a key element in producing cement, became the chief economic endeavor at Metaline Falls. Electricity for the town and the cement plant was provided by the Sullivan Lake Hydroelectric Project, which stored water at Mill Pond and released it through a pen stock to turn the turbines at a power plant on Sullivan Creek, at the bottom of a steep incline. The construction of the Idaho & Washington Northern Railroad into Metaline Falls, in 1910, greatly facilitated the shipment of cement, and

the cement production industry became the mainstay of the town's economic prosperity (Komen 2001:4-5).

Aside from the limestone holdings, the region around Metaline Falls contained great quantities of ore that held various metals, especially lead and zinc, as well as some silver and other metals. The area became known as the Metaline Mining District and from the late 1920s to the early 1950s it was the most important mining district in the state of Washington (Bamonte and Bamonte 1996:58). One of the largest of these ore-bodies was discovered only a short distance northeast of town, becoming known as the Grandview mine. The first claims at the vicinity were reportedly made in the late 1880s (Bamonte and Bamonte 1996:61; Jenkins 1924:59). As with most mines in the District, the first discoveries at Grandview were made on the surface. Initial mining took the form of open pits, known as glory holes (Bamonte and Bamonte 1996:61). A 1924 report noted that early prospecting had been done in "open cuts and natural caves" (Jenkins 1924:60). One of the men involved with early operations at the mine site was G.M. Welty, who reported in 1908 that the location had great potential but that little work had yet been done on the "broken surface" (*Spokane Daily Chronicle* 1908:10).

By 1924, however, men had turned their efforts to sub-surface "hard rock" mining. A tunnel had been bored into the steep hillside, encountering ore at 75 feet and continuing on an equal distance (Jenkins 1924:60). The first recorded production at the Grandview mine was in 1924, when 217 tons of ore were removed, from which over 135,000 pounds of lead was produced. That year the mine was owned by a man named J. McGinn. Subsequently the owner's name was given as Grandview Mining Company. Production at the Grandview mine reached its early peak in 1929, the year a 200-ton capacity flotation mill was installed at the site. By this time, zinc production, over two million pounds, had outstripped lead production, a pattern that would be maintained throughout the life of the mine. In 1930, production dropped precipitously, due to a reduction in the market prices for metals. Then it closed for the remainder of the decade, before resuming production in 1940 (Derkey et al. 1990:21; Moen 1976:19). But the mill continued to operate during the 1930s, with ore provided from other nearby mines.

In early 1932, the Grandview Mining Company sold its mill to the Pend Oreille Mines Company for \$100,000. The new owners intended to greatly expand the capacity of the mill through modernization and moving equipment from other mills to the site (*Spokane Daily Chronicle* 1932:1). To supply sufficient power to the revamped mill, Lewis Larsen had been attempting to acquire a permit to build a dam at the location of the Metaline Falls rapids of the Pend Oreille River, at the foot of the bluffs below the Grandview mine and mill. He was granted permission to build a power house but not a dam. To provide water power for the plant it was necessary to construct a tunnel beneath the falls to carry water to the plant's turbines (McCain 2002:83). It was reported that the company employed about 60 men in boring the tunnel, working in three shifts, day and night (*Spokane Daily Chronicle* 1936: 22). During the process of improving the Grandview mill, it was closed several times. When it reopened in the fall of 1937, it had a capacity of 300 tons (*Spokane Daily Chronicle* 1937:3). The mill underwent further improvements in 1938 and reopened again in the fall, ready to process a huge backlog of mined

ore that had been piling up in the trucks and bins. By this time, the Grandview mill had come under the overall control of the American Zinc, Lead and Smelting Company, a major developer and funding source for the Metaline Mining District. This company hoped also to reopen the Grandview mine itself soon (*Spokane Daily Chronicle* 1938:11). Indeed, the mine did reopen in 1940, producing nearly a million and a half pounds of zinc and nearly 400,000 pounds of lead. World War II sent the demand for metals soaring, and production at the Grandview mine more than quadrupled in 1941, where it stabilized for the remainder of the war (Derkey et al. 1990:21). In 1942, the capacity of the Grandview mill was again increased, to 600 tons a day (Fulkerson and Kingston 1958:9). By February of 1946, it was announced that the Grandview mine was the leading producer of zinc and lead in Washington State (*Spokane Daily Chronicle* 1946:14).

Following the war, after a peak year of 1947, production at the Grandview mine was reduced as the demand for metals fell. Then, in 1948, production dropped precipitously when workers at the mine and the mill went on strike, prompted to do so by the CIO Mine, Mill and Smelter Workers Union. The owner offered significant pay increases, but wages were not the problem, and the offer was rejected. The problem lay in the refusal of the owners to recognize the Union unless the leaders signed affidavits that they were not members of the Communist Party. The shadow of McCarthyism was approaching, in the form of the Taft-Hartley Act, which required such affidavits. The union officers protested that they were not communists, but refused to sign the affidavits as a matter of principal. Remarkably, most workers went along with this approach and walked out on July 1, 1948 (*Spokane-Daily Chronicle* July 1, 1948a:3). The strike went on with only a few violent incidents. In July, dynamite blasts were set off near the homes of two miners that continued to work, walking past the pickets at the entrance to the mine and mill (*Spokane Daily Chronicle* 1948b:1). At about the same time there were reports that a miner had been beaten by striking workers (*Spokane Daily Chronicle* 1948c:1). Other similar incidents led to the charging of nine striking Grandview workers with assault, housebreaking, and kidnapping. Some were held in jail (*Spokane Daily Chronicle* 1949a:1). But, in July of 1949, the CIO Mine, Mill and Smelter Workers Union relented, and signed the hated affidavits, allowing work to proceed at the Grandview mine and mill (*Spokane Daily Chronicle* 1949b:37). Apparently, charges were dropped against the strikers.

In the years immediately following the strike, production at the Grandview mine spiked, reaching an all time high of more than 13 million pounds of zinc and nearly 9 million pounds of lead in 1950. The operation was showcased in an article that appeared in Barron's Magazine, titled "Zinc Bonanza" (*Spokane Daily Chronicle* 1953:17). Production dropped in 1954, partly because of a short-lived strike, but more probably due to economic conditions. By this time the mine was owned by the Grandview Mines Company, but the mine and the mill were operated by the American Zinc, Lead and Smelting Company (*Spokane Daily Chronicle* 1954:8). Mining activity at Grandview received another blow on June 28, 1955, when a lighting-damaged oil switch caught fire and the mine's compressor house was destroyed by flames. The building housed compressors and a blacksmith shop. The compressors supplied and circulated fresh air within the mine tunnels. Their destruction idled 25 underground mine workers until the facility could be replaced (*Spokane Daily Chronicle* 1955:1). Yet another catastrophe temporarily closed

the mine on April 10, 1956, when the Lehigh Portland Cement Company's flume, which provided water for the Grandview operation, was broken. The mining and milling activities required about 500 gallons of water per minute. The American Zinc, Lead and Smelting Company scrambled to install a pumping system to bring water from Sullivan Creek. Meanwhile the normal working compliment of 65 men was reduced to 20 maintenance men (*Spokane Daily Chronicle* 1956a:1).

The next year, 1956, saw a series of incidents that approached comical farce as they unfolded and led to a change of ownership of the Grandview mine and mill. On April 12, 1956, an article appeared in the *Spokane Daily Chronicle* announcing that development of a new level of the mine had just been completed by the American Zinc, Lead and Smelting Company. Also mentioned was the production of a new mucking and mining machine (muck is the non-usable rock that results from blasting) called a "gizmo," that had been developed at the mine. The article went on to report that the company had sold 33 of these devices, realizing an income of \$36,374.00 (*Spokane Daily Chronicle* 1956b:16). The owners of the mine, Grandview Mine, Inc., were shocked when they read of the unreported profit from a machine that had been developed in *their* mine, without any compensation to the owners. When they dug deeper, they found that Grandview Mine, Inc., had not received a percentage of mine and mill profits, as required by an agreement that originated in 1936. The payments had not been made since 1953. Grandview Mine, Inc., promptly filed a law suit for the amount of \$416,000.00 (*Spokane Daily Chronicle* 1956c:15). The American Zinc, Lead and Smelting Company denied the allegation, claiming that it was the result of a misunderstanding (*Spokane Daily Chronicle* 1956d:14). Ultimately, Grandview Mines, Inc., agreed to sell the mine and the mill to the American Zinc, Lead and Smelting Company for \$416,925.00, an amount slightly larger than that of the settlement they sought. Subsequently, the suit was dismissed (*Spokane Daily Chronicle* 1956e:17).

In 1957, The Grandview mill was once again enlarged and improved, bringing its capacity up from 600 tons daily to 1,600 tons per day. It was handling ore trucked from other mines in the vicinity, such as the Metaline mine, as well (Dings and Whitebread 1965:58). The expansion of the underground workings of the Grandview mine in the 1940s and 1950s was impressive. A 1943 map of the mine shows a long development shaft running northward in the bluff. About 1,000 feet along the shaft, another shaft forks eastward to the vicinity of the original glory hole. The main passage continues for about another 1,000 feet, finally reaching several stopes, wider corridors where the actual mining takes place (Park and Cannon 1943: Plate 31). A 1955 map indicates that the mine underwent massive expansion to the east and northeast of where the 1943 diggings ended. Here there was a sprawling warren of large stopes and interconnecting tunnels. But the excavations were being encroached upon by the Pend Oreille mine's works to the northwest. Only a thin wall now separated the two underground systems (Dings and Whitebread 1969: Plate 3). Not only that, but the Grandview was running out of ore with sufficient metal content. Production decreased and, finally, the mine was shut down in 1964 (Moen 1976:19). It is likely that the mill continued to operate for a few more years, processing ore from the Pend Oreille mine.

Traditional Cultural Properties: Records on file at the Washington State DAHP do not indicate any traditional cultural properties (TCPs) have been reported, at this time, within or near the project APE. However, Native Americans are known to have gathered plant resources, as well as fished and hunted, in the general vicinity.

Previously recorded cultural resources within project area: None

Previously recorded cultural resources near project area: Four properties within Metaline Falls, about ½ mile southwest of the project APE, are listed in the National Register of Historic Places (NRHP). These are the Washington Hotel (45PO125), the Cutter/Larsen House (45PO125), the Cutter Theater (45PO510), and the Lewis Larsen Apartments (45PO511). The Sullivan Lake Hydroelectric Project Powerhouse, about ½ mile south of the project APE, has been determined eligible for listing in the NRHP. About ¼ mile southeast of the project area is site 45PO577, Pend Oreille Mine remnants that have been determined NRHP eligible. A number of sites associated with mining have been recorded across the Pend Oreille River from the project APE, including a mine adit (45PO594), not eligible for listing in the NRHP; the Chickahominy prospect (45PO573), NRHP eligible; remnants of the Josephine Mine (45PO520), potentially eligible; the Frisco Lode mill site (45PO 519), potentially eligible; the Flume Creek aqueduct (45PO575), eligible; and mining remnants (45PO579), not eligible. Recently, all of these resources previously recorded on the west side of the Pend Oreille River have been incorporated as contributing elements of a newly established Josephine Mine Historic Mining District (DT216). Other nearby recorded sites on the west side of the river include a trash dump (45PO572), not eligible; and a railroad bed (45PO593), not eligible. None of these resources will be affected by proposed project activities.

CULTURAL RESOURCE SURVEY RESEARCH DESIGN

Objectives: The objective of this study is to assist Formation Environmental in compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, by the location and preliminary characterization of both previously and as yet unidentified cultural resources within the project APE and to offer recommendations regarding resource eligibility for listing in the NRHP.

Area surveyed: The entire project APE was surveyed, approximately 15 acres.

Methods: A site search was conducted at DAHP to determine if cultural resources have been previously identified within or near the project area. Background research was conducted at local repositories. Historian Stephen Emerson and archaeologist Dana Komen surveyed the entire project area using pedestrian transects 30 meters (100 feet) or less in width. All structures and structural remnants were recorded using descriptive notes and digital photography. Also,

representative photographs were taken depicting landscape appearance and miscellaneous debris. Structural remnants and other features were located on a map using GPS.

Finally, this survey report was produced, presenting findings, conclusions, and recommendations concerning future management of cultural resources. All photographs, field notes, maps, correspondence, and other records generated during this study are on file at the AHS office in Cheney.

RESULTS X positive _ negative

Cultural resources recorded/observed:

- | | | |
|--|---|--|
| <input checked="" type="checkbox"/> building(s) | <input checked="" type="checkbox"/> site(s) | <input checked="" type="checkbox"/> structure(s) |
| <input type="checkbox"/> historic district(s) | <input checked="" type="checkbox"/> feature(s) | <input type="checkbox"/> isolated find(s) |
| <input checked="" type="checkbox"/> see attached | <input checked="" type="checkbox"/> artifact(s) | <input checked="" type="checkbox"/> object(s) |

Prehistoric Resources

No prehistoric cultural resources were identified during the survey. The lack of prehistoric cultural material is probably due to several factors. In general, the project APE is considered to possess low potential for prehistoric cultural resources. It lacks the permanent water sources necessary for any but the most ephemeral of cultural activities. Furthermore, the project APE has been subjected to extensive surface disturbance for many years, especially mining activity, the effects of which were so profound that most of the project APE lies within an area described in soil surveys as a pit (i.e., nearly devoid of intact sediments).

Historic Resources

A total of 33 individual cultural resources were recorded during the course of the survey. Included were a log cabin associated with the mill and buildings/structures/features related to the operation of the Grandview mine and mill. Aside from these items, the APE is littered with a wide variety of debris, including waste rock, structural remnants, equipment parts, and other discarded items. Debris was routinely pushed to the periphery of the project APE and, after mining activity was abandoned, into the tailings drainage ditch.

The two-story log cabin (Field No. GV-14, see below) was built near the Grandview mill complex, likely in 1929, when the mill was constructed. Of course there is the possibility that the cabin is even older, dating back to the homesteading period. This particular cabin, however, is far more advanced in design and structure than the typical homestead log house. By the 1940s, a small community had developed south of the cabin, in the area that came to be known as Grandview Flats. Miners, and often family members, lived in wood frame structures and makeshift shacks and tents. All of these structures are now gone, with only a few foundations and miscellaneous debris left to mark their location. With one exception, these are outside of the

project APE. In the early 1950s, a community of small houses, called Pend Oreille Village, was built to house the families of men who worked in the Pend Oreille mine. Many of these families were from Europe and did not speak English (Tony Bamonte, personal communication August 6, 2009). The remnants of this community now consist of several rental houses. These are also outside of the APE.

The log cabin was recorded on a Washington State Historic Property Inventory Form, while other resources within the project APE were recorded on a Washington State Archaeological Site Inventory Form (Appendix A–Site 45PO616). Table 1 identifies individually recorded cultural resources, along with their field identification numbers. The numbers correspond to the numbers on the map locating recorded resources (Figure 5). Individual descriptions of each resource are presented below by field number. Only the cabin (GV-14) is eligible for listing in the NRHP.

Table 1. Cultural Resources Recorded in the Grandview Mine Project APE.

Field No.	Resource (Type)
GV-1	Down gradient ditch (feature)
GV-2	Man-made ditch (feature)
GV-3	Drainage ditch (feature)
GV-4	Tailings accumulation (feature)
GV-5	Ore cart (object)
GV-6	Sluice valve spigot house (abandoned building)
GV-7	Sluice valve spigot control (object)
GV-8	House foundation (structural ruin)
GC-9	Assay shed/wash room (abandoned building)
GV-20	Mill foundation (structural ruin)
GV-11	Unidentified concrete building foundation No. 1 (structural ruin)
GV-12	Electrical enclosure fence (object)
GV-13	Generator house (abandoned building)
GV-14	Log cabin (building)
GV-15	Shed (building)
GV-16	Garage/shed (building)
GV-17	Crushed rock storage silo (structural ruin)
GV-18	Toppled concrete pier (structural ruin)
GV-19	Rock crusher (structural ruin)
GV-20	Coal storage bin (structural ruin)
GV-21	Concrete piers and cart track remnant (structural ruin)
GV-22	Ore sample shed (abandoned building)
GV-23	Compressor house (abandoned building)
GV-24	Spring box (structural ruin)
GV-25	Fallen electrical tower (structural ruin)
GV-26	Mine adit (feature)
GV-27	Unidentified concrete platform (structural ruin)

Table 1, continued.

Field No.	Resource (Type)
GV-28	Ore cart (object)
GV-29	Ore cart engine No. 1 (object)
GV-30	Ore cart engine No. 2 (object)
GV-31	Unidentified concrete building foundation No. 2 (structural ruin)
GV-32	Unidentified concrete building foundation No. 3 (structural ruin)
GV-33	Explosive powder storage house (abandoned building)

GV-1, Down gradient ditch: This feature is the route of tailings discharged from the tailings accumulation area as represented by several shallow ditches that extend from the Tailings Accumulation Area to the bluff that forms the river's edge. No evidence of wood flumes or any other structures was noted.

GV-2, Man-made ditch: This feature appears to be a man-made alternative drainage route for tailings passing down the main drainage ditch. This ditch is located north of the Tailings Accumulation Area and extends to the bluff that forms the river's edge. No evidence of wood flumes or any other structures was noted.

GV-3, Drainage ditch: This feature is a long (ca. 900 feet) ditch through which tailings were discharged via a wood flume structure. The ditch is an artificial construction but builders likely took advantage of an already-existing surface water runoff channel. The only remaining evidence of a flume structure is at the western end of the ditch, where wood structural flume remnants are visible (Figure 6).

GV-4, Tailings accumulation area: This feature is a large surface depression filled with mine tailings. Near the eastern end of the depression is a pile of what are probably tailings gathered during a previous clean-up effort, likely that of the nearby Pend Oreille Village. The pile is partially covered with earth covered with plastic held in place by sand bags (Figure 7). Where the plastic has torn away, vegetation is thick. The rest of the tailings accumulation area is nearly devoid of vegetation.

GV-5, Ore cart: This object appears to be an ore cart of the type typically used to transport rock and ore along tracks (Figure 8). It is uncertain if it is directly associated with the Grandview mine or if it was simply disposed of here.

GV-6, Sluice valve spigot house: This is a small (6 feet by 10 feet) wood frame gabled building that houses a spigot from which water was presumably discharged to force tailings down the drainage ditch and flume (Figure 9). It is situated at the eastern, high end of the drainage ditch.

GV-7, Sluice valve spigot control: This metal object appears to be an on-off switch used to control the flow of water to the sluice valve spigot from an underground source, perhaps a drilled well (Figure 10).

GV-8, House foundation: This foundation appears to be domestic in nature and was probably associated with the small community of mining employees that formed at Grandview Flats (Figure 11). All that remains of this house are the poured concrete platform, some stem walls, and some plumbing pipe remnants.

GV-9, Assay shed/wash house: This abandoned building is a gabled wood frame structure (16 feet by 50 ft) (Figure 12). The roof has moderately overhanging eaves with exposed rafter ends. Both the roof and exterior walls are clad with corrugated metal sheeting. The floor and foundation are poured concrete. A small shed-roofed addition is attached to the east side and may have served as a wood shed. Two wood sash double-hung windows, broken, are located on the east end of the south elevation and a square window opening, missing the sash, is located on the west end of the building. The other windows, two on the north elevation and one on the south, are large multiple-pane metal sash units. A large wood plank sliding door is located on the east end of the building, while another wood panel door lies on the floor of the west room. The interior of the building is divided into two parts, with the eastern two-thirds occupied by the assay and test lab room, and the western third occupied by the wash room. The interior of the assay and test lab was provided with wall board coverings on the ceiling and walls, but most of this material has fallen to the floor, leaving the wood frame exposed. A wood shelf occupies most of the west wall of the room, and a poured concrete block, with mounting bolts, is visible at the northwest corner. In the adjacent washroom, the wall board is more intact (Figure 13). The room is partially filled with debris, including car parts. Metal and wood benches line the north and south walls (one of which is collapsed). Shelves and wood coat racks are mounted on the east wall. In the northwestern corner is a toilet room with a broken porcelain commode. At the center of the west wall is a half-circular terrazzo sink basin, with spray spigot above and foot control bar below. In the southwest corner is a shower room with broken pipes and linoleum on the walls.

GV-10, Mill foundation: The mill ruins occupy a roughly 100 foot by 100 foot space. Concrete remnants include the concrete floor, foundation, stem walls, and equipment mounting blocks which tend to rise higher toward the back (north) end of the facility due to the tiered nature of the flotation process (Figure 14). The equipment mounts are massive, often in the shape of truncated obelisks. Some have machine mounting bolts projecting from the top flat surfaces. Rusting metal components are scattered about, including a hopper. The most intact portion of the mill is at the south end, where trucks were filled with ore from overhead bins (Figure 15).

GV-11, Unidentified concrete building foundation No. 1: This small foundation (about 20 feet by 12 feet) may have been a vehicle garage (Figure 16). Remnants include the concrete floor and stem walls.

GV-12, Electrical enclosure fence: This is an area enclosed by a chain link fence that once contained electrical switches, transformers, and associated equipment, since removed (Figure 17).

GV-13, Generator House: This abandoned building is a two-story wood frame rectangular structure, with a shed-roofed addition on the south side (Figure 18). The gabled roof is clad with corrugated metal sheeting and has exposed rafter ends. The exterior walls are clad with corrugated metal as well. The windows are multiple-pane wood sash double-hung units, mostly broken. A metal-clad lift up vehicle door is situated in the center of the east wall. The foundation and interior floor are poured concrete. The building has a timber beam superstructure with timber trusses supporting the roof. The interior walls are lined with corrugated metal, similar to that of the exterior walls. Inside are several mounted shelves and scattered miscellaneous debris (Figure 19).

GV-14, Log Cabin: This building is a log structure with a cruciform plan consisting of a two-story side-gabled main section and one-story gabled extensions to the front (west) and rear (east) (Figures 20 and 21). The cabin is constructed of peeled un-milled logs of varying diameter. Chinking consists of split log lengths and plaster. The corners are secured with hand hewn V-notch construction (Figure 22). The house rests upon a poured concrete foundation. The roof is covered with wood shingles and has moderately-wide eaves with exposed log purlins in the gables. A stove pipe emerges from the north slope of the west wing roof. A full-height exterior brick chimney is attached to the south side of the east wing. Windows are multiple-pane wood sash double-hung units. The front entry contains a wood panel door beneath a simple gabled canopy supported by two square posts. Above the canopy is a square opening with no window. A similar opening is in the gable above the rear entry, which contains a wood panel door with a window.

The cabin interior has a quite modern appearance, having undergone remodeling probably several times (Figure 23). The latest renovations to the cabin may date to the 1960s, judging from the appearance of the kitchen cupboards. From the inside one would not know that the house was a log cabin. The walls and ceilings are sheet rock that obscures any clue of the nature of the log construction. Open passage ways are rounded at the corners. A living room, kitchen, master bedroom, and den are located on the first floor, while more bedrooms occupy the upper level. This cabin appears in a photograph dated to the 1930s, not long after the mine began appreciable commercial production. If indeed the cabin is associated with the mine, it was probably built around 1929, the year that the first mill was constructed nearby. The interior of the cabin has been altered several times as part of the expected and normal course of modernization, but the exterior retains excellent integrity of its historic appearance and original construction materials. The cabin is a good example of state-of-the-art log cabin construction techniques of the period and, as such, is eligible for placement on the NRHP under Criterion C.

GV-15, Shed: This small (ca. 8 feet by 8 feet) building is a wood frame structure with a steeply pitched shed roof (Figure 24). It has a metal roof and wood plank siding. It is used for garden equipment storage by the occupants of the log cabin.

GV-16, Garage/Shed: This is a wood frame gabled structure with a shed roof canopy along the south side (Figure 25). Both walls and roof are clad with corrugated sheet metal. It is used for storage by the occupants of the log cabin.

GV-17, Crushed rock storage silo: This is a poured concrete cylindrical tower, about 90 feet high and 20 feet in diameter (Figure 26). Stored material was passed through an opening on the south side of the tower into a semi-subterranean passage, now mostly filled in, that led to the mill.

GV-18, Topped concrete pier: This large concrete chunk is one of the piers that supported the ore cart tracks that delivered rock to the crusher from the mine (Figure 27). It has been uprooted from its original position and tossed to the side.

GV-19, Rock crusher: This structural ruin represents the remnants of the crusher building. The building has been dismantled, leaving only some of the machinery and concrete mounts. Remnants of the crusher itself include the cast iron lower housing that contains the rotating crusher arm and the cone shaped grinding surface (Figure 28). Lettering on the crusher declares that it is a “Gates Breaker,” and a stamped label reads “Sold by Eastern Iron and Metal Co., New and Used Mining and Milling Machinery, Electrical & Supplies, Salt Lake City, Utah.” The crusher was operated by a steam engine that turned a large wheel with a belt. The wheel remains, attached to the crusher housing, as does the concrete mount where the engine was. Also, a spare conical grinding unit is at the ready, its surface covered by welded beads of especially hardened steel (Figure 29). The area in and around the crusher is cluttered with structural remnants and other debris.

GV-20, Coal storage bin: This over-sized metal barrel, like a large oil drum, contains some coal that was never burned (Figure 30). The coal descended from the barrel into a concrete bin, from where it was shoveled into the burner of a boiler that has been removed.

CV-21, Concrete piers and cart track remnant: These ruins are the remnants of an elevated track upon which ore carts transported rock from the mine to be dumped into the crusher below. Remnants include three large poured concrete piers with wood beams attached to the tops by bolts. The tracks were probably mounted to the beams. One segment of the track, several feet long, remains on one of the piers (Figure 31).

CV-22, Core sample shed: This is a small (24 feet by 12 feet) 1-story wood frame structure with a gabled roof covered with corrugated metal sheets (Figure 32). The eaves have exposed rafter ends and fascia boards. The exterior walls are clad with the same kind of corrugated metal.

The foundation appears to be post and pier. There are two pedestrian entries, on the north and west sides. The doors are missing. The one double-hung window has a broken wood sash. The interior is unlined, revealing the wood frame structure. The floors are covered with wood planking. Placed on wood shelves, and scattered across the floor, are perhaps 100 or so wood trays containing hundreds of core samples of rock, mostly broken into 4 to 6-inch long segments.

CV-23, Compressor house: This abandoned building is a 1-story wood frame structure (60 feet by 48 feet) with a main gabled section and a shed roof extension along the long south side (Figure 33). The short eaves are demarcated by fascia boards. The roof is covered with corrugated metal sheeting, as are the exterior walls. Two gabled and metal-clad ventilation cupolas are situated on the roof crest. The floor and foundation are poured concrete. Fenestration includes sliding wood sash windows, a wood panel pedestrian door on the east end, and swinging wood plank vehicle entry doors on the east end of the south wall. The structural wood frame work is visible in the interior. Square upright beams support the roof at the juncture of the gabled and shed roof portions of the building. The interior is one large room that contains an assortment of debris, shelving, electrical conduit, pipes, and machinery and equipment remnants. Poured concrete mounts and grooves in the floor accommodated the various machine installations. In the southwest quadrant are the mounts for two large compressors, one of which remains (Figure 34). This consists of an iron compressor housing and a large steel wheel/pulley that was turned by a belt attached to an engine, perhaps steam, that has been removed. Words stamped into the housing read “Ingersol Rand. Co., New York, U.S.A., Imperial Type 10.” Another notable item in the compressor house is a large iron boiler exhibiting tubes for water circulation in the upper chamber and a coal combustion chamber below. Stamped on the boiler are the words “Kewanee Boiler Corporation, Kewanee, Illinois, Type C Boiler.” The Kewanee Boiler Corporation remained in production until 2002. Another notable piece of equipment in this building is what appears to be an electrical dynamo.

CV-24, Spring box: This is a semi-cubical iron cistern, perched on a timber platform, for the storage of spring water that emerges from the immediately adjacent hillside (Figure 35). Water was stored in the spring box and distributed by pipe to the interior of the compressor house where it was probably used for cooling.

CV-25, Fallen electrical tower: This is a collapsed timber tower with many ceramic insulators attached (Figure 36). It probably provided the electricity needed for the electric ore cart engines and other machinery at the mine.

CV-26, Mine adit: This is the former entry to the main mine entry passage (Figure 37). It has been blasted shut for safety considerations. All that remains is the timber surround and some wire and ceramic insulators.

CV-27, Unidentified concrete platform: This is a narrow, 20-foot-long poured concrete platform of unknown function (Figure 38).

CV-28, Ore cart engine No. 1: This object is an electrically powered engine, about 12 feet long, designed to travel on rails and pull ore carts (Figure 39). It contains an electric engine, a place for an operator to sit, and operator controls. A plaque on the engine reads “The Baldwin Locomotive Works, Philadelphia U.S.A., Westinghouse Elect. And Mfg. Co., Pittsburg U.S.A.”

CV-29, Ore cart engine No. 2: This is an engine similar to the one described above.

CV-30, Ore cart: This object is an ordinary ore cart, partially disassembled, of the kind that was pulled by the electric engines (Figure 40).

CV-31, Unidentified concrete building foundation No. 2: This structural ruin consists of a poured concrete floor (45 feet by 60 feet), stem walls with metal mud sills, and underground pipe remnants (Figure 41). Its former function has not been identified.

CV-32, Unidentified concrete building foundation No. 3: This structural ruin consists of a poured concrete floor (30 feet by 24 feet), stem walls, water and drain pipes, electrical conduit, and marks on the concrete floor made by interior wood framing (Figure 42). Its former function has not been identified.

CV-33, Explosive powder storage house: This is a semi-subterranean wood frame structure set into the hillside to protect its former contents, TNT, associated fuses, and other flammable items (Figure 43). It has wood timber exterior walls, milled log purlins, and a corrugated metal roof. The interior floor is poured concrete. The middle of the ceiling is supported by an improvised roof truss made of milled logs. The interior wall structure is milled logs as well. The interior is accessed by a hinged wood door with an iron plank cover. Inside the building are stacks of mine records and mining journals dating to the 1950s.

Cultural Resources in Project APE Potentially Eligible for National Register

The interior of the log cabin (Field No. GV-14) has been altered several times as part of the expected and normal course of modernization, but the exterior retains excellent integrity of its historic appearance and original construction materials. The cabin is a good example of state-of-the-art log cabin construction techniques of the period and, as such, is eligible for listing in the NRHP under Criterion C. Other buildings, structures, ruins, and objects within the project area are in an advanced state of deterioration and provide only an incomplete picture of the history of hard rock mining in northeastern Washington. Most of the structural remnants date to the mid-1950s, when the mill and other components were improved. Photographs of the mill site from the 1930s indicate that, except for the log cabin, all structures have been replaced by later modifications. Therefore, surviving remnants at the Grandview mine and mill are representative of only the later developments in hard rock mining technology. They lack sufficient integrity to warrant NRHP eligibility.

Possible Effects of the Proposed Project on Cultural Resources

As noted previously, in the Project Description section, “Structures associated with the former mining and milling operations will be removed only to the extent necessary to allow tailings and development rock removal and repository construction.” Furthermore, plans specifically call for the log cabin to be avoided. Therefore, structures and remnants may be destroyed or altered during clean-up efforts, but none will be affected that are NRHP eligible.

MANAGEMENT SUMMARY

The cultural resources survey of the Grandview Mine project APE resulted in identification of one resource, the log cabin, eligible for listing in the NRHP. The log cabin is not included within the scope of the EE/CA process. It is recommended that clean up activities avoid the log cabin and leave it intact. Otherwise, the project may proceed as proposed with respect to cultural resources. In the event that potentially significant cultural resources are identified during construction activities, work should be halted in the immediate vicinity of the find and a professional archaeologist notified to assess the resource. This document should be submitted by Formation Environmental to the appropriate review agencies, including the DAHP, and other interested parties for review and comment prior to the initiation of any land altering activities.

BACKGROUND RESEARCH

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Short Report No.: 1046
Page No.: 18
County: Pend Oreille

1908 Grand View is Big and Rich. August 27:10.

1932 Grandview Mines To Sell Its Mill For One Hundred Thousand Dollars. January 22,
1932:1.

1936 Speed Up Work On Power Tunnel. December 11, 1936.

Spokane Daily Chronicle

- 1937 New Vent Holes Will Speed Work. October 9, 1937:3.
- 1938 Expect Long Run at Grandview Mill. September 27, 1938:11.
- 1946 Lead-Zinc Output Led By Grandview. February 20, 1946:14.
- 1948a American Zinc Workers Strike At Grandview. July 1, 1948:3.
- 1948b Deputies Probe Blast At Homes Of Two Miners. July 23, 1948:1.
- 1948c Sheriff Probes Beating Report. July 24, 1948:1.
- 1949a Nine Grandview Men Deny Guilt In Assault Case. January 12, 1949:1.
- 1949b Miners To Sign Non-Red Pledges. July 21, 1949:37.
- 1953 Area Zinc Mines Receive Publicity In Magazine Story. February 16, 1953:17.
- 1954 Walkout Closes Grandview Mine. July 29, 1954:8.
- 1955 Blaze At Grandview Mine Razes Compressor House. June 28, 1955:1.
- 1956a Work Speeded For Grandview. April 18, 1956:1.
- 1956b Grandview Mine Profit Foreseen. April 12, 1956:16.
- 1956c Grandview Sues American Zinc. April 25, 1956:15.
- 1956d American Zinc Denies Damage. August 16, 1956:14.
- 1956e Sale Of Grandview Mine Assures \$416, 925 Income. February 18, 1957:17.

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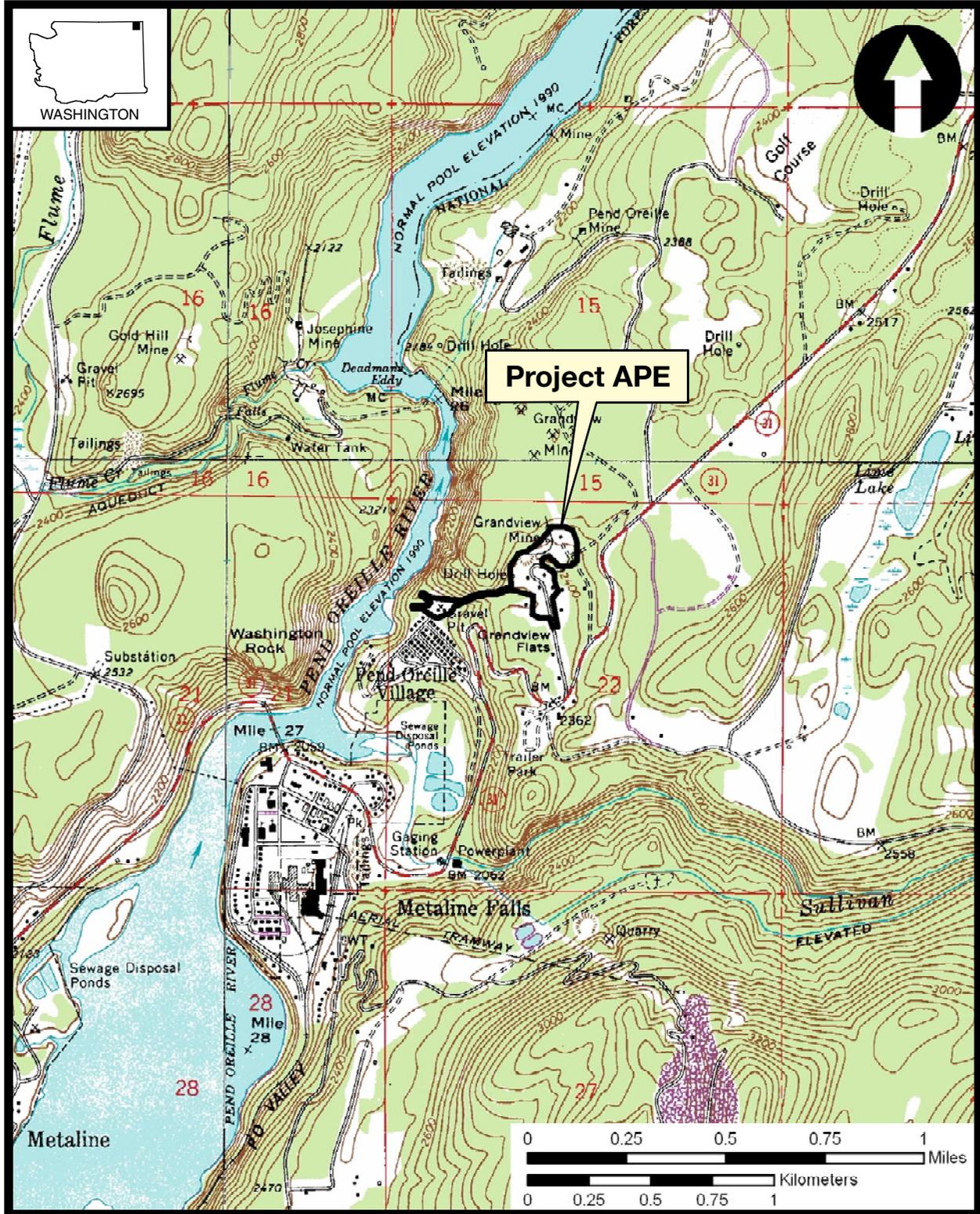


Figure 1. Map showing the Grandview Mine project APE location (adapted from Boundary Dam, Abercrombie Mountain, Metalline, and Metalline Falls USGS Quadrangles).

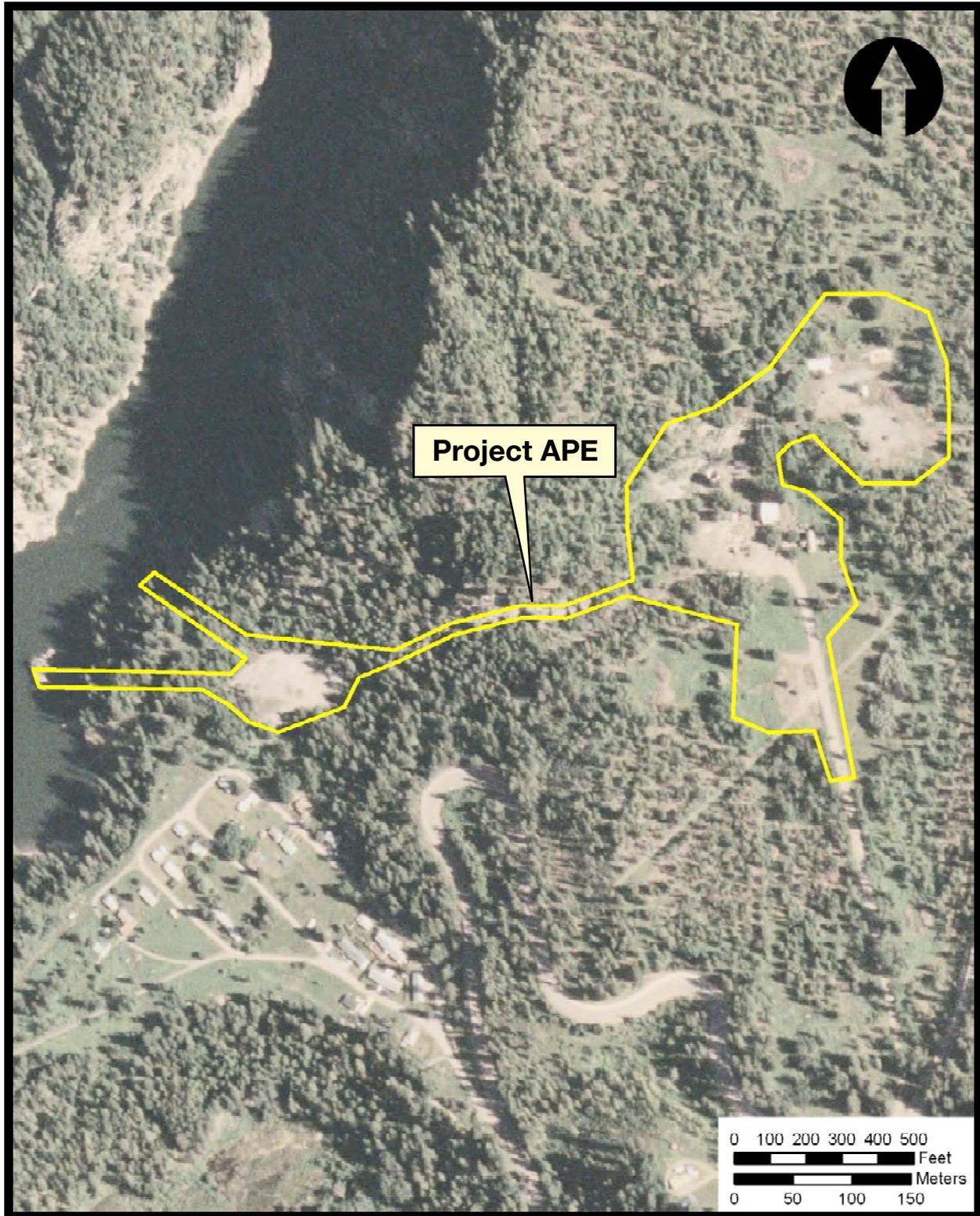


Figure 2. Aerial photograph showing the Grandview Mine project APE.



Figure 3. Upper terrace flat, view to the southeast.



Figure 4. Northern periphery of upper terrace, view to the north.

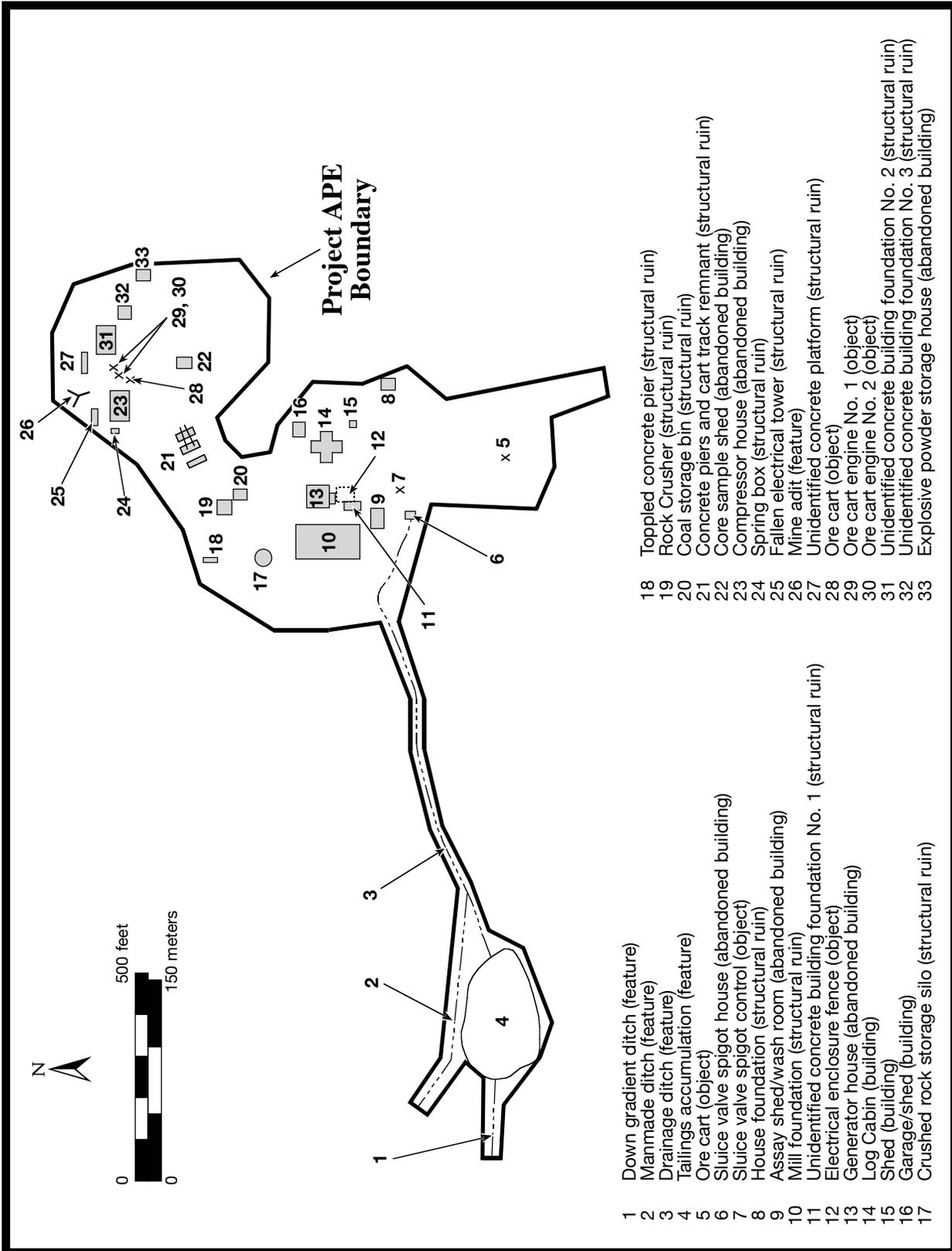


Figure 5. Map of project APE showing recorded resources locations.



Figure 6. Tailings flume remnants in drainage ditch, view to the east.



Figure 7. Tailings accumulation area, capped pile, view to the southwest.



Figure 8. Abandoned ore cart, view to the northwest.



Figure 9. Sluice valve spigot house, view to the west.



Figure 10. Sluice valve spigot control, view to the southeast.



Figure 11. House foundation, view to the northwest.



Figure 12. Assay shed/wash house, view to the southwest.



Figure 13. Assay shed/wash house, interior, view to the southwest.



Figure 14. Mill foundation, view to the northwest.



Figure 15. Mill foundation, truck loading bins, view to the southwest.



Figure 16. Unidentified concrete building foundation No. 1, view to the northeast.



Figure 17. Electrical enclosure fence, view to the west.



Figure 18. Generator house, view to the northeast.



Figure 19. Generator house, interior, view to the northwest.



Figure 20. Log cabin, view to the northeast.



Figure 21. Log cabin, view to the northwest.



Figure 22. Log cabin, corner notching detail, view to the northwest.



Figure 23. Log cabin, interior, view to the northeast.



Figure 24. Shed near log cabin, view to the northeast.



Figure 25. Garage/shed near log cabin, view to the northwest.



Figure 26. Crushed rock storage silo, view to the northeast.



Figure 27. Toppled concrete pier, view to the northwest.



Figure 28. Rock crusher, view to the southwest.



Figure 29. Spare conical grinding unit, view to the north.



Figure 30. Coal storage bin, view to the northeast.



Figure 31. Concrete piers and cart track remnant, view to the east.



Figure 32. Core sample shed, view to the southeast.



Figure 33. Compressor house, view to the northwest.



Figure 34. Compressor house, compressor, view to the southwest.



Figure 35. Spring box, view to the northwest.



Figure 36. Fallen electrical tower, view to the north.



Figure 37. Mine adit, view to the north.



Figure 38. Unidentified poured concrete platform, view to the east.



Figure 39. Ore cart engine No. 1, view to the north.



Figure 40. Ore cart, view to the northwest.



Figure 41. Unidentified concrete building foundation No. 2, view to the east.



Figure 42. Unidentified concrete building foundation No. 3, view to the southeast.



Figure 43. Explosive powder storage house, view to the northwest.

Appendix A

**Historic Property Inventory Form:
Log Cabin at Grandview Mine and Mill**

**Archaeological Site Inventory Form:
Site 45PO616 – Grandview Mine and Mill**

Historic Property Inventory Report for

Log Cabin at Grandview Mine and Mill

at 302 Grandview Flats Rd, vicinity of Metaline Falls, WA

LOCATION SECTION

Field Site No. GMMM-1 OAHF No.:

Historic Name: Log Cabin at Grandview Mine and Mill

Common Name: House at 302 Grandview Flats Road

Property Address: 302 Grandview Flats Rd, vicinity of Metaline Falls, WA

Comments:

County Pend Oreille Township/Range/EW Section T39R43E 22 NW NE 1/4 Sec 1/4 1/4 Sec Quadrangle METALINE FALLS

UTM Reference Zone: 11 Spatial Type: Point Acquisition Code: USGS Topo Sequence: 1 Easting: 473830 Northing: 5412890

Tax No./Parcel No.

Plat/Block/Lot

Supplemental Map(s) < one

IDENTIFICATION SECTION

Survey Name: Grandview Mine and Mill Clean Up

Field Recorder: S. Emerson/D. Komen

Date Recorded: 9/9/2009

Owner's Name: _____

City/State/Zip: _____

Classification: Building

Resource Status

Survey/Inventory

Within a District? No

Contributing?

National Register Nomination:

Local District:

National Register District/Thematic Nomination Name:



View of West (front) and south elevations taken 9/9/2009

Photography Neg. No (Roll No./Frame No.): GMMM-1a

Comments: View to the northeast

Form/Type

Single Family

DESCRIPTION SECTION

Historic Use: Domestic - Single Family House

Current Use: Domestic - Single Family House

Plan: Cross/Cruciform No. of Stories: 2

Structural System: Log

Changes to plan: Intact Changes to interior: Extensive Style

Changes to original cladding: Intact Changes to other: Vernacular

Changes to windows: Slight Other (specify): Other

**Historic Property
Inventory Report for**

Log Cabin at Grandview Mine and Mill

at 302 Grandview Flats Rd, vicinity of Metaline Falls, WA

Cladding

Log - V Notched

Foundation

Concrete - Poured

Roof Material

Wood - Shingle

Roof Type

Gable

NARRATIVE SECTION

Date Of Construction: Ca. 1929

Study Unit

Architecture/Landscape Architecture

Commerce

Other

Architect:

Builder:

Engineer:

Property appears to meet criteria for the National Register of Historic Places: Yes

Property is located in a potential historic district (National and/or local): No

Property potentially contributes to a historic district (National and/or local):

**Statement of
Significance**

The first discoveries were made at the Grandview mine in the late 1800s, but hardrock mining for lead and zinc did not begin in earnest until the mid-1920s. The first mill was built at the location in 1929. Low demand closed the mine for much of the 1930s, but the mill continued to operate, processing ore from other mines. The mine reopened in the 1940s, when WWII sent demand spiraling upward. The mill was improved and enlarged several times, the last time in 1957. The mine closed in 1964, and the mill ceased production soon after. This cabin appears in a photograph dated to the 1930s, not long after the mine began appreciable commercial production. If indeed the cabin is associated with the mine, it was probably built around 1929, the year that the first mill was constructed nearby. The interior of the cabin has been altered several times as part of the expected and normal course of modernization, but the exterior retains excellent integrity of its historic appearance and original construction materials. The cabin is a good example of state-of-the-art log cabin construction techniques of the period and, as such, is eligible for placement on the NRHP under Criterion C.

**Description of
Physical
Appearance**

This building is a log structure with a cruciform plan consisting of a two-story side-gabled main section and one-story gabled extensions to the front (west) and rear (east). The cabin is constructed of peeled un-milled logs of varying diameter. Chinking consists of split log lengths and plaster. The corners are secured with hand hewn V-notch construction. The house rests upon a poured concrete foundation. The roof is covered with wood shingles and has moderately-wide eaves with exposed log purlins in the gables. A stove pipe emerges from the north slope of the west wing roof. A full-height exterior brick chimney is attached to the south side of the east wing. Windows are multiple-pane wood sash double-hung units. The front entry contains a wood panel door beneath a simple gabled canopy that is supported by two square posts. Above the canopy is a square opening with no window. A similar opening is placed in the gable above the rear entry, which contains a wood panel door with a window. The interior of the cabin has a quite modern appearance, having undergone remodeling probably several times. The latest renovations may date to the 1960s, judging from the appearance of the kitchen cupboards. From the inside one would not know that the house was a log cabin. The walls and ceilings are sheet rock that obscures any clue of the nature of the log construction. Open passage ways are rounded at the corners. A living room, kitchen, master bedroom, and den are located on the first floor, while more bedrooms occupy the upper level.

**Major
Bibliographic
References**

Emerson, Stephen. 2009 Cultural Resources Survey for the Grandview Mine Hazardous Materials Rehabilitation Project, Pend Oreille County, Washington. Short Report 1046. Archaeological and Historical Services, Eastern Washington University, Cheney.

Additional Photos for: Log Cabin at Grandview Mine and Mill

at 302 Grandview Flats Rd, vicinity of Metaline Falls, WA



View of East (rear) and south elevations taken 9/9/2009

Photography Neg. No (Roll No./Frame No.): GMMM-1b

Comments: View to the northwest



View of East (rear) elevation taken 9/9/2009

Photography Neg. No (Roll No./Frame No.): GMMM-1c

Comments: View to the west



View of V-notched logs, detail taken 9/9/2009

Photography Neg. No (Roll No./Frame No.): GMMM-1d

Comments: View to the northwest



View of Interior, from living room taken 9/9/2009

Photography Neg. No (Roll No./Frame No.): GMMM-1e

Comments: View to the northeast



STATE OF WASHINGTON ARCHAEOLOGICAL SITE INVENTORY FORM

Smithsonian Number: 45PO616

***County:** Pend Oreille

***Date:** September 2009 ***Compilers:** Stephen Emerson and Dana Komen

Location Information Restrictions (Yes/No/Unknown): No

SITE DESIGNATION

Site Name: Grandview Mine and Mill

Field/ Temporary ID: 2009-SE-1

***Site Type (Refer to the DAHP Survey and Inventory Guidelines Page 19):** Historic mining property

SITE LOCATION

***USGS Quad Map Name:** Metaline Falls, WA 7.5' 1967, photorevised 1986

***Legal Description:** T39N R 43 E/W: East **Section(s):** 22

Quarter Section(s): NW

***UTM: Zone 11 (see continuation sheet) Easting Northing**

Latitude: Longitude: Elevation (ft/m): north end 2,480ft/756m,
east end 2,160ft/658m

Other Maps:

Type:

Scale:

Source:

Drainage, Major: Pend Oreille River

Drainage, Minor: N/A **River Mile:** vicinity mile 27

Aspect: open

Slope: 10%

***Location Description (General to Specific):** The Grandview Mine site is located in Pend Oreille County of Northeastern Washington, 0.75 mile northeast of the town of Metaline Falls. The site is situated on the upper broad slopes of an unnamed mountain. The southeastern end of the site is on the western cliff edge which drops steeply down to the Pend Oreille River.

Approach (For Relocation Purposes): From the town of Metaline Falls, continue north on State Route 31 for 1.5 miles. Turn left onto Grandview Flats Road. The road ends at the Grandview Mill site.

SITE DESCRIPTION

***Narrative Description:** The site is primarily located on a series of flats situated on a steep slope overlooking the Pend Oreille River (Figure 1). The mine itself (the adit and associated buildings and structures) is on the highest flat, at the north eastern corner of the site. The mill, and associated buildings and structures, is located on the middle flat (called Grandview Flats). This is connected by the tailings drainage ditch to the lowest flat, at the west end of the site, upon which the tailings accumulation is situated. The site contains the remains of mining, milling, and waste disposal operations of the Grandview mine and mill (Figure 2).

***Site Type** (Refer to the DAHP Survey and Inventory Guidelines Page 19):): Historic mining property

***Site Dimensions**

***Length:** 640 m ***Direction:** E x W ***Width:** 460 m ***Direction:** N x S

***Method of Horizontal Measurement:** Map scale

***Depth:** unknown M *** Method of Vertical Measurement:**

***Vegetation (On Site):** knapweed in disturbed areas, quaking aspen, grand fir, white pine

Local: western red cedar, grand fir, white pine **Regional:** grand fir, western red cedar

Landforms (On Site): bench, mountain side slopes **Local:** mountain slopes

Water Resources (Type): none on site **Distance:** Pend Oreille River 500 ft/152m east **Permanence:** year-round

CULTURAL MATERIALS AND FEATURES

***Narrative Description:**

GV-1, Down gradient ditch: This feature is the route of tailings discharged from the tailings accumulation area as represented by several shallow ditches. No evidence of wood flumes or any other structures was noted.

GV-2, Man-made ditch: This feature appears to be a man-made alternative drainage route for tailings passing down the main drainage ditch. No evidence of wood flumes or any other structures was noted.

GV-3, Drainage ditch: This feature is a long (ca. 900 feet) ditch through which tailings were discharged via a wood flume structure. The ditch is an artificial construction but builders likely took advantage of an already-existing surface water runoff channel. The only remaining evidence of a flume structure is at the western end of the ditch, where wood structural flume remnants are visible.

GV-4, Tailings accumulation area: This feature is a large surface depression filled with mine tailings. Near the eastern end of the depression is a pile of what are probably tailings gathered during a previous clean-up effort, likely that of the nearby Pend Oreille Village. The pile is partially covered with earth covered with plastic held in place by sand bags. Where the plastic has torn away, vegetation is thick. The rest of the tailings accumulation area is nearly devoid of vegetation.

GV-5, Ore cart: This object appears to be an ore cart of the type typically used to transport rock and ore along tracks. It is uncertain if it is directly associated with the Grandview mine or if it was simply disposed of here.

GV-6, Sluice valve spigot house: This is a small (6 feet by 10 feet) wood frame gabled building that houses a spigot from which water was presumably discharged to force tailings down the drainage ditch and flume. It is situated at the eastern, high end of the drainage ditch.

GV-7, Sluice valve spigot control: This metal object appears to be an on-off switch used to control the flow of water to the sluice valve spigot from an underground source, perhaps a drilled well.

GV-8, House foundation: This foundation appears to be domestic in nature and was probably associated with the small community of mining employees that formed at Grandview Flats. All that remains of this house are the poured concrete platform, some stem walls, and some plumbing pipe remnants.

GV-9, Assay shed/wash house: This abandoned building is a gabled wood frame structure (16 feet by 50 ft). The roof has moderately overhanging eaves with exposed rafter ends. Both the roof and exterior walls are clad with corrugated metal sheeting. The floor and foundation are poured concrete. A small shed-roofed addition is attached to the east side and may have served as a wood shed. Two wood sash double-hung windows, broken, are located on the east end of the south elevation and a square window opening, missing the sash, is located on the west end of the building. The other windows, two on the north elevation and one on the south, are large multiple-pane metal sash units. A large wood plank sliding door is located on the east end of the building, while another wood panel door lies on the floor of the west room. The interior of the building is divided into two parts, with the eastern two-thirds occupied by the assay and test lab room, and the western third occupied by the wash room. The interior of the assay and test lab was provided with wall board coverings on the ceiling and walls, but most of this material has fallen to the floor, leaving the wood frame exposed. A wood shelf occupies most of the west wall of the room, and a poured concrete block, with mounting bolts, is visible at the northwest corner. In the adjacent washroom, the wall board is more intact. The room is partially filled with debris, including car parts. Metal and wood benches line the north and south walls (one of which is collapsed). Shelves and wood coat racks are mounted on the east wall. In the northwestern corner is a toilet room with a broken porcelain commode. At the center of the west wall is a half-circular terrazzo sink basin, with spray spigot above and foot control bar below. In the southwest corner is a shower room with broken pipes and linoleum on the walls.

GV-10, Mill foundation: The mill ruins occupy a roughly 100 foot by 100 foot space. Concrete remnants include the concrete floor, foundation, stem walls, and equipment mounting blocks which tend to rise higher toward the back (north) end of the facility due to the tiered nature of the flotation process. The equipment mounts are massive, often in the shape of truncated obelisks. Some have machine mounting bolts projecting from the top flat surfaces. Rusting metal components are scattered about, including a hopper. The most intact portion of the mill is at the south end, where trucks were filled with ore from overhead bins.

GV-11, Unidentified concrete building foundation No. 1: This small (about 20 feet by 12 feet) foundation may have been a vehicle garage. Remnants include the concrete floor and stem walls.

GV-12, Electrical enclosure fence: This is an area enclosed by a chain link fence that once contained electrical switches, transformers, and associated equipment, since removed.

GV-13, Generator House: This abandoned building is a two-story wood frame rectangular structure, with a shed-roofed addition on the south side. The gabled roof is clad with corrugated metal sheeting and has exposed rafter ends. The exterior walls are clad with corrugated metal as well. The windows are multiple-pane wood sash double-hung units, mostly broken. A metal-clad lift up vehicle door is situated in the center of the east wall. The foundation and interior floor are poured concrete. The building has a timber beam superstructure with timber trusses supporting the roof. The interior walls are lined with corrugated metal, similar to that of the exterior walls. Inside are several mounted shelves and scattered miscellaneous debris.

GV-14, Log Cabin: This building is a log structure with a cruciform plan consisting of a two-story side-gabled main section and one-story gabled extensions to the front (west) and rear (east). The cabin is constructed of peeled un-milled logs of varying diameter. Chinking consists of split log lengths and plaster. The corners are secured with hand hewn V-notch construction. The house rests upon a poured concrete foundation. The roof is covered with wood shingles and has moderately-wide eaves with exposed log purlins in the gables. A stove pipe emerges from the north slope of the west wing roof. A full-height exterior brick chimney is attached to the

south side of the east wing. Windows are multiple-pane wood sash double-hung units. The front entry contains a wood panel door beneath a simple gabled canopy supported by two square posts. Above the canopy is a square opening with no window. A similar opening is in the gable above the rear entry, which contains a wood panel door with a window.

The cabin interior has a quite modern appearance, having undergone remodeling probably several times. The latest renovations to the cabin may date to the 1960s, judging from the appearance of the kitchen cupboards. From the inside one would not know that the house was a log cabin. The walls and ceilings are sheet rock that obscures any clue of the nature of the log construction. Open passage ways are rounded at the corners. A living room, kitchen, master bedroom, and den are located on the first floor, while more bedrooms occupy the upper level. This cabin appears in a photograph dated to the 1930s, not long after the mine began appreciable commercial production. If indeed the cabin is associated with the mine, it was probably built around 1929, the year that the first mill was constructed nearby. The interior of the cabin has been altered several times as part of the expected and normal course of modernization, but the exterior retains excellent integrity of its historic appearance and original construction materials. The cabin is a good example of state-of-the-art log cabin construction techniques of the period and, as such, is eligible for placement on the NRHP under Criterion C.

GV-15, Shed: This small (ca. 8 feet by 8 feet) building is a wood frame structure with a steeply pitched shed roof. It has a metal roof and wood plank siding. It is used for garden equipment storage by the occupants of the log cabin.

GV-16, Garage/Shed: This is a wood frame gabled structure with a shed roof canopy along the south side. Both walls and roof are clad with corrugated sheet metal. It is used for storage by the occupants of the log cabin.

GV-17, Crushed rock storage silo: This is a poured concrete cylindrical tower, about 90 feet high and 20 feet in diameter. Stored material was passed through an opening on the south side of the tower into a semi-subterranean passage, now mostly filled in, that led to the mill.

GV-18, Toppled concrete pier: This large concrete chunk is one of the piers that supported the ore cart tracks that delivered rock to the crusher from the mine. It has been uprooted from its original position and tossed to the side.

GV-19, Rock crusher: This structural ruin represents the remnants of the crusher building. The building has been dismantled, leaving only some of the machinery and concrete mounts. Remnants of the crusher itself include the cast iron lower housing that contains the rotating crusher arm and the cone shaped grinding surface. Lettering on the crusher declares that it is a "Gates Breaker," and a stamped label reads "Sold by Eastern Iron and Metal Co., New and Used Mining and Milling Machinery, Electrical & Supplies, Salt Lake City, Utah." The crusher was operated by a steam engine that turned a large wheel with a belt. The wheel remains, attached to the crusher housing, as does the concrete mount where the engine was. Also, a spare conical grinding unit is at the ready, its surface covered by welded beads of especially hardened steel. The area in and around the crusher is cluttered with structural remnants and other debris.

GV-20, Coal storage bin: This over-sized metal barrel, like a large oil drum, contains some coal that was never burned. The coal descended from the barrel into a concrete bin, from where it was shoveled into the burner of a boiler that has been removed.

CV-21, Concrete piers and cart track remnant: These ruins are the remnants of an elevated track upon which ore carts transported rock from the mine to be dumped into the crusher below. Remnants include three large poured concrete piers with wood beams attached to the tops by bolts. The tracks were probably mounted to the beams. One segment of the track, several feet long, remains on one of the piers.

CV-22, Core sample shed: This is a small (24 feet by 12 feet) 1-story wood frame structure with a gabled roof covered with corrugated metal sheets. The eaves have exposed rafter ends and fascia boards. The exterior walls are clad with the same kind of corrugated metal. The foundation appears to be post and pier. There are two pedestrian entries, on the north and west sides. The doors are missing. The one double-hung window has a broken wood sash. The interior is unlined, revealing the wood frame structure. The floors are covered with wood planking. Placed on wood shelves, and scattered across the floor, are perhaps 100 or so wood trays containing hundreds of core samples of rock, mostly broken into 4 to 6-inch long segments.

CV-23, Compressor house: This abandoned building is a 1-story wood frame structure (60 feet by 48 feet) with a main gabled section and a shed roof extension along the long south side. The short eaves are demarcated by fascia boards. The roof is covered with corrugated metal sheeting, as are the exterior walls. Two gabled and metal-clad ventilation cupolas are situated on the roof crest. The floor and foundation are poured concrete. Fenestration includes sliding wood sash windows, a wood panel pedestrian door on the east end, and swinging wood plank vehicle entry doors on the east end of the south wall. The structural wood frame work is visible in the interior. Square upright beams support the roof at the juncture of the gabled and shed roof portions of the building. The interior is one large room that contains an assortment of debris, shelving, electrical conduit, pipes, and machinery and equipment remnants. Poured concrete mounts and grooves in the floor accommodated the various machine installations. In the southwest quadrant are the mounts for two large compressors, one of which remains. This consists of an iron compressor housing and a large steel wheel/pulley that was turned by a belt attached to an engine, perhaps steam, that has been removed. Words stamped into the housing read "Ingersol Rand. Co., New York, U.S.A., Imperial Type 10." Another notable item in the compressor house is a large iron boiler exhibiting tubes for water circulation in the upper chamber and a coal combustion chamber below. Stamped on the boiler are the words "Kewanee Boiler Corporation, Kewanee, Illinois, Type C Boiler." The Kewanee Boiler Corporation remained in production until 2002. Another notable piece of equipment in this building is what appears to be an electrical dynamo.

CV-24, Spring box: This is a semi-cubical iron cistern, perched on a timber platform, for the storage of spring water that emerges from the immediately adjacent hillside. Water was stored in the spring box and distributed by pipe to the interior of the compressor house where it was probably used for cooling.

CV-25, Fallen electrical tower: This is a collapsed timber tower with many ceramic insulators attached. It probably provided the electricity needed for the electric ore cart engines and other machinery at the mine.

CV-26, Mine adit: This is the former entry to the main mine entry passage. It has been blasted shut for safety considerations. All that remains is the timber surround and some wire and ceramic insulators.

CV-27, Unidentified concrete platform: This is a narrow, 20-foot-long poured concrete platform of unknown function.

CV-28, Ore cart engine No. 1: This object is an electrically powered engine, about 12 feet long, designed to travel on rails and pull ore carts. It contains an electric engine, a place for an operator to sit, and operator controls. A plaque on the engine reads "The Baldwin Locomotive Works, Philadelphia U.S.A., Westinghouse Elect. And Mfg. Co., Pittsburg U.S.A."

CV-29, Ore cart engine No. 2: This is an engine similar to the one described above.

CV-30, Ore cart: This object is an ordinary ore cart, partially disassembled, of the kind that was pulled by the electric engines.

CV-31, Unidentified concrete building foundation No. 2: This structural ruin consists of a poured concrete floor (45 feet by 60 feet), stem walls with metal mud sills, and underground pipe remnants. Its former function has not been identified.

CV-32, Unidentified concrete building foundation No. 3: This structural ruin consists of a poured concrete floor (30 feet by 24 feet), stem walls, water and drain pipes, electrical conduit, and marks on the concrete floor made by interior wood framing. Its former function has not been identified.

CV-33, Explosive powder storage house: This is a semi-subterranean wood frame structure set into the hillside to protect its former contents, TNT, associated fuses, and other flammable items. It has wood timber exterior walls, milled log purlins, and a corrugated metal roof. The interior floor is poured concrete. The middle of the ceiling is supported by an improvised roof truss made of milled logs. The interior wall structure is milled logs as well. The interior is accessed by a hinged wood door with an iron plank cover. Inside the building are stacks of mine records and mining journals dating to the 1950s.

***Method of Collection(s):** N/A

***Location of Artifacts (Temporary/Permanent):** N/A

SITE AGE

***Component:** Historic ***Dates:** 1924-1970 ***Dating Method:** historical records

***Phase:** N/A **Basis for Phase Designation:**

SITE RECORDERS

Observed by: **Address:**

***Date Recorded:** September 8, 9, 10, 2009

***Recorded by (Professional Archaeologist):** Stephen Emerson and Dana Komen

***Affiliation:** Archaeological and Historical Services ***Affiliation Phone Number:** 509-359-2239

***Affiliation Address:** 201 Isle Hall, Cheney, WA 99004-2420 **Affiliation E-mail:**

Date Revisited: **Revisited By:**

SITE HISTORY

Previous Work (Done on Archaeological Site):

Emerson Stephen
 2009 *Cultural Resources Survey of the Grandview Mine and Mill, Pend Oreille County, Washington.*
 Short Report 1046. Archaeological and Historical Services, Eastern Washington University, Cheney.

LAND OWNERSHIP

***Owner:** Washington Resources, LLC

***Address:** 5369 Rutter Parkway, Spokane, WA 99211

***Tax Lot/ Parcel No:** 433922080001, 433922469001, 433922470001, 433922470002, 433922470003

RESEARCH REFERENCES

***Items/Documents Used In Research (Specify):**

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1908 Grand View is Big and Rich. August 27:10.

1932a Spend Thousands To Improve Mine. January 4, 1932:15.

1932b Grandview Mines To Sell Its Mill For One Hundred Thousand Dollars. January 22, 1932:1.

Spokane Daily Chronicle

- 1936 Speed Up Work On Power Tunnel. December 11, 1936.
- 1937 New Vent Holes Will Speed Work. October 9, 1937:3.
- 1938 Expect Long Run at Grandview Mill. September 27, 1938:11.
- 1946 Lead-Zinc Output Led By Grandview. February 20, 1946:14.
- 1948a American Zinc Workers Strike At Grandview. July 1, 1948:3.
- 1948b Deputies Probe Blast At Homes Of Two Miners. July 23, 1948:1.
- 1948c Sheriff Probes Beating Report. July 24, 1948:1.
- 1949a Nine Grandview Men Deny Guilt In Assault Case. January 12, 1949:1.
- 1949b Miners To Sign Non-Red Pledges. July 21, 1949:37.
- 1953 Area Zinc Mines Receive Publicity In Magazine Story. February 16, 1953:17.
- 1954 Walkout Closes Grandview Mine. July 29, 1954:8.
- 1955 Blaze At Grandview Mine Razes Compressor House. June 28, 1955:1.
- 1956a Work Speeded For Grandview. April 18, 1956:1.
- 1956b Grandview Mine Profit Foreseen. April 12, 1956:16.
- 1956c Grandview Sues American Zinc. April 25, 1956:15.
- 1956d American Zinc Denies Damage. August 16, 1956:14.
- 1956e Sale Of Grandview Mine Assures \$416, 925 Income. February 18, 1957:17.

CONTINUATION/ ADDENDUM SHEET

SITE LOCATION

Grandview Mine UTM's	
Easting	Northing
473763.56	5412935.29
473740.60	5413051.56
473766.44	5413088.89
473740.60	5413179.32
473677.43	5413025.16
473770.75	5413206.59
473843.95	5413206.59
473836.77	5413334.34
473724.81	5413235.30
473678.87	5413228.12
473723.37	5413344.39
473664.52	5413256.83
473587.01	5413195.11
473595.62	5413120.46
473332.93	5413037.21
473266.90	5413055.87
473232.45	5413088.89
473236.76	5413080.27
473242.51	5413038.65
473222.41	5413017.11
473334.29	5412995.58
473607.10	5413086.29
473667.39	5413068.79
473663.08	5412975.49
473739.16	5412939.43

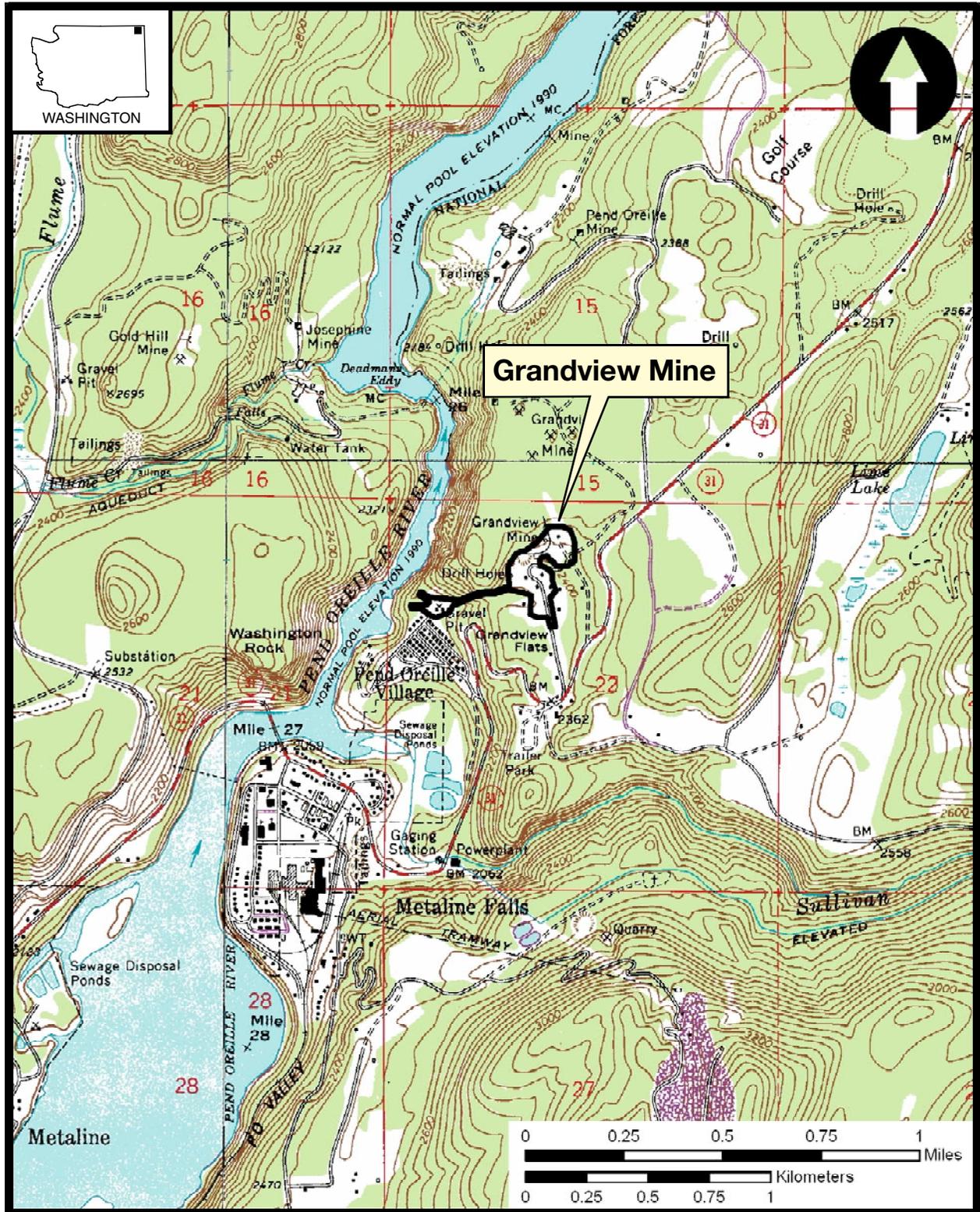


Figure 1. Map showing the Grandview Mine location (adapted from Boundary Dam, Abercrombie Mountain, Metalline, and Metalline Falls).

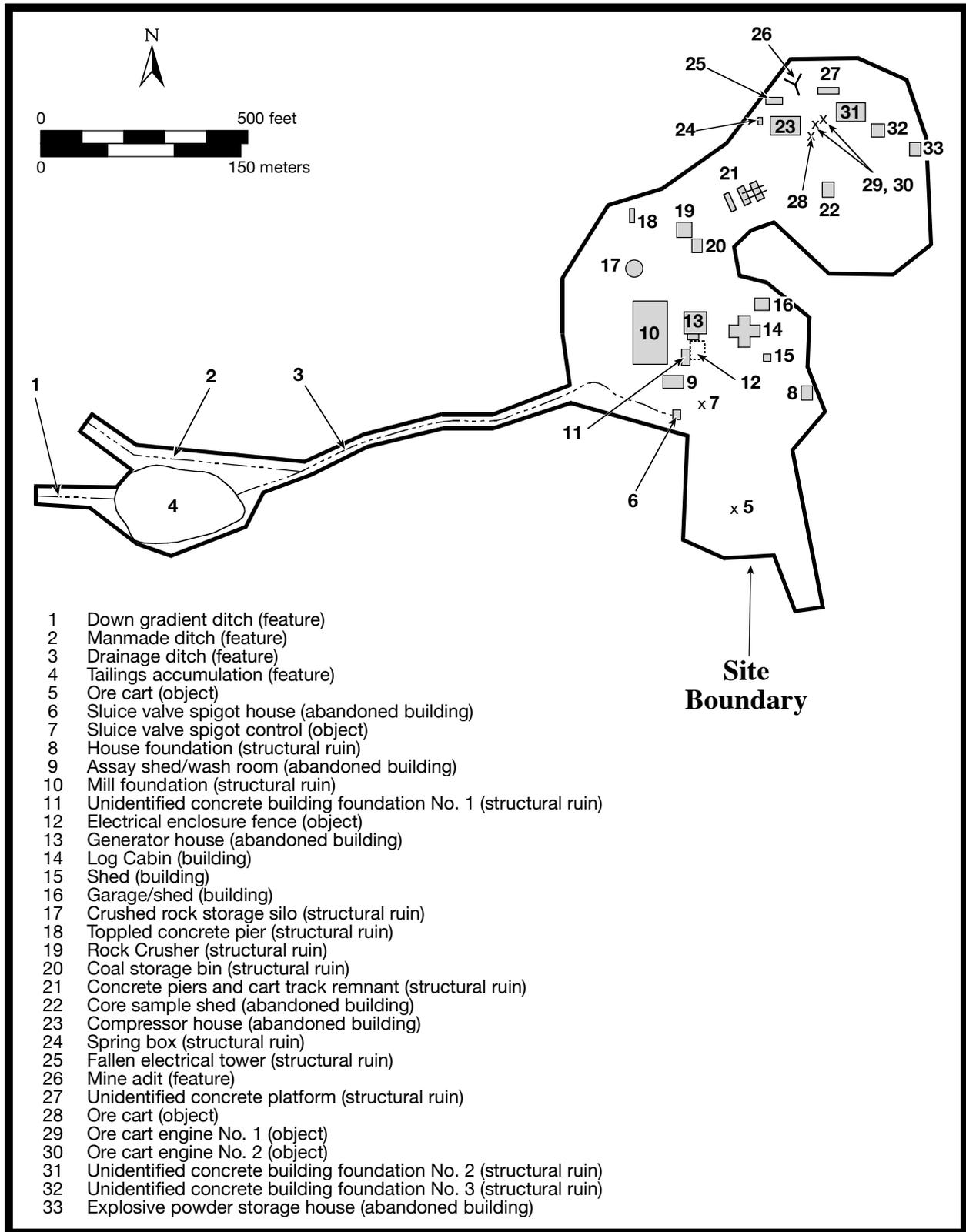


Figure 2. Map showing locations of Grandview Mine features.