NPS Form 10-900
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United States Department of the Interior
National Park Service

National Register of Historic Places Inventory—Nomination Form

For NPS use only
received FEB 15 1983
date entered

See instructions in *How to Complete National Register Forms*
Type all entries—complete applicable sections

1. Name

historic: Burra Burra Mine Historic District

and/or common: Same

2. Location

street & number: ~~Highway~~ TN 68 and Burra ~~Street~~ — N/A ___ not for publication

city, town: Ducktown — N/A vicinity of

state: Tennessee code 047 county: Polk code 139

3. Classification

Category	Ownership	Status	Present Use	
X district	___ public	X occupied	___ agriculture	X museum
___ building(s)	X private	___ unoccupied	___ commercial	___ park
___ structure	___ both	___ work in progress	___ educational	___ private residence
___ site	**Public Acquisition**	**Accessible**	___ entertainment	___ religious
___ object	N/A in process	X yes: restricted	___ government	___ scientific
	___ being considered	___ yes: unrestricted	___ industrial	___ transportation
		___ no	___ military	___ other:

4. Owner of Property

name: Ducktown Basin Museum

street & number: P. O. Box 458

city, town: Ducktown — N/A ___ vicinity of — state: Tennessee 37326

5. Location of Legal Description

courthouse, registry of deeds, etc.: Registry of Deeds, Polk County Courthouse

street & number: Highway 411

city, town: Benton — state: Tennessee

6. Representation in Existing Surveys

title: N/A — has this property been determined eligible? ___ yes X no

date: N/A — N/A federal ___ state ___ county ___ local

depository for survey records: N/A

city, town: N/A — state: N/A

7. Description

Condition		Check one	Check one
___ excellent	___ deteriorated	___ unaltered	_X_ original site
_X_ good	___ ruins	_X_ altered	___ moved date _____
___ fair	___ unexposed		

Describe the present and original (if known) physical appearance

The Burra Burra Mine Historic District is located in Ducktown, Tennessee (pop. 562) in the extreme southeastern corner of the state. The 14.3 acre district contains the entrance to the Burra Burra Mine and thirteen surviving structures which comprise a nearly complete copper mine complex of the early twentieth century. Using brick, wood, and steel as the principal structural materials, the buildings are all one-story, except for the Boiler House. The district retains an outstanding degree of its original architectural integrity.

Ducktown is situated in the mountains of southeastern Tennessee on the edge of the Cherokee National Forest approximately forty miles west of Chattanooga. The nominated mine complex occupies a hill adjacent to and overlooking the town to the north. The district lies along the north slope of the hill and is roughly bounded by State Highway 68 to the west, the community of Ducktown to the north, High Street to the east, and the crest of the hill to the south. At the top of the hill are the Mine Entrance, Mine Office, Machine Shop, Plate Shop, Change House, Storage Building, and Derrick. About midway down the slope is Burra Street, along which are the Ore Bins, Core House, Bit House, Hoist House, Clinic, and Boiler House. At the bottom of the slope within the district are the Powder House and a baseball field used by the mine workers.

The immediate surroundings of the Burra Burra Mine are bare, reddish brown hills devoid of most vegetation since the turn of the century because of the copper industry. In the 1840's copper was discovered in the Copper Basin of Tennessee, Georgia, and North Carolina, a low-grade copper of great depth and seemingly in inexhaustible quantities. Mixed with the ore is sulfur, and for years the gases produced in the reduction process destroyed most of the plant life for miles around. The trees that were not killed by sulfur dioxide were cut to supply fuel for various aspects of the copper industry. Although some of the furthest hills from the nominated district have now been reforested, the historical context of the Burra Burra Mine remains intact.

The complex of thirteen structures illustrates almost all aspects of deep copper mining in the early twentieth century. The only important original building which is missing is the 130 foot headframe at the mine entrance, which was dismantled in 1966. This tall, narrow building of steel frame construction was erected in 1917 and housed the elevators and other machinery which carried the men in and out of the mines as well as the ore. All of the remaining buildings are in relatively good structural condition and are basically unaltered from their original appearance. The following nominated structures are significant in the historic and architectural development of the mine, possess compatible design elements, and maintain the scale, use, and texture of the district.

1. Mine Office. Ca. 1910. Industrial Vernacular. One-story, clapboard, L-shaped plan; hip roof; one-over-one windows.

   The building originally housed the management offices for the mine. It is now used as the museum and orientation center for the complex. Exhibits and a slide presentation give the history of the Copper Basin.

2. Machine Shop. 1922. Industrial Vernacular. One-story, eight-by-eighteen-bay brick; gable roof with clerestory.

   The structure contained the machinery for the repair of all equipment used in the mine. Some early machinery and equipment are on display. There are plans to expand the interpretation of this aspect of the museum presentation.

3. Plate Shop. Ca. 1920. Industrial Vernacular. One-story, six-by-one-bay corrugated metal; shed roof.

   The building stored the sheets of metal plate used to manufacture and repair equipment for the mine.

4. Change House. 1913. Industrial Vernacular. One-story, seven-by-seventeen-bay brick; gable roof with clerestory.

   The facility has the lockers, showers, and so forth, used by the miners. The interior retains most of its early fixtures. The building could accommodate 300 miners per shift.

5. Storage Building. Ca. 1920. Industrial Vernacular. One-story, one-by-one-bay corrugated metal, gable roof.

   The structure was used for the storage of miscellaneous items.

6. Derrick. 1917. Industrial Vernacular. Steel frame, straight-legged.

   The derrick was used to move heavy equipment around the mine site.

7. Ore Bins. 1917. Industrial Vernacular. Three-bay concrete, steel.

   Originally there was a one-story, steel frame structure on top of the extant concrete silos, or bins. The copper ore was stored in the bins, and railroad cars moved on a track through the bases of the silos and were filled with ore for shipment.

8. Core House. 1902. Industrial Vernacular. One-story, one-by-ten-bay clapboard; gable roof; porch with shed roof.

   Core samples from the mine were analyzed in this building.

9. Bit House. Ca. 1920. Industrial Vernacular. One-story, one-by-one-bay corrugated metal; gable roof; wooden entrance platform with steps.

   Bits and other drilling equipment were stored here.

10. Powder House. 1901. Industrial Vernacular. One-story, two-by-one-bay brick; gable roof; wooden entrance platform.

    The explosives used in the mining process were kept here well away from other buildings.

11. Hoist House. 1900. Industrial Vernacular. One-story, eight-by-three-bay brick; gable roof; one-bay entrance porch; multiple-pane, double windows with elliptical arches.

    The building housed the machinery which operated the pulleys which ran from this building to power the elevators in the headframe. Almost all of the machinery has been removed.

12. Boiler House. 1900. Industrial Vernacular. One-story, three-by-five-bay brick; gable roof with clerestory; multiple-pane windows with elliptical arches.

    The boiler provided the power to run the hoist equipment.

13. Clinic. Ca. 1910. Industrial Vernacular. One-story, two-by-two bay clapboard; hip roof; one-over-one windows; small entrance porch.

    The mining company doctor in this building provided medical care to the miners and their families.

Although the current bleachers and backstop are less than fifty years old, the baseball field for the miners has been in existence since the early twentieth century. The 1899 entrance to the mine (see Sketch Map) has been sealed with concrete and covered with earth to form a level area undistinguished by any physical features.

An architectural and historical survey of the Burra Burra Mine Historic District was conducted by Shain Dennison and Lloyd Ostby of the Tennessee Historical Commission in August 1982. Primary research was done at the Ducktown Basin Museum and the Tennessee Historical Commission. Interviews with local historians and officials of the Ducktown Basin Museum supplemented the above-described research. This information was the basis for determining the historic boundaries and significance of the district. Each structure was inspected and researched to establish its individual importance in the district.

8. Significance

Period	Areas of Significance—Check and justify below				
___ prehistoric	___ archeology-prehistoric	_X_ community planning	___ landscape architecture	___ religion
___ 1400–1499	___ archeology-historic	_X_ conservation	___ law	___ science
___ 1500–1599	___ agriculture	___ economics	___ literature	___ sculpture
___ 1600–1699	_X_ architecture	___ education	___ military	___ social/ humanitarian
___ 1700–1799	___ art	___ engineering	___ music	
_X_ 1800–1899	___ commerce	___ exploration/settlement	___ philosophy	___ theater
_X_ 1900–	___ communications	_X_ industry	___ politics/government	___ transportation
		___ invention		___ other (specify)

Specific dates 1900-1922 **Builder/Architect** Unknown

Statement of Significance (in one paragraph)

The Burra Burra Mine Historic District is nominated under National Register criteria A and C for its state and local significance in architecture, industry and conservation law. The Burra Burra Mine Historic District is the only extant early-twentieth century-mining complex remaining in the Copper Basin, a six to eight-mile-wide area of Polk County, Tennessee, North Carolina's Cherokee County, and Georgia's Fannin County that has been used for mining copper, sulfur, iron, and zinc since as early as 1850. Burra, a copper mining complex of thirteen structures dating from 1900-1922 located atop a neighboring hill of Ducktown, Tennessee, is the oldest remaining mine complex in the Basin and the only mine with its original buildings intact. Burra is significant as an example of early-twentieth-century industrial architecture; it illustrates the various types of buildings and structures necessary for operation of a deep mine and their methods of construction. The immense copper industry of the Basin was extremely important to and had a tremendous impact on the livelihood and culture of rural Southeastern Tennesseans. The denuding of miles of hills and gullies in the Basin caused by the sulfur dioxide gases emitted from the mining industry's early roasting process and the tree stripping for wood fuel, resulted in two early 1900s court cases, one state and one U. S., that were important in the development of conservation law.

The Basin's copper mines are the only ones of their type in the Southeastern United States and Burra is the only deep copper mine east of the Mississippi River (Michigan has a strip copper mine). Burra dominated the mining scene in the Basin from its beginning around 1900 to 1958, operating continuously for almost 60 years. Copper mining in the Basin, as exemplified in Burra, has been an immense business and great industry for Tennessee. It has had a tremendous impact on the lives of rural East Tennesseans. Prior to the mining operations in the Basin, 200 people lived in the area; the population by 1904 grew to over 12,000 persons almost wholly dependent on the industry, with the increase directly attributed to the economic success and importance of the copper mines. In 1903 Polk County, in which Burra is located, had a total tax aggregate of just over 2½ million dollars. One half of that amount was the assessment for the two mining companies operating in the Basin that year. Over 1400 men from Polk and neighboring counties were employed by the mining companies in the early 1900s and many others found employment as a result of the mining operations' use of tons of coke and coal and a thousand cords of wood per year. The mining companies purchased 80% of these supplies from Polk County citizens.

The history of copper mining in the Basin began at Ducktown at the site of Burra, although copper had been discovered elsewhere in the area in 1843. The copper initially was mistaken for gold; the value and potential mining copper held was not recognized until a mine was opened at Ducktown in 1850 called the Hiawassee (now Burra). Copper and supplies were hauled on a wagon road cut through the Ocoee River Gorge to Cleveland, Tennessee, site of the nearest railroad. Copper mining was stimulated by the outbreak of the Civil War in 1861, but in 1863 Union tropps occupied Cleveland and halted all operations at Ducktown. After 1865, mining in the Basin resumed and grew, accelerated by the use of the diamond drill and a new explosive, dynamite. By 1879, however, the high cost of hauling copper ingots to the railroad at Clevelandforced a shutdown until completion of the railroad to Knoxville in 1890, twelve years later.

9. Major Bibliographical References

See Continuation Sheet

10. Geographical Data

Acreage of nominated property 14.3

Quadrangle name Ducktown, Tennessee **Quadrangle scale** 1:24000

UTM References

	Zone	Easting	Northing
A	16	739240	3879960
B	16	739000	3879760
C	16	738920	3879940
D	16	739100	3880040
E			
F			
G			
H			

Verbal boundary description and justification

See Continuation Sheet

List all states and counties for properties overlapping state or county boundaries

state	N/A	code	N/A	county	N/A	code	N/A
state	N/A	code	N/A	county	N/A	code	N/A

11. Form Prepared By

name/title	Shain T. Dennison, Architectural Historian Lloyd Ostby, Coo-dinator of Field Services
organization	Tennessee Historical Commission
date	October, 1982
street & number	701 Broadway
telephone	615/742-6716
city or town	Nashville
state	Tennessee 37203

12. State Historic Preservation Officer Certification

The evaluated significance of this property within the state is:

___ national X state ___ local

As the designated State Historic Preservation Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the National Park Service.

Deputy
State Historic Preservation Officer signature Herbert L. Harper

title Executive Director, Tennessee Historical Commission **date** 2/7/83

For NPS use only

I hereby certify that this property is included in the National Register

for Melvin Byers **Entered in the National Register** **date** 3/17/83

Keeper of the National Register

Attest: **date**

Chief of Registration

Several small mining companies were operating in the Basin in the last half of the nineteenth century. A J.T. Raht from Germany first began operation of a mine at Ducktown. A company was formed at Ducktown in 1860, named the Burra Burra Copper Company. The new company began mining and smelting on a larger scale than the previous operation and named itself after the famous Australian mine of the day, Burra Burra.

Struggling under the weight of a dozen small companies in the early years, the Basin's copper industry organized into the Union Consolidated Mining Company (UCMC) which operated until 1879 when the shutdown began. In 1891 the Ducktown Sulphur, Copper, & Iron Company operated the mines of the UCMC. This company was followed by the Pittsburg & Tennessee Copper Company in 1891, operating until about 1899 when it sold out to the Tennessee Copper Company. From 1899 to 1965 the Tennessee Copper Company operated all of the mining facilities in the Basin. Cities Services Company later acquired the Tennessee Copper Company and continues today operating all mining facilities in the Basin.

The Tennessee Copper Company closed mining of the Burra in 1958. Burra's buildings continued to be used, primarily as mining department offices and maintenance shops, until 1979 when the company donated the Burra facilities to the Copper Basin Economic Development Association, which in turn transferred the facilities to the Ducktown Basin Museum. The Burra Burra Mine complex is now operated by volunteers as a museum, presenting the history and culture of the Basin through the mine complex's remarkably unchanged buildings.

For 41 years of the almost 60 years of operation, Burra was the main source of raw materials for the Cities Services Company operations in the Basin. Burra's mine depth had reached 2400 feet (550 feet below sea level) before its closing. Engineers, as stated in a 1958 mining company newsletter, reported that a history of modern-day mining as it evolved during the first half of the twentieth century could be written in terms of the technological and safety developments that have taken place over the years at Burra. (Burra was the first Basin mine to achieve national recognition, in 1933, for safety achievements.)

Burra Burra Mine dominated mining in the Basin for many years. Its surface became the major locale for mine offices, maintenance shops and other support units. The buildings date from 1900 to 1922 and among other uses they housed a repair shop, welding shop, blacksmith shop, machine shop, drill shop, carpenter shop, paint shop, electrical shop, and a supply facility. Although the various building uses changed at times, they all served the mining operation and remain practically unaltered, except for the large headframe that was removed in 1966. Thus, they provide a clear record of industrial architecture from the early twentieth century and illustrate the various kinds of structures and building types necessary for the operation of a deep copper mine. Although the buildings are industrial structures, their simple proportions and clear expression of materials and function have a definite aesthetic and architectural value. This is especially true of the Hoist and Boiler Houses, which have excellent brickwork with bands of dark, glazed headers.

In addition to the importance Burra has achieved through its industrial history and architecture, it has played an important role in the development of environmental/conservation law. Two of the country's first court cases involving issues of environmental conservation versus economic benefits centered around Ducktown and the Burra Burra Mine.

The still barren brown hills of the Basin were denuded in the early 1900s as the result of mining operations in the course of reducing copper ore. The copper ore as it comes from the mine is primarily a copper-sulfur mineral and before it can be converted into metallic copper it must be changed into a copper oxide. This chemical process, called roasting, was accomplished at the turn of the century by placing the broken-up ore on layers of wood in large "roast piles" burning off the sulfur compounds as sulfur dioxide. However, the sulfur dioxide reacted with water vapor in the air forming "acid fog" or "acid rain." This fog or rain of sulfur dioxide gases killed surface vegetation and young timber. The Basin was stripped of its trees, for wood was the fuel used in the smelting process. Within a few years numerous miles of timber had been cut, burned in forest fires, or had died from sulfur dioxide fumes. Top soil on the rolling hills soon eroded away, leaving bare hills and gullies.

As a result, two court cases occurred that figured prominently in the field of conservation law. In one case, Madison v. Ducktown Sulphur Copper and Iron Co. and Madison v. Tennessee Copper Company 83S.W. 658 (113 Tenn. 331, 1904) the defendants, local farmers, filed for an injunction in state court to stop the roasting process on the grounds of nuisance to their lives and livelihood. The court found that the roasting did in fact constitute a nuisance and did cause damages but it denied the injunction arguing that the economic benefits of the copper industry to the town, county and state outweighed the relief gained by the plaintifs.

In a case heard by the U.S. Supreme Court (Georgia v. Tennessee Copper Co. 206 U.S.236) in 1906, the State of Georgia petitioned to enjoin the defendant from discharging noxious gas from their works over the state line in Georgia thereby depriving the state of their sovereignity. Georgia argued that it was her right to decide if her citizens had clean air. Justice Oliver Wendall Holmes wrote the majority opinion and stated that "... the State has an interest independent of and behind the titles of its citizens, in all the earth and air within its domain. It has the last word as to whether its mountains shall be stripped of their forests and its inhabitants shall breathe pure air..." That same year, the court held that the State was entitled to an injunction until the company completed the structures they were building to stop the fumes.

These legal cases were important steps in the development of conservation law and parenthetically the move to reclaim the noxious gases has resulted in sulfuric acid being the primary product in the Copper Basin.

With construction of the first sulfuric acid plant in 1907, the destructive gases were contained and converted to sulfuric acid, ending the era of ecological havoc. A reforestration program, begun in the 1930s and sponsored initially by the Tennessee Copper Company and TVA, is continued by the Cities Service Company. It involves planting of thousands of pines and plants annually, gradually restoring the once tree-covered hills of the Basin.

At the heyday of the mining industry in the 1940s, about six mines were operating in the Basin. Only three mines operate in the Basin today; these date to the 1950s. All other mines, several that were contemporary with Burra, have nothing left but surface rubble. Burra is the oldest mine in the Basin with extant original buildings and has always been considered one of the most important mines. Sitting atop the hill adjacent to Ducktown and overlooking the vast brown hills of the Basin, the Burra Burra Mine serves as a tangible reminder of the Copper Basin's immense early mining industry.

Major Bibliographical References

Barclay, R. E. Ducktown Back in Raht's Time. Chapel Hill: University of North Carolina Press, 1946.

Barclay, R. E. Railroad Comes to Ducktown. Knoxville: Cole Print and Thesis Service, 1974.

Bonsignore, John J., et.al Before the Law: An Introduction to the Legal Process. Boston: Houghton Mifflin, 1980.

Emmons, W. H. and F. B. Laney. Geology and Ore Deposits of the Ducktown Mining District, Tennessee. U. S. Geological Survey. Professional Paper No. 139. Washington: GPO, 1926.

Hodge, W. R. "Loading Pockets and Measuring Capsules in Burra Burra Mine." English Mining Journal, vol. 103 (1917), pp. 59-97.

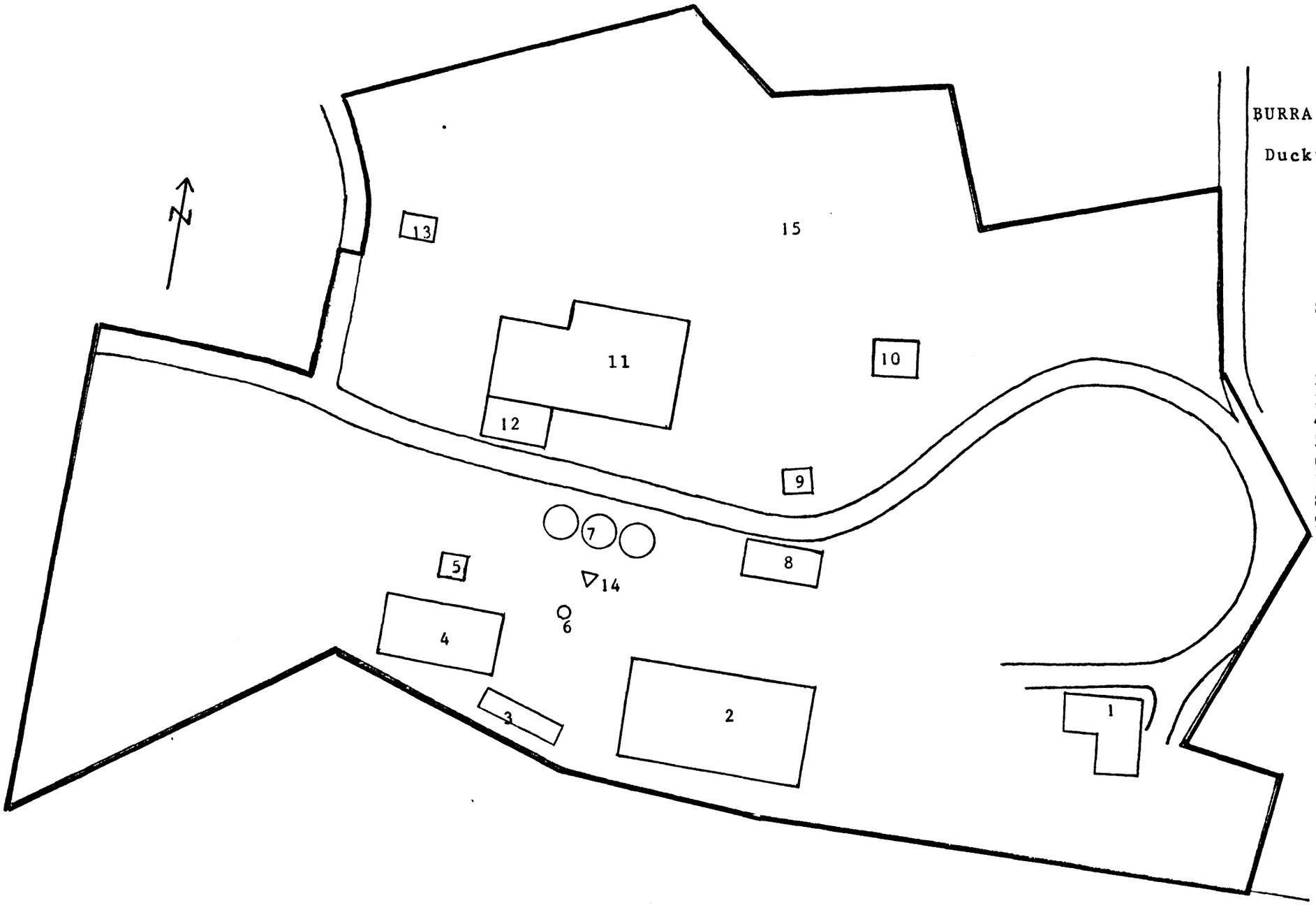
Ross, Clarence S. Origins of the Copper Deposits of the Ducktown Type in the Southern Appalachian Region. U. S. Geological Survey. Professional Paper No. 179. Washington: GPO, 1935.

Verbal boundary description and justification

The district lies along the north slope of the hill and is roughly bounded by State Highway 68 to the west, the community of Ducktown to the north, High Street to the east, and the crest of the hill to the south. The boundaries are those of the property donated to the Ducktown Basin Museum and include only the land directly associated with the activities of the mine. The clinic and baseball field have been included in the nomination because of their historical associations with the daily activities of the mine and the social/humanitarian aspects of mining in the early twentieth century. Although the sealed entrance site of the mine itself is within the surface boundaries of the district, the network of mine shafts below ground level are not included in the nomination.

BURRA BURRA MINE HISTORIC DISTRICT

Ducktown, Polk County, Tennessee

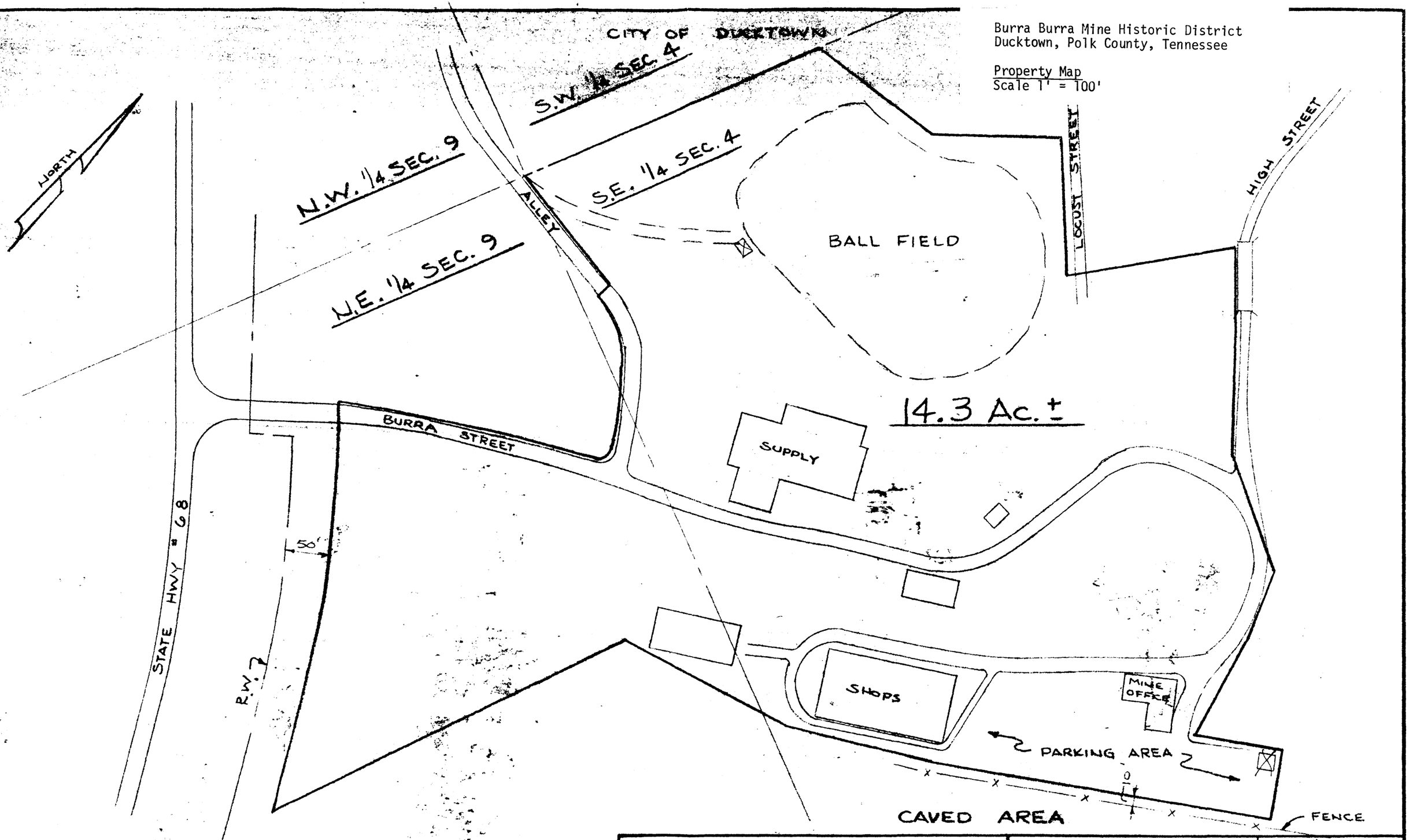


SKETCH MAP (not drawn to scale

1. Mine Office (museum)
2. Machine Shop
3. Plate Shop
4. Change House
5. Storage Building
6. Derrick
7. Ore Bins
8. Core House
9. Bit House
10. Powder House
11. Hoist House
12. Boiler House
13. Clinic
14. Mine Entrance (Sealed)
15. Baseball Field

Burra Burra Mine Historic District
Ducktown, Polk County, Tennessee

Property Map
Scale 1' = 100'



PROPOSED DUCKTOWN-BASIN MUSEUM PROPERTY

NO.	DATE	BY	APP.	REVISIONS

CITIES SERVICE COMPANY
COPPERHILL OPERATIONS
COPPERHILL TENNESSEE

DRAWN BY FDR	DATE 7-14-80	SCALE 1"=100
CHECKED	ENG.	DATE
APPROVED		DATE
B-O-103-3800-06		REV