Keefe-McDerby Mine Ditch
East of East Bidwell Street between
Clarksville Road and Highway 50
Folsom Vicinity
Sacramento County
California

**HAER No.** CA-195



**PHOTOGRAPHS**

**WRITTEN HISTORICAL AND DESCRIPTIVE DATA**

**Historic American Engineering Record**
**National Park Service**
**Department of the Interior**
**San Francisco, California**

# HISTORIC AMERICAN ENGINEERING RECORD
# THE KEEFE-MCDERBY MINE DITCH
**East of East Bidwell Street between**
**Clarksville Road and Highway 50**
**Folsom Vicinity**
**Sacramento County**
**California**

**HAER No. CA-195**

Location: Beginning 0.1 mile north of Highway 50 and heading 2.0 miles in a northwesterly direction along the east side of East Bidwell Street, 1.0 miles southeast of Folsom, Sacramento County, California

U.S.G.S. 7.5 minute Folsom, California and Clarksville, California quadrangles. Universal Transverse Mercator coordinates: Point A: (Northernmost end) Zone 10 663080mE; 4280430mN. Point B: (near Highway 50) Zone 10 664740mE;4278780mN.

Date of Construction: circa 1851

Engineer: Unknown

Present Owner: Elliott Homes
2390 East Bidwell Street
Folsom, CA 95630

Present Use: Abandoned

Significance: The Keefe-McDerby Mine ditch is a representative example of mining activities in the Folsom area. The ditch is important in local history because it predates the Natomas Ditch that provided water for most of the dry diggings around Folsom. The Keefe-McDerby Mine Ditch provided water for the dry diggings at Willow Springs Hill; the ditch is a part of the historic mining landscape of the Willow Springs Mining District and may be considered an eastern extension of that historical district.

Report Prepared by: Dan Osanna M.A.
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Elk Grove, California 95624

Date: November 1997

## I. DESCRIPTION

The Keefe-McDerby Mine Ditch is a hand-dug water conveyance system of varying width and depth. The ditch hugs the lower hills east of East Bidwell Street between Highway 50 and Clarksville Road. The ditch continues south of the Highway 50-East Bidwell/Scott Road interchange. From the south side of Highway 50, the ditch parallels and is crossed by the old Sacramento Valley Railroad tracks to Malby Crossing on Carson Creek. The ditch terminates at the lower of two reservoirs on the northwest side of Carson Creek. Historical archaeologist Susan Lindstrom, mining engineer John Wells and archaeologist/gold rush historian Norman L. Wilson stated that typically, "major ditch systems pass through a series of reservoirs and carry water onto (mine) areas being worked."[1]

According to Jim Phillips, a local resident who was raised in the area, the ditch flowed south to north. In the vicinity of Clarksville Road, the ditch water was piped westward "right through the hills" to Keefe's Willow Springs Hill Mine.[2] Although the ditch no longer carries water, on-site examination of the ditch corroborated Phillips' testimony. There is an obvious downshoot on the north end of the ditch segment recorded on nearby Broadstone Unit 3.[3] In addition to the downshoot, aerial photographs show the route of the ditch from the project area south to the Carson Creek vicinity. The photographs plainly show the ditch on both the north and south sides of Highway 50 and continuing south to the Carson Creek vicinity.

## II. ARCHITECTURAL AND ENGINEERING INFORMATION

As most mining ditches from the gold rush era, the Keefe-McDerby Mine Ditch was not designed by a famous or notable engineer. According to Jim Phillips, the ditch was in use prior to construction of the larger and more extensive Natomas Main Ditch that supplied water to mines in the Folsom area by 1853.[4]

Approximately 9,325 feet long, with an average top width of 10 feet, bottom width of three feet and depth varying between two and four feet, the Keefe-McDerby Mine Ditch segment situated on the planned Broadstone Unit 3 development was recorded from Highway 50 on the south to the intersection of Clarksville Road with East Bidwell Street on the northwest. Judging by the slope of the northernmost several hundred feet, water was conveyed from south to north.

## III. HISTORICAL INFORMATION

### Historic Context

The 1848 discovery of gold on the American River at Coloma spurred thousands of

immigrants to California. In May of that year, there were only a few hundred working at shallow surface mines. By the end of the first season, there were 8,000 to 10,000 miners. During the following year, 1849, almost 40,000 followed routes by land and sea to the gold fields. The migration of 1850 was just as great.[5]

At first, miners in the Folsom area worked the creeks south of the American River and Negro Bar.[6] As the creek placers gave out, miners turned to the dry stream banks. However, the dry diggings of the hills and gulches away from the river and streams were not extensively worked until water delivery was made possible by the first ditches.

Eventually, hundreds of miles of miners' ditches were dug throughout areas that were located away from natural water sources. Construction of ditches as the Keefe-McDerby Mine Ditch was by hand in incredibly short periods of time considering the effort required. Most ditches were designed to fall between 12 and 18 feet per mile, following the natural contours from source to destination. Few tunnels or overhead aqueducts were used. The slope provided a good flow of water that was sold to miners, recaptured downstream and sold again.[7]

Most mining ditches were owned by companies that provided the capital for construction and maintenance, usually at a loss. The ditches served their purpose well, except in late summer and during the fall when water was scarce.[8]

Willow Springs Diggings, later known as the "Willow Springs Mining District," was one of dry diggings requiring water. Located west of the planned Broadstone Unit 3 development, the 2,000 acre district was historically about two miles east of Folsom, situated on a ridge between Alder and Willow creeks. Willow Springs Hill supported many independent miners and several mining companies. The diggings are illustrated on Jackson's map of 1850 and Judah's map of 1854 and were worked as early as 1851. At this time, the Keefe-McDerby Mine Ditch was the most likely source of water for the area since the Natomas Ditch was not completed until 1853.

Eventually, the ditch became part of the Diamond Ridge Ditch Company system. Like most ditch companies, Diamond Ridge has a history checkered with multiple owners. Jones, Furman and Company, started the ditch system in El Dorado County in 1851 with the excavation by hand of the Diamond Ditch from Diamond Springs to a weir on Squaw Hollow Creek (below Oak Hill Road). The company extended its ditch system eastward to Clear Creek in 1852, then eastward again to Camp Creek by 1853. At the same time, the company constructed Pleasant Valley Dam on Clear Creek, as well as the Summit Ditch (later called Upper Eureka Ditch).

Jones, Furman and Company added to the system again in 1854 when it completed the North Fork Canal to the Steely Fork of the North Fork, Cosumnes River.[9]

Soon after the completion of these sections, however, the company became bankrupt. The company could not recover its initial construction costs due mainly to disputes with miners over water prices and disagreements with landowners on water rights. Company properties were sold at sheriff's auction to W.P. Scott, who joined the system with the ditches of Bradley, Berdan and Company, Inc. The combined water systems became the Eureka Canal Company. Under Scott's management, Eureka Canal Company prospered and ditches were expanded westward to the American Reservoir (now Bass Lake, which is located north of Highway 50 between El Dorado Hills and Cameron Park). By 1856, the Eureka Canal system had become the largest in California with 247 miles of canals and lateral ditches.[10]

During 1875, the Eureka Canal Company was purchased by a Mr. McClellan of San Mateo. McClellan was a speculator who sold the system in two years to J.J. Crawford. Crawford was general manager of the Park Canal and Mining Company. At the time, Park Canal and Mining Company's ditches were known as "Crawford's Ditch" in El Dorado County. Crawford was an active general manager, who later became the state mineralogist.[11]

Under Crawford's leadership, the Park Canal and Mining Company not only extended its ditches higher into California's Sierra Nevada, but increased the system's carrying capacity by widening and deepening the ditches and by constantly maintaining them to assure a dependable flow of water. At its peak of development, the Park Canal and Mining Company system included over 300 miles of ditches.[12] The water conveyance system encompassed an area 60 miles east-west by 12 miles north-south. The system reached into the eastern part of neighboring Sacramento County and included the Keefe-McDerby Mine Ditch.[13]

A description by the State Mineralogist of the Diamond Ridge Ditch Company included the Park Canal and Mining Company system:

> The High Service line, of 1,200 to 1,500 miner's inches capacity, begins at the Baltic Mill, 24 miles E. of Diamond Springs, on Camp Creek; thence 6¼ miles to Hazel Valley, dropping 650' into Park Creek; thence down Park Creek, through Hazel Valley and Sly Park reservoir sites, 2 miles; thence 5½ miles to the Dry Gulch hydraulic mine. Here the water is either dropped into Camp Creek for the Low Service line, described later, or down Dry Gulch 1 mile to Clear Creek; thence 15 miles by the Middle Service line to Pleasant Valley, Newtown, Fort Jim, Tennessee Hill, and Red Hill, where it may be dropped into Ringgold Creek, down which it flows 3 miles; thence 5 miles to Diamond Springs. . . .
>
> The Middle Service line from Squaw and Clear Creeks, is in temporary disuse.
>
> The Low Service line diverts water from the North Fork of the Cosumnes River, at the mouth of Steeley Fork, 3 miles W. of Grizzly Flat, and conveys it 11 miles to Camp Creek; thence 9 miles to Clear Creek; thence 7 miles to the Cascade Falls, where it divides, one portion being carried 2 miles by the Connecting line

> to the Middle Service line, thence 4 miles to Baker's Hill, where it is dropped 300' into Ringgold Creek and picked up by the High Service line, previously described. . . .
>
> The main line drops down a ravine at the west end of Diamond Hill, and flows to the three "equalizing" reservoirs between Diamond Springs and Mud Springs, where the following branch lines, of 100 to 400 inches capacity, diverge, . . .The main line leaves the reservoirs and flows 3 miles down Empire and Slate creeks to the falls of Slate Creek, where the Rock branch starts on the north side and runs 3 miles northward. The main line is diverted on the opposite side and continues via Buckeye Flat, Shingle Springs, Green Valley, etc.; 16 miles to the American reservoir, of 200 acres, at 1,400' altitude. At Buckeye one branch goes north to Tennessee and Pyramid; the other goes south, through Sawmill Ravine, to Frenchtown, thence 3 miles by ditch to Pekin, Oro Fino, etc.[14]

In addition to the parts of the Park Canal Company, the description also lists its linkage to the Keefe-McDerby Mine ditch:

> Several miles east of the American reservoir the water may be dropped into Deer Creek and picked up 5 miles lower down, near Cothrin's, and diverted by a branch extending 12 miles to the Deady reservoir, and thence to Western House, 18 miles from Sacramento City. Near White Rock this line divides, and the other branch sweeps around the hills to Willow Springs, near Folsom. This latter branch may also be fed from the American reservoir by dropping the water down Carson Creek. . . .[15]

As the gold supplies in the various dry diggings areas were depleted, the need for water was not as great. Had it not been for J.J. Crawford's insight, the entire ditch system might have been abandoned. Crawford promoted development of the largest orchard in El Dorado County, and an electrical generating plant, two industries that required water. Their need for water kept the ditch active past the turn of the century.[16]

By 1916, however, orchards were in serious decline due to the age of their trees, the remaining mines were becoming too costly to operate, and electricity generated by engine-driven generators was much more convenient than that from remote water wheels. As these industries faded, the vast canal system ceased to pay for its maintenance. Although some sections remained in use in El Dorado County, the ditches in Sacramento County fell into disuse by 1923. The Keefe-McDerby Mine Ditch had most likely been abandoned prior to this period due to competition from the Natomas Main Ditch.

However, the Keefe-McDerby Mine Ditch played an important role in the development of the gold mining in the Folsom area. Predating the Natomas Main Ditch, it was the first source of water for the dry diggings at Willow Springs Hill. In addition to its connection

with the Willow Springs Hill mines, the ditch was also part of a significant regional water system with more than 300 miles of ditches providing water for several different industries.

## IV. SOURCES

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Caughey, John Walton. *Gold is the Cornerstone.* Berkeley: University of California Press, 1948.

Clark, William C. *Gold Districts of California.* Sacramento: California Division of Mines and Geology, 1963.

Lindstrom, Susan et al. "A Cultural Resource Inventory of Prairie Oaks Center Project 90 Acres Near Folsom, California Sacramento County, California," 1993. Ms. North Central Information Center, California State University, Sacramento.

Peabody, George. *The Historical Perspective Supplement for the Pleasant Valley - Oak Hill - Sly Park Area Plan and Environmental Impact Report.* Placerville: El Dorado County Community Development Department Parks and Recreation Division, 1988.

Philips, Jim of Roseville, interview by author, 10 November 1997, phone conversation.

Windmiller, Ric, Louis A. Payen and Pamela Payen. "Addendum to Evaluation of Cultural Resources, Broadstone Unit 3, Folsom, Sacramento County, California," 1997. Ms. North Central Information Center, California State University, Sacramento.

Windmiller, Ric. "Evaluation of Cultural Resources, Willow Springs Development, Sacramento County, California," 1997. Ms. North Central Information Center, California State University, Sacramento.

## V. PROJECT INFORMATION

This document has been prepared at the request of the United States Army Corps of Engineers, Sacramento District. Elliott Homes is planning a 570 acre residential development at Broadstone Unit 3. Because waters of the United States are involved, a federal action in the issue of a Clean Water Act, Section 404 permit, prompted a National Historic Preservation Act, Section 106 review. As a result of the 106 consultation process, the parties agreed to document the segment of the ditch located on the Broadstone development. Broadstone is located in the Folsom vicinity, Sacramento County, California.

Project Manager for the recording process was Ric Windmiller, M.A. Since 1970, Mr. Windmiller has directed both small and large-scale archaeological research projects in California, Nevada, Arizona, Colorado, New Mexico, Canada and Mexico. Prior to opening his own consulting business in 1987, Ric Windmiller was a staff archaeologist with the University of Arizona and the University of Colorado. He was also staff archaeologist with the National Park Service, Western and Southwest regions. His education includes the following:

Graduate:

University of Colorado (Anthropology, A.B.D., doctoral candidate).
University of Manitoba, Canada (Anthropology, M.A., 1974).

Undergraduate:

California State University, Sacramento (Anthropology, B.A., 1968).

The photographer was Robert A. Hicks. Mr. Hicks has been an applied technical photographer since 1968. After 16 years as a staff researcher at the University of California, he spent the last six years as a technical graphics consultant for public utilities and the private sector. Mr. Hicks' specialties include small object photography, artifact illustration, aerial photography and interpretation, cartographic planning and ethnographic video production.

## VI. NOTES

1. Susan Lindstrom et al., "A Cultural Resource Inventory of Prairie Oaks Center Project 90 Acres Near Folsom, California Sacramento County," (Ms. on file North Central Information Center, California State University, Sacramento, 1993), 18.

2. The Willow Springs Hill Mine was also know as the Keefe-McDerby Mine or the Keefe-Mahoney Mine; Jim Phillips, interview by author, Telephone Conversation, Roseville, California, 10 November 1997.

3. Ric Windmiller, Louis A. Payen, and Pamela Payen, "Addendum to Evaluation of Cultural Resources, Broadstone Unit 3, Folsom, Sacramento County, California," (Ms. on file North Central Information Center, California State University, Sacramento, 1993), 4-5.

4. Lindstrom et al., "A Cultural Resource Inventory of Prairie Oaks Center Project 90 Acres near Folsom, California, Sacramento County," 17.

5. John Walton Caughey, *Gold is the Cornerstone* (Berkeley: University of California Press, 1948), 245-252.

6. Originally settled in 1849, Folsom was first known as "Negro Bar." William C. Clark, *Gold Districts of California* (Sacramento: California Division of Mines and Geology, 1963), 48.

7. George Peabody, *The Historical Perspective Supplement for the Pleasant Valley - Oak Hill - Sly Park Area Plan and Environmental Impact Report* (Placerville: El Dorado County Community Development Department Parks and Recreation Division, 1988), 336.

8. Peabody, *The Historical Perspective Supplement for the Pleasant Valley - Oak Hill - Sly Park Area Plan and Environmental Impact Report*, 336.

9. Peabody, *The Historical Perspective Supplement for the Pleasant Valley - Oak Hill - Sly Park Area Plan and Environmental Impact Report*, 348.

10. Peabody, *The Historical Perspective Supplement for the Pleasant Valley - Oak Hill - Sly Park Area Plan and Environmental Impact Report*, 348.

11. Peabody, *The Historical Perspective Supplement for the Pleasant Valley - Oak Hill - Sly Park Area Plan and Environmental Impact Report*, 348.

12. Peabody, *The Historical Perspective Supplement for the Pleasant Valley - Oak Hill - Sly Park Area Plan and Environmental Impact Report*, 348.

13. California Bureau of Mines and Geology, *The Thirteenth Report of the State Mineralogist* (Sacramento: State Printing Office, 1896), 529.

14. California Bureau of Mines and Geology, *The Thirteenth Report of the State Mineralogist*, 529-530.

15. California Bureau of Mines and Geology, *The Thirteenth Report of the State Mineralogist*, 530.

16. Peabody, *The Historical Perspective Supplement for the Pleasant Valley - Oak Hill - Sly Park Area Plan and Environmental Impact Report*, 348.

ADDENDUM TO:
KEEFE-MCDERBY MINE DITCH
Between Clarksville Road and White Rock Road, along East Bidwell Street and Placerville Road
Folsom
Sacramento County
California

HAER CA-195
*HAER CAL,34-FOLSO.V,3-*

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
PACIFIC WEST REGIONAL OFFICE
National Park Service
U.S. Department of the Interior
333 Bush Street
San Francisco, CA 94104

HISTORIC AMERICAN ENGINEERING RECORD

KEEFE-MCDERBY MINE DITCH

This report is an addendum to an 8-page report previously transmitted to the Library of Congress in 1997.

**Location:** Sacramento County, California.

This segment of the Keefe-McDerby Mine Ditch (Ditch) is located south of the City of Folsom and west of the community of Clarksville, in Sacramento County, California. This segment travels largely along Old Placerville Road between U.S. Highway 50 and White Rock Road. At the time of documentation, this segment travels through a rural landscape composed of sparse oak trees, seasonal grasses, and granite rock outcroppings.

Specifically, the this segment of the Ditch is located in Sections 9, 15, 16, and 22 of Township 9 North, Range 8 East, Mount Diablo Meridian, as depicted on the USGS 7.5' Clarksville, California quadrangle map.

**Dates of Construction:** The exact construction date of the Keefe-McDerby Mine Ditch is unknown. It is estimated to have been constructed in 1851, the year that coincides with the establishment of the Willow Spring Hill Diggings. Local resident Jim Phillips was interviewed in 1997 by Dan Osanna, the author of the previously prepared Historic American Engineering Record (HAER) documentation. Phillips claimed that the Ditch was in use prior to the construction of the larger Natomas Ditch, which was constructed in 1853 to feed the Willow Spring Hill Diggings. Therefore, the Ditch was most likely originally constructed in 1851 to supply water to the Willow Spring Hill Diggings area.

**Builder:** The builders are unknown. Archival research and analysis suggests it was hand-dug by local miners.

**Original Owner and Use:** The Keefe-McDerby Mine Ditch originally conveyed water from Carson Creek to Willow Spring Hill Diggings. Original ownership of the Ditch is not documented in the historical record. Because it was not recorded in company or mining records, it was likely constructed as a combined effort of local miners at the Willow Spring Hill Diggings until it was purchased and came under ownership of the Diamond Ridge Ditch Company after

1851. The Ditch likely continued to supply water to the Willow Spring Hill Diggings and other mining operations in the area until 1865 when it was cut off from its water supply source by the Placerville and Sacramento Valley Railroad.

The Ditch is also not identified by any name in the historical record. The title "Keefe-McDerby Mine Ditch" appears to be a name given to the Ditch by Dan Osanna, the author of the 1997 HAER documentation for the Ditch. The name "Keefe-McDerby" is derived from the names of the landowners of the Willow Spring Hill Mine, operated jointly under the Keefe-McDerby name between 1911 and 1930. The Willow Spring Hill Mine was located within the Willow Spring Hill Diggings area, which is situated largely in the southwest ¼ of Section 6, Township 9 North Range 8 East.

Robert Keefe was a miner of the Willow Spring Hill Diggings area as early as 1853. He also was the lifelong superintendent of the Willow Spring Hill Mine that was established in 1875. Thomas McDerby was the stepson of Keefe; the two owned the mine together from 1911 until 1930. Despite these two individuals participating in mining operations, the Keefe-McDerby Mine Ditch could not have been the primary water supply source for their operations because it was cut off from its water supply source by the Placerville and Sacramento Valley Railroad in 1865, a decade prior to the establishment of the Willow Spring Hill Mine, and years prior to the birth of Thomas McDerby. In addition, the competing Natomas Ditch was completed to Willow Spring Hill Diggings by 1853, which is also the first year Keefe traveled to the United States. Therefore, the Ditch itself pre-dated Keefe's mining operations at the Willow Spring Hill Diggings and could only have been used for mining operations for a few years before being rendered useless for mining by the much larger and more efficient Natomas Ditch. It was later used to supply water for agricultural operations.

Despite the lack of historical connection between the name Keefe-McDerby and the Ditch, no other name for the Ditch is recorded in the archival record. Therefore, this documentation was prepared utilizing the same name as was given in the previous HAER documentation[1].

**Present Owner and Use:**

The Keefe-McDerby Mine Ditch is currently not an active ditch and remains unused. Ownership of this segment of the Ditch is divided between multiple land/permit holders that own the property containing this

[1] Dan Osanna, *Keefe-McDerby Mine Ditch, East of East Bidwell Street between Clarksville Road & Highway 50, Folsom, Sacramento County, CA.HAER No. CA-195,* 1997, (HABS/HAER/HALS Collection at the Library of Congress, Prints & Photographs Division. http://www.loc.gov/pictures/item/ca2393/ (accessed February 20, 2013)).

segment of the Ditch. These land/permit holders are: Backbone Infrastructure ; Carpenter Ranch LLC; Arcadian Heights; Mangini Ranch LLC; and Russell Ranch.

The Keefe-McDerby Mine Ditch is currently not in use and contains no structure improvements. Segments of the Ditch are still intact and fill with water seasonally due to rainfall, but water is no longer intentionally conveyed through the system. The land containing the Ditch is vast and includes areas of open space, farm and agricultural land, and ranching property.

**Significance:** The Keefe-McDerby Mine Ditch was constructed in approximately 1851 to serve the Willow Spring Hill Diggings and other local dry diggings mining areas. It is estimated to be among the first of the major ditch systems in the area, pre-dating the Natomas Ditch, which also supplied water to the miners at the local dry diggings. It was important to the development of the local economy as it brought water from Carson Creek to the dry diggings at Willow Spring Hill to allow for year-round placer mining of the area. Later, it was likely used to supply water for ranching and farming. Mining and agriculture have been two of the major economic mainstays of California's economy, and water, transported to these industries, allowed these enterprises to prosper.

The Ditch is individually eligible under National Register of Historic Places (NRHP) Criteria A and D. The Keefe-McDerby Mine Ditch was found individually eligible under Criterion A because it was important to the development of the local economy, as it brought water to the dry diggings to allow for year-round placer mining and it was later used for ranching. It was found individually eligible under Criterion D because there still exists great information potential for the Ditch. Archival research failed to identify scaled locations of the Ditch and as a result the information potential exists in its physical manifestation in the landscape. Therefore, the Ditch is eligible based on a combination of archival and physical data. Another segment of the Ditch, north of U.S. Highway 50, was also previously recorded (HAER No. CA-195).

**Description:** The Keefe-McDerby Mine Ditch meanders along a south to north trajectory from Carson Creek to Willow Springs Hill Diggings adjacent to the historic Placerville and Sacramento Valley Railroad and Placerville Road. The Ditch at the southern extent is immediately adjacent to White Rock Road. The Ditch meanders in a northerly direction following the contours of the hillsides The Ditch then crosses Placerville Road and the railroad where it breaks and continues northeast of the road and railroad until terminating at its northernmost extent at U.S. Highway 50.

The Ditch drops approximately twenty feet in elevation from White Rock Road to U.S. Highway 50. The Ditch has a one- to two-foot high berm on the western side of the Ditch along its entire length. The top width of the Ditch varies from three to ten feet and bottom width ranges from two to four feet.

The Ditch no longer functions as it was originally intended. It is cut off from its original water supply by the Placerville and Sacramento Valley Railroad, White Rock Road, and other interferences. Natural erosion and weathering has degraded areas of the Ditch for the entire length. Vegetation has overgrown many portions of the Ditch, making it difficult to see in some areas. Cattle have extensively grazed the area and have worn trails through the Ditch in many segments. Dirt access roads have also been graded through the Ditch in multiple segments to allow vehicle paths through the area. Despite the natural weathering and invasion by cattle and roads, the Ditch is still very obvious and clearly present, still following its original course. It is a strong representation of the mining that occurred throughout the area and maintains a strong physical presence within the landscape.

**History:**

The Keefe-McDerby Mine Ditch is historically associated with the Willow Spring Hill Diggings and early Gold Rush era mining south of Folsom in the eastern part of Sacramento County. In order to adequately assess the significance of the Keefe-McDerby Mine Ditch to the mining industry of Folsom and Sacramento County at the time, it is important to understand the context in which this engineering feature was developed. The following historical context of the Keefe-McDerby Mine Ditch describes its importance as it relates to the Gold Rush mining in the area and the Willow Spring Hill Diggings.

**Gold Mining and Water Conveyance:** John Sutter, a European immigrant, built a fort at the confluence of the Sacramento and American rivers in 1839 and petitioned the Mexican governor of Alta (Upper) California for a land grant, which he received in 1841. Sutter built a flour mill and grew wheat near the fort[2]. Gold was discovered in the flume of Sutter's lumber mill at Coloma on the South Fork of the American River in January 1848[3]. That same year, the Treaty of Guadalupe Hidalgo ended the Mexican-American War and marked the beginning of the American Period (1848 to present). California became a U.S. territory in 1848 and a state in 1850. The discovery of gold initiated the 1849 California Gold

[2] John Bidwell, "Sutter's Fort," In *California Heritage: An Anthology of History and Literature*, ed. John and Laree Caughey, (Rev. Ed. Itasca, IL: F. E. Peacock Publishers, 1971), 134-138.
[3] James W. Marshall, "The Discovery," In *California Heritage: An Anthology of History and Literature*, ed. John and Laree Caughey (Rev. Ed. Itasca, IL: F. E. Peacock Publishers, 1971) 191-192.

Rush, bringing thousands of miners and settlers to California, most of who settled in the north.

The Gold Rush was the start of a huge influx of people who flooded California in a quest for gold. Most of the gold operations in California followed a large strip of land called the "Mother Lode," which is located in the Sierra Nevada foothills. Though the rush lasted only a few years, it had lasting impacts on the California landscape.

Pans, shovels, long toms, rockers, and sluices were among the earliest mining technologies used in the Mother Lode. The earliest miners focused on the loose gold, known as placer gold, found in the sand and gravel beds of rivers and streams[4]. This early mining technique required water to wash away lighter sands and gravels, allowing the heavier gold to settle at the bottom of a pan. From the onset of the Gold Rush in 1848 until the 1850s, miners profited from using these techniques along rivers and streams. The pan was used to mix water and gravel from the river bed in a circular wave-like motion, which washed lighter soils away and left gold-bearing rocks in the pan. The long tom was used in a similar fashion. At the upper end of the device, gravel and water were mixed before trickling down the short sluice. A perforated iron plate located at the bottom of the sluice caught gold particles, while the rest was washed away[5][6]. These single miners were only successful in their operations for a few years, until the 1850s.

Water is required to make the extraction of gold from rock more productive. The use of water conveyance systems, such as ditches, provided the much-needed resource to the placer mines located throughout California during the Gold Rush era. Originally, gold extraction was limited to areas around rivers and streams, but the system of digging ditches or canals and diverting the water made this process easier and opened more areas throughout the state for mining operations. The need for water diversion and transportation to mines became a significant venture, which altered the landscape and contributed to the growth of California.

From the 1850s until about 1865, mining operations in California moved towards large-scale production. The small placer deposits along rivers and streams were harder to find and prospectors were forced to look for gold away from flowing water sources. During this period, miners had only two simple methods for removing gold from the soil: washing or winnowing.

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[4] J. Starn, *Wealth from Gold Rush Waters,* (Sanger, CA: Word Dancer Press, 2004).
[5] Rodman Paul, *California Gold: The Beginning of Mining in the Far West,* (Lincoln, NE: University of Nebraska Press, 1947).
[6] J. Starn, *Wealth from Gold Rush Waters*, (Sanger, CA: Word Dancer Press, 2004).

Washing was used along rivers and streams, causing gold to sink away from the lighter sands and gravels[7]. Winnowing was a similar tactic, but instead, used wind to blow the lighter material away. Soil was tossed in the air, and then blown, forcing the lighter gravels away and leaving the heavier gold to drop. Washing was much more efficient than winnowing, but water was needed where there previously was none to continue using this method[8]. These areas, where mining operations occurred but water was scarce, were known as "dry diggings."

Among the easiest methods to transport water to the dry diggings was through ditches, hand-dug to divert the water from a nearby river or stream. This process was labor intensive and costly—often too much for a single miner to handle. This forced miners to pool funds and effort, which led to the creation of small companies. These collaborations enhanced their mining operations and opened up several new markets to California mining, including quartz, drift, and hydraulic mining. Some companies even focused on making profits from selling water from their ditches[9].

The first noted attempt to transport water for mining in California using a ditch system occurred at Coyote Hill in Nevada County in March 1850[10]. Miners dug ditches along Coyote and Little Deer creeks to carry water to long toms set up nearby. This 1.5-mile-long ditch was very successful, and as word spread, so did the networks of mining ditches[11].

The success of these ditches started the first water companies in the Sierra Nevada foothills. The sole purpose of these companies was to build ditches and other water conveyance structures, such as flumes and canals, to provide water to dry diggings. This enterprise often supported miners who left their gold prospecting to work exclusively for these ditch digging companies. Hundreds of ditches, from simple to expansive, were dug to supply the gold mines in the Mother Lode regions of present day El Dorado, Sacramento, Nevada, Placer, Butte, and Tuolumne counties[12]. One of the first massive scale, and most notable in the area, was the Natomas Ditch; however, the Keefe-McDerby Ditch still pre-dated the Natomas Ditch.

**Willow Spring Hill Diggings, Robert Keefe and Thomas McDerby:** The Willow Spring Hill Diggings was located approximately two miles

[7] Caltrans and JRP Historical Consulting Services, *Water Conveyance Systems in California: Historical Context Development and Evaluation Procedures* (Sacramento, CA, 2000).
[8] Ibid.
[9] Erwin Cooper, *Aqueduct Empire: A Guide to Water in California, Its Turbulent History and Its Management Today,* (Glendale, CA: Arthur Clark Company, 1968).
[10] Paul, *California Gold: The Beginning of Mining in the Far West*.
[11] Ibid.
[12] Cooper, *Aqueduct Empire: A Guide to Water in California, Its Turbulent History and Its Management Today*.

east of Folsom situated on a ridge between Alder and Willow creeks in Township 9 North, Range 8 East, Section 6. The diggings were placer mined and were identified on the early William Jackson's 1850 Map of the Mining Districts of California and on Theodore Judah's 1854 Map of the Sacramento Valley Railroad. Despite its identification on these early travel and mining maps as well as in newspapers and census records, information about the history, production, and overall success of the Willow Spring Hill Diggings was not identified in the archival record. The earliest official recorded information about the Willow Spring Hill Diggings area is a mineral patent issued in 1875 (CACAAA 048885) titled to Patrick Donovan, William Flatley, Owen Glinn, and Robert Keefe for the area of Section 6 that contained the Willow Spring Hill Diggings.

Archival research revealed that each of these individuals were Irish-born and traveled to the United States in the early part of the 1850s. Census records indicate that they all settled in Granite Township near Sacramento and proceeded to participate in mining. Immigration records fail to show whether they knew each other prior to traveling to the United States, although they each took up mining in the area.

The Keefe-McDerby Mine Ditch is named after Robert Keefe and Thomas McDerby though the Ditch was not commissioned or managed by either Keefe or McDerby and the historical connection they have with the Ditch is quite limited. The following historic context explains the lack of significant connection between these individuals and the Ditch and is included out of necessity given that this HAER documentation is an amendment to the previous record (HAER No. CA-195) that incorrectly drew a stronger connection between them.

According to census records, Robert Keefe was born in 1832 in Ireland. An immigrant file record of passengers aboard the ship "North American" indicates that Keefe left Ireland at the age of 20 and arrived in New York in 1853. It is presumed at this time that Keefe traveled directly to California in pursuit of gold and settled in Granite Township just outside Sacramento. The earliest official record of Keefe's mining efforts at Willow Spring Hill Diggings is a civil court case record from 1870, which is a suit between Richard Geer as the plaintiff and Robert Keefe as the defendant. Geer claimed that "since the spring of the year 1854" Keefe had been mining a gold-bearing deposit within a mining claim situated on Willow Spring Hill. Geer argued that later, in 1869, Keefe began mining a gold-bearing deposit within property not owned by him but instead located on adjacent land and that he had successfully mined approximately $1,000 dollars of gold dust that is owed to Geer. Amos P. Catlin, one of the original organizers of the massive Natoma Water and Mining Company, acted as Keefe's attorney on the case. Catlin drafted a letter on behalf of

the defendant Keefe, which stated that Keefe "denies each and every allegation in said complaint" and provided proof of land ownership (which was not available in the court records at the archive). Keefe, with the assistance of Catlin, successfully won the defense and his mining operations continued after resolution of the case in 1870. An 1870 census for Granite Township provides secondary confirmation that Keefe, then 38, was married to Mary Keefe, 35, was listed as a miner, and owned land adjacent to Richard Geer, then 57, who was also listed as a miner.

Prior to issuance of the mineral patent and after the mining claim case between Geer and Keefe, an article about real estate transfers from the *Sacramento Daily Union* newspaper in 1873 stated that Robert Keefe's homestead and mining claim at the Willow Spring Hill Diggings was transferred to Frank McNamee for a price of $206. It is unclear why the transfer took place. Then, in 1875 in the *Sacramento Daily Union* a real estate transfer shows Frank McNamee sold the same property at Willow Spring Hill Diggings back to Robert Keefe for a higher price of $252. These land transfers were common as miners made stakes to mining claims, turned to ranching, farming, or other economic activity, or had other debts to pay and needed cash. Despite the brief real estate transfer, Sacramento County assessor maps from 1870 and 1880 indicate that Keefe still held land in the same location within the Willow Spring Hill Diggings area.

The 1875 mineral land patent clearly indicates that by this time, Keefe joined efforts with others to mine the area. Shortly after the mineral patent was issued, the first records appear identifying the Willow Spring Hill Mine operated by Robert Keefe. Keefe is identified as the superintendent of the Willow Spring Hill Mine. Analysis suggests that the mineral land patent issued in 1875 to Keefe and others allowed them to open the Willow Spring Hill Mine under that name, with Keefe as the superintendent, and operate it under protection of the patent. Despite the land patent, another civil court case occurred between Geer and Keefe in 1875. This case, however, was an action of the plaintiff, Robert Keefe, against the defendant, Richard Geer, claiming that Geer had been mining on the mineral lands patented to Keefe and others. Keefe claimed that Geer stole a reported $500 worth of gold dust from the mine over a period of several months and utilized a weapon to force his way on the property and threaten any who attempted to stop him from mining. Witnesses for the plaintiff included Patrick Donovan and Frank McNamee. Richard Geer eventually lost and was required to pay Robert Keefe the sum of $500. Geer quickly filed an unsuccessful counter-suit against Keefe claiming Keefe had misrepresented his property boundary lines and had been in fact stealing from Geer.

Census records and mining journals continued to show Robert Keefe as the superintendent of the Willow Spring Hill Mine located in Willow Spring Hill. Despite continuing operation of the Willow Spring Hill Mine, Sacramento County assessor rolls indicate that Keefe also participated in ranching activities. An assessment of his property from 1890 shows that he still owned the land containing the mine but he also possessed cows, fur, hogs, horses, poultry, a sewing machine, and a wagon. The magnitude of his ranching activities, however, appear small-scale and primarily for personal family use. The Thirteenth Report of the State Mineralogist for 1896 shows the Willow Spring Hill Mine with Keefe as the superintendent still in full operation[13]. Another report of the United States Geological Survey for 1907 indicates that the Willow Spring Hill Mine was still in operation at that time and was still a productive mine in which "gravel is worked by ground sluicing". The journal also stated that some platinum was found with the gold at the mine[14].

A 1900 census of Granite Township shows Keefe still listed as a placer miner but his family was much larger than before. Keefe, then 67, now was married to a woman named Feliz who was 49 years old. It is unknown what happened to Mary, his previous wife. Keefe also had a son, Robert Keefe, two daughters Maggie and Francis Keefe, a stepson Thomas McDerby, and a stepdaughter Mary McDerby. Thomas and Mary McDerby appear to have been the children of Mary, Keefe's first wife prior to their marriage, because they both are listed on the census record as originally Canadian, which is similar to Mary from previous records, and different from Feliz who is listed as Irish.

Thomas McDerby was born in 1869 in Canada and first appears on the 1900 census, at the age of 31, as a placer miner. In 1911, Thomas McDerby first appears on assessor maps as owning land with Keefe (both are listed on the property record) at the same location as Keefe's holdings of the Willow Spring Hill Mine. McDerby also owned land independently in Section 7, south of the mine and away from the Ditch. Keefe and McDerby continue to own the land containing the Willow Spring Hill Mine together with little change through 1930. Despite Keefe's death in 1914, at the age of 81, McDerby continued ownership of the property under both the Keefe and McDerby names. Placer gold mining on the land, however, appears to have ceased after 1907 as no other mining journals or other records for the Willow Spring Hill Mine were found to show placer mining after this date. Thomas McDerby is listed on a 1930

[13] California State Mining Bureau and J.J. Crawford, State Mineralogist, *Thirteenth Report (Third Biennial) of the State Mineralogist for the Two Years Ending September 15, 1896,* (Sacramento: California State Mining Bureau,1896).
[14] George Otis Smith, *Mineral Resources of the United States, Calendar Year 1907, Part 1-Metallic Products,* Department of the Interior, United States Geological Survey, (Washington:Government Printing Office, 1908).

census record as a chicken farmer and not a miner. At this time, Thomas, then 60 years old, was married to Katherine and had no children. It wasn't until 1933 that the California Journal of Mines and Geology shows the Gold Hill Dredging Company started operating a 9-cubic foot bucket-line dredger on the McDerby and Keefe property. It appears as though Thomas McDerby did not have any contribution to the dredging effort.

**Keefe-McDerby Mine Ditch:** Despite the history of mining at the Willow Spring Hill Diggings, in particular the Willow Spring Hill Mine in which Robert Keefe was the lifelong superintendent, no real evidence was identified in the archival record regarding specific history of the Keefe-McDerby Mine Ditch. The Ditch is not identified on any historical mining or land use maps from the period. In addition, the Ditch is not identified by the name "Keefe-McDerby Mine Ditch" in any record other than the previously prepared HAER (CA-195) documentation from 1997 for a different section of the Ditch.

The Keefe-McDerby Mine Ditch became part of the Diamond Ridge Ditch Company system sometime after 1851. It is unclear when, or how, the Keefe-McDerby Mine Ditch ditch became part of the Diamond Ridge Ditch Company system. The Keefe-McDerby Mine Ditch was likely purchased between 1851 and 1856 during a period of vast expansion of the company. The Diamond Ridge Ditch Company was originally founded in El Dorado County by Jones and Furman. Jones and Furman first constructed the Diamond Ridge Ditch, later known as the Eureka Ditch. The Diamond Ridge Ditch was relatively successful and so Jones and Furman continued expanding the system east further into El Dorado County. In addition to digging extra lines, Jones and Furman began purchasing existing ditch systems, some further west into Sacramento County, and formed Diamond Ridge Ditch Company. Eventually, the company fell into bankruptcy likely due to their quick expansion and were forced to sell their property in 1856. The property was sold at sheriff's auction to W.P Scott and all company assets became part of the Bradley, Berdan and Company, Inc. ditch system. This combined Diamond Ridge and Bradley, Berdan and Company water systems and became known as the Eureka Canal Company. The Eureka Canal system became the largest in California by 1856, with 247 miles of canals and lateral ditches. The Keefe-McDerby Mine Ditch is not described in any detail in company records for the period. It is also not identified on any map and it was not yet a named ditch.

The Eureka Canal was purchased by a speculator McClellan (first name unknown) in 1875, who later sold the system in 1877 to J.J. Crawford. Crawford was the general manager of the Park Canal and Mining Company. Crawford later became the state mineralogist. The ditches in El

Dorado County were known as "Crawford's Ditch" at this time. With Crawford as the active general manger, the Park Canal and Mining Company began extending its ditches higher within the Sierra Nevada. The company also increased its system's carrying capacity, widened and deepened its ditches, and constantly maintained them, which ensured a dependable flow of water from the system at all times. During this time, Park Canal and Mining Company began expanding its system to include over 300 miles of ditches. The Keefe-McDerby Mine Ditch was still located in the eastern part of the Park Canal and Mining Company water conveyance system, but it was cut off from providing water to the Willow Spring Hill Diggings by the Placerville and Sacramento Valley Railroad. The Ditch, though not identified by the name Keefe-McDerby, is discussed in a few mining journals and State Mineralogist reports from the period. A description of a ditch from the Parks Canal and Mining Company water conveyance system matches the description of the Keefe-McDerby Mine Ditch. The description states:

> Several miles east of the American reservoir the water may be dropped into Deer Creek and picked up 5 miles lower down, near Cothrin's, and diverted by a branch extending 12 miles to the Deady reservoir, and thence to Western House, 18 miles from Sacramento City. Near White Rock this line divides, and the other branch sweeps around the hills to Willow Springs, near Folsom. This latter branch may also be fed from the American reservoir by dropping the water down Carson Creek …

It is unclear whether the report is simply reporting the winding path of the Ditch or stating that it also carried water. Regardless, the original path of the Ditch was divided after construction of the railroad.

As the need for water for dry diggings began to decrease and the mines became too costly to operate, J.J. Crawford, general manager of Park Canal and Mining Company, began using the Ditch system he owned for other industries that required water, such as agriculture. Crawford promoted the development of the largest orchard in El Dorado County as well as an electricity generating plant. Crawford helped maintained a need for water, which kept the company and the Ditches active past the turn of the 20th century.

With a more serious decline in the use and the need for a water conveyance system for the mining and other industries in the area, the early ditches, including the Keefe-McDerby Mine Ditch within the Ditch systems, were not maintained after about the 1880s and fell into disuse.

**Sources:** The history of the Keefe-McDerby Mine Ditch was prepared using the best available primary and secondary sources of information. Primary and secondary sources were gathered from the following repositories: the

Folsom Historical Society in Folsom; the El Dorado County Historical Museum in Placerville; the Center for Sacramento History in Sacramento; the California State Library California History Room in Sacramento; the Bancroft Library at UC Berkeley online database; the California State Archives in Sacramento; and, the scanned census and other official records as described below.

Primary sources that provided information include: historical newspaper articles; historical maps; water sales records; mining records; mining, ranching, and agricultural census; mining statistic sheets; historical magazine articles; immigrant file records, division of mines and geology journals, assessor maps and roll sheets, court cases, and the extensive collections of maps and records on file with the Center for Sacramento History.

In addition to the multitude of primary sources reviewed, several secondary sources were consulted, primarily the 1997 HAER documentation for another segment of the Ditch prepared by Osanna. All source reference information is included in the bibliography below.

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**Project Information:** The HAER of the Keefe-McDerby Mine Ditch was conducted in partial fulfillment of the Historic Property Treatment Plans to resolve adverse effect to this resource by projects within the Folsom South of U.S. Highway 50 Specific Plan Project. The Specific Plan Area is a proposed residential and commercial development of approximately 3,510 acres located south of U.S. Highway 50 and the City of Folsom, plus the construction of associated off-site infrastructure. The Specific Plan Area is situated south of U.S. Highway 50, east of Prairie City Road, north of White Rock Road, and west of the El Dorado County line in portions of Sections 24, 25, 26, 27, 30, 31, 34, 35, and 36 of Township 12 North, Range 7 East, Mount Diablo Meridian, in the City of Folsom, Sacramento County, California.

The Specific Plan Area is composed of multiple project proponents and developers responsible for different permit areas. The historic Keefe-McDerby Mine Ditch is present within five permit areas within the Specific Plan Area: Backbone Infrastructure (SPK 2007-2159), Carpenter Ranch LLC (SPK 2006-0984), Arcadian Heights (SPK 2013-0485), Mangini Ranch LLC (SPK 2013-0486), and Russell Ranch (SPK 2013-0488).

On July 6, 2011, the Sacramento District of the United States Army Corps of Engineers (USACE) and the California State Historic Preservation Officer (SHPO) executed a Programmatic Agreement (PA) and then amended it as a First Amended Programmatic Agreement (FAPA) on October 3, 2013, to meet the requirements of Section 106 of the National Historic Preservation Act for the proposed Folsom South of U.S. Highway 50 Specific Plan.

The FAPA requires the development of project-specific Historic Property Treatment Plans (HPTPs) in order to resolve adverse effect to historic properties that will be adversely affected by the project. Among other things, the HPTPs for each of the permit areas named above call for the preparation of HAER documentation to resolve adverse effects to the Keefe-McDerby Mine Ditch (P-34-1745).

This HAER documentation was prepared to satisfy the requirements outlined in the HPTPs to resolve adverse effect to the Keefe-McDerby Mine Ditch. The HPTPs for each permit area are listed below:

- Westwood and Knapp, 2013. Historic Property Treatment Plan for the Backbone Infrastructure Permit Area, Folsom South of U.S. Highway 50 Specific Plan Project, Sacramento County, California (SPK 2007-2159)
- Westwood and Knapp, 2013. Historic Property Treatment Plan for the Non-Backbone Carpenter Ranch APE, Folsom South of U.S. Highway 50 Specific Plan Project, Sacramento County, California (SPK 2006-0984)
- Westwood and Knapp, 2014. Historic Property Treatment Plan for the Non-Backbone Arcadian Heights Permit Area, Folsom South of U.S. Highway 50 Specific Plan Project, Sacramento County, California (SPK 2013-0485)
- Westwood and Knapp, 2013. Historic Property Treatment Plan for the Non-Backbone Mangini Ranch Permit Area, Folsom South of U.S. Highway 50 Specific Plan Project, Sacramento County, California (SPK 2013-0486)
- Westwood and Knapp, 2013. Historic Property Treatment Plan for the Non-Backbone Russell Ranch Permit Area, Folsom South of U.S. Highway 50 Specific Plan Project, Sacramento County, California (SPK 2013-0488)

HAER documentation was conducted in fall 2014 by Jeremy Adams, M.A. who is a qualified professional Architectural Historian that meets the Secretary of the Interior's Professional Qualification Standards for history and architectural history. Professional photographer Robert Hicks completed all large-format black and white HAER photography for the project. Lisa Westwood, RPA, provided quality assurance.