Summary Report of the Level I Documentation of the Orchard Ranch Ditch, Delta County, Colorado

by

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Prepared for

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and

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INTRODUCTION

The Orchard Ranch Ditch Company (ORDC) has been funded through the Bureau of Reclamation's (BOR) Colorado River Basin Salinity Control Program to pipe the Orchard Ranch Ditch (site 5DT2067.1) in order to reduce the amount of salt and selenium entering the Colorado River. The project is located on privately owned lands. Because the project is a federal undertaking and is federally funded, various cultural resources laws apply, including Section 106 (54 U.S.C. § 306108) of the National Historic Preservation Act (NHPA) (54 U.S.C. § 300101 et seq.). These laws require that all significant cultural resources be identified prior to planned development, and are intended to insure that historical and prehistoric cultural resources important to our national heritage are not inadvertently harmed or destroyed by federally initiated or authorized actions. The lateral was inventoried by Alpine Archaeological Consultants, Inc. (Alpine), of Montrose, Colorado, in 2016 (Harrison 2016). A Memorandum of Agreement between the BOR, ORDC, and the Colorado State Historic Preservation Office (SHPO) stipulated Level I Documentation as mitigation for adverse effects to the 1.53 miles (mi.) of the Orchard Ranch Ditch. The specifications for Level I Documentation are presented in History Colorado Publication No. 1595 (History Colorado 2013). The ORDC hired Alpine to conduct the Level I Documentation and supplemental narratives and to present these data in a Summary Report.

Level I Documentation is the most basic form of site documentation and closely follows the survey and recordation requirements established by the Office of Archaeology and Historic Preservation, with the additional specification that the documentation be prepared on archival bond paper and that photographic materials be archival. Photographs are stipulated to be black-and-white prints or digital images printed on fiber paper or archival-quality resin paper. Although prints are acceptable in 3-x-5-inch (in.) or larger sizes, 4-x-6-in. prints are preferred by History Colorado (History Colorado 2013).

METHODS

The information used in the preparation of the Level I Documentation was gathered during the Class III cultural resource inventory by Abbie L. Harrison of Alpine between August 29 and 30, 2016 (Harrison 2016). The 1.53 mi. of the Orchard Ranch Ditch to be piped, including all of the associated water-control structures, was recorded using a Global Positioning System (GPS) unit capable of sub-meter accuracy. Documentation also included photography and descriptions of the ditch that focused on water-control features. A list of maps and photographs are included in Appendix A. The listed maps and photo reproductions are included in Appendix B.

LOCATION AND ENVIRONMENTAL SETTING

The Orchard Ranch Ditch is located on private lands immediately west and southwest of the town of Eckert in Delta County, Colorado (Figure 1). From its point of diversion on Surface Creek, the Orchard Ranch Ditch crosses portions of Sections 12, 13, and 14 in Township 14 South, Range 95 West of the 6th Prime Meridian. Elevation along the ditch ranges from 5,480 feet (ft.) (1,670 meters [m]) to 5,560 ft. (1,695 m). The project area is within the Colorado Plateau physiographic province and traverses across Mancos Shale Lowlands that have been converted to agricultural fields, pasture, or residences. The Mancos Shale Lowlands are Cretaceous-age sedimentary deposits and are covered with a shallow mantle of remnant Pleistocene gravels visible along heavily eroded slopes (Tweto 1979). Over the years, the ditch has created its own greenbelt where various trees, shrubs, and grasses have flourished along its banks. Much of what thrives along the ditch includes weedy species, including cheatgrass, Russian thistle, curly dock, milkweed, and mustard. The waters of the canal have also allowed willow, cottonwood, Chinese elm, wild rose and a variety of grasses and forbs to propagate along its banks. Dense growth of waste-high weeds, grasses, Gambel oak, serviceberry, wild rose, and buffalo currant are present along the length of the ditch.

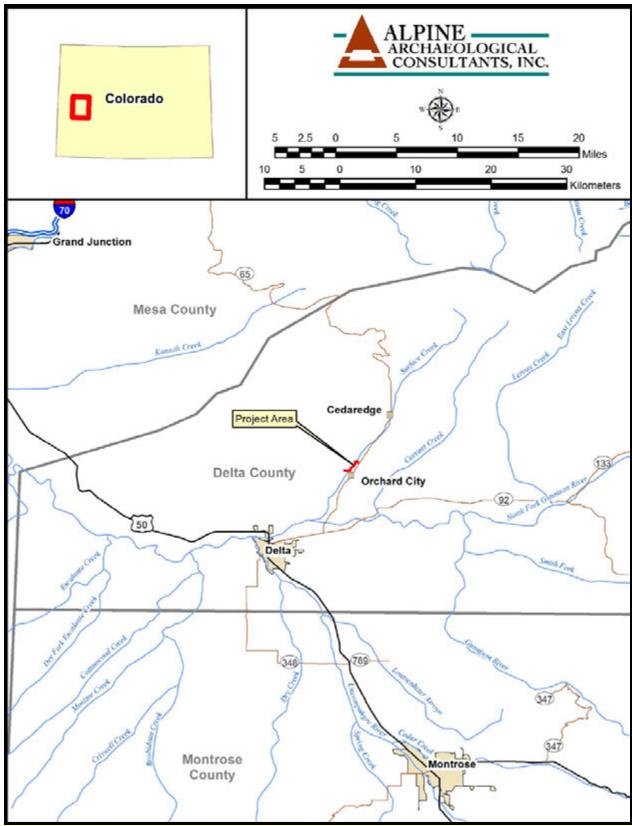


Figure 1. General location map.

HISTORICAL BACKGROUND

The following culture history is a brief synthesis of historical and prehistoric occupation in the Southern Rocky Mountains, including the current project area. It is based upon archaeological and historical work undertaken in and around the Southern Rocky Mountains. For more detail, see the Colorado prehistoric context for the northern Colorado River basin (Reed and Metcalf 1999) and the Colorado historical archaeology context (Church et al. 2007).

The mountains of Colorado may have been first inhabited, to a limited degree, as early as 10,000 B.C. by big game hunters representative of the Paleoindian tradition. Evidence of this early Pleistocene occupation is rarely encountered in the region. With the end of the Pleistocene came climatic conditions very similar to those of the present. By about 5500 B.C., coinciding with this climatic moderation, there was a transition in subsistence and material culture to a new lifeway, termed the Archaic Tradition. Archaic peoples exploited a greater variety of plant and animal foodstuffs and manufactured tools that were quite distinct from those of their predecessors. Regionally, the Archaic period is very well represented archaeologically. At the time of Euroamerican contact, the primary aboriginal group in the project area was the Ute, living an Archaic-like lifestyle. The Utes were Numic speakers, who may have arrived in western Colorado as early as A.D. 1500. As a result of Euroamerican contact, the Utes acquired the horse and underwent rapid culture modification, similar to the assimilated Plains Indian traits.

Western Colorado was designated as a reservation for the Utes as a result of the Treaty of 1868. In 1873, the San Juan Mountains were removed from the reservation as a result of the Brunot Agreement. The Brunot Agreement ultimately increased hostilities between Utes discordant with the removal and the Euroamericans responsible, culminating in the Meeker Massacre in 1879. The Meeker Massacre served as the catalyst for removing the White River and Uncompanding (Tabeguache) Utes from western Colorado. By the end of 1881, the last of the Utes were restricted to reservations in northwestern Utah and southernmost Colorado.

The removal of the Utes from most of western Colorado opened the Grand and Uncompangre valleys to settlement by Euroamericans; the increase in Euroamerican population in the area led to the founding of Montrose, Delta, and Grand Junction, followed by the expansion of the Denver and Rio Grande Railroad line from Gunnison through these new towns in 1882. Farming and ranching quickly took hold. The use of irrigation in the valleys was vital to increase the fertility of the semiarid area. Farmers in the valleys had the advantage of diverting water from the rivers and smaller creeks and waterways that fed the rivers. Between the 1880s and early 1890s, several irrigation companies were formed, resulting in the construction of numerous ditches, canals, and reservoirs. In addition, several natural lakes on the Grand Mesa were dammed and used as storage reservoirs for the lower valleys. Moreover, because of the large amount of precipitation and snow accumulation on the Grand Mesa, numerous creeks originate on the eastern and southern slopes of the mesa. As a result, the secondary mesas below the slopes of the Grand Mesa were at a distinct advantage when it came to water supply for irrigation. Based on data examined on the Bureau of Land Management's General Land Office (GLO) website, it is clear that water diversion from creeks and late-season water-storage reservoirs proved advantageous in terms of irrigation on the Grand Mesa, fueling settlement in Cedaredge, Eckert, and Orchard City beginning in the late 1880s. Settlement in these areas peaked in the early 1890s.

One of the early pioneer ditches of the Eckert region was the Orchard Ranch Ditch. According to the Colorado Division of Water Resources (CDWR) database, the Orchard Ranch Ditch was constructed by February 21, 1883. Water for the ditch was originally appropriated on May 9, 1883, with an allotment of 25 cubic ft. per second (cfs). The ditch was claimed by William M. Spalding, Nancy J. Kimball, Frank Gillum, Charles K. Gillum, Franklin C. Castle, Newton H. Castle, and John H. Simpson, and was given Priority No. 4 drawing water from Surface Creek. The headgate is in the southeastern quarter of the southwestern quarter of Section 12, Township 14

South, Range 95 West. The ditch appropriated an additional 6.45 cfs from Surface Creek on June 17, 1889 under Priority No. 27 and an additional 10 cfs on June 1, 1920 under Priority K46. An additional document on the CDWR database indicates that 19.30 cfs of the original 25 cfs filed under Priority No. 4 was canceled by court action on March 5, 1975 (Case No. CW-(74)-59) leaving the ditch company with an existing decree of 22.15 cfs. The ditch was first organized as a partnership with fractional ownerships in thirds, sixths, ninths, and eighteenths. It was later organized as a Colorado non-profit corporation.

5DT2067.1 - Orchard Ranch Ditch

Site Description

Site 5DT2067.1 is a 1.53-mi.-long (8,078-ft.-long) recorded segment of the Orchard Ranch Ditch west of Eckert, Colorado. Recordation of the ditch began at its point of diversion from Surface Creek northwest of Eckert, and continued to near where the ditch terminates north of Marble Road. The ditch continues as a low-volume waste-water ditch westward beyond the end of the recorded segment. From its diversion, the Orchard Ranch Ditch traverses southwestward through a privately owned farming and ranching landscape. A portion of the ditch traverses through a residential area immediately west of Eckert, and the remaining portions traverse rural areas with a few roads and private driveways nearby. The majority of the ditch is earthen, with the exception of small concrete-lined sections where headgates, diversions, and other water-control features are located. In addition, limited portions are lined with cobble rip-rap to deter water erosion. Vegetation along the ditch consists of cultivated grasses and crops, while moisture from the lateral has led to the propagation of cottonwood and Russian olive trees, willow, rabbitbrush, sage, milkweed, and a variety of natural grasses.

The main diversion headgate, 13 additional diversion headgates (Table 1), and 10 features (Table 2) were recorded along the Orchard Ranch Ditch. The main diversion headgate is on the western side of Surface Creek and has an overall length of 26½ ft. It consists of two sets of three, iron sheet lift gates within a concrete structure. The lift gates are all operated by an iron, hand bar on a threaded stem. A single gate diverts water westward into the Orchard Ranch Ditch and is 4½ ft. wide. Two, side-by-side gates measuring 3½ ft. wide are on the southern side of the headgate structure and return water back into Surface Creek. Water is returned to the creek through a 19½-ft.-long, 19½-ft.-wide concrete overflow return structure with a 3-ft. drop into the creek. The initials "BKF" and a date of "NOV 39" are inscribed in concrete between the two return gates. In addition, the initials "NVD" and a very faint date of "21" are inscribed on the concrete wall between the return headgates and the overflow return. The initials "BKF" were difficult to read and, according to the ORDC veteran Norman Kehmeier, the initials were probably "HKF," referring to H.K. Ferguson, one of the early ditch owners. Mr. Paul Kehmeier also identified the "NDV" initials as those of Nick D. Vercell, an early concrete worker in the Eckert community (personal communication, Paul Kehmeier to Jack Pfertsh, October 11, 2016).

Twelve of the thirteen diversion headgates consist of wooden swing-type board gates anchored within concrete-lined channels. The remaining diversion headgate is modern, and consists of a lift-gate headgate operated by a handwheel that is incorporated within a concrete-lined channel. The headgates are mostly concrete channels with concrete bottoms and triangular-shaped concrete diversion walls extending upstream. The widths and lengths of the diversion channels and the concrete walls vary by headgate and are aligned to the ditch and the direction the water is diverted. The concrete-lined channel walls along the ditch are typically anchored to the bank through wing walls that extend at 45 degree angles on the intake ends and at right angles on the outlet ends. Water from the headgates is diverted to secondary irrigation ditches away from the main ditch by a horizontal wood swing gate that pivots and is anchored to the diversion wall within the headgate on a 1½-in.-diameter vertical pipe. The volume of water diverted from the ditch is controlled by the

Table 1. Headgates Recorded along the Orchard Ranch Ditch (5DT2067.1).

Diversion Name Headgate No.	Length (ft.)	Gate Length (ft.)	Diversion Side	Associated Feature	Additional Information
Winkler Lateral 1	16	8	West	-	Two wooden planks cross atop the wooden swing gate and span the channel. A handwheel headgate with a missing handwheel and a metal T-handle headgate divert water to the west and south.
Latta Lateral 2	9	8	Northwest	-	The northern wall of the concrete channel is 9 ft. long and 5½ in. thick. A 2-x-8-in. plank spans the structure and holds the swing gate.
Myrna Lane Lateral	$55\frac{1}{2}$	8	Southeast	3	Located several feet downstream on opposite site of channel from the Latta 2 headgate. Spanned by a 2-x-8-in. plank walkway that holds the swing gate open. A concrete pipe intake box (Feature 3) is downstream at the outlet end of headgate.
Zeller Lateral 4	34	8	Southwest	2	A Parshall Flume (Feature 2) is to the north.
Eckert Estates Lateral 5	13½	6	Southeast	5	A 4-x-9-in. plank walkway spans the channel and holds the gate open. A 10½-indiameter, handwheel-operated headgate with a 16-inlong metal stop board dam incorporated into the outlet end. A Parshall Flume (Feature 5) is located downstream to the southwest.
Kehmeier Lateral 6a	12	8 ft.	Southwest	-	A 2-x-8-in. plank walkway spans the channel and holds the swing gate open. The eastern wall of the channel has an etched date of "1956."
Lateral 6b	8½	-	Southwest	-	Modern headgate consisting of a u-shaped concrete channel with a 10½-indiameter handwheel-operated headgate and stop board dam. A date of "5-22-80" is etched into the concrete.
Julia Lateral 7	$9\frac{1}{2}$	6	Southwest	6, 7	A 2-x-12-in. plank walkway spans the headgate and holds the swing gate open. A Parshall Flume (Feature 6) and a concrete pipe intake (Feature 7) are downstream.
McKinney Lateral 8	12	3.	Southwest	9	The northern channel wall is partially concrete and partially rock lined. A 2-x-12-in. plank spans the channel and holds the swing gate open. A "1955" date has been etched into the northern wall of the structure. A Parshall Flume (Feature 9) is west of the headgate.
McLaughlin Lateral 9	11	$7\frac{1}{2}$	Southwest	-	A 2-x-12-in. plank walkway spans the channel and holds the gate open.
Christian Lateral 10	$25\frac{1}{2}$	unknown	Southwest	10	The diversion headgate has a Parshall flume (Feature 10) at its intake. A 1949 date "49" is etched in the concrete wall. South of the Parshall flume, water is diverted south and southwestward into underground pipes. The concrete pipe intakes are both covered with metal-bar debris grates.
Schmaltz Lateral 11	6	4	South	-	Hinged wooden swing gate shared with Morris Takeout 12. A 2-x-12-in. plank walkway spans the channel and holds the gate open. Water is diverted southward.
Morris Lateral 12	3	4	West	-	Hinged wooden swing gate shared with Schmaltz Takeout 11. Water is diverted westward into a culvert under Running Deer Road.

Table 2. Features Recorded along the Orchard Ranch Ditch (5DT2067.1).

Feature No.	Associated Headgate	Notes			
1	Main Diversion Headgate	A sloping concrete overflow return channel returns water into Surface Creek. It has a concrete bottom and is 19½ ft. long, 19½ ft. wide, and 19½ ft. long with two rows of concrete teeth at the outlet end to slow the velocity of the water entering the creek. There is a 3-ft. drop from the end of the return into the creek.			
2	4	Parshall Flume butted against a u-shaped concrete structure containing a mesh cleanout screen. The flume is 4½ ft. wide at the intake, necking down to 2½ ft. wide in the middle, and 3 ft. wide at the outlet.			
3	3	Concrete pipe intake box that is 7½ ft. long and 5½ ft. wide covered with an iron-bar debris grate. A mesh screen covers the intake channel to keep debris from falling into the channel.			
4	-	Abandoned diversion feature. Concrete feature that is 6 ft. by 3 ft., with a 16-x-2-in. slot on its northern side fitted with a piece of iron metal sheet. A date of "1937" and "H" are etched into the concrete.			
5	5	Parshall Flume that is 3 ft. wide at the intake, necking down to 1½ ft. wide at the middle, 2½ ft. wide at the outlet.			
6	7	Parshall Flume that is 3 ft. wide at the intake, necking down to 1½ ft. wide at the middle, and 2½ ft. wide at the outlet.			
7	7	Concrete pipe intake structure with a total channel length of 7½ ft. The intake walls turn at 90 degrees and extend into the banks. The concrete intake channel is covered with a mesh screen and an iron-bar debris grate cover at the pipe's intake.			
8	-	Concrete-lined portion of ditch.			
9	8	Parshall Flume that is 2 ft. wide at the intake, necks down to 1 ft. wide in the middle, and 2½ ft. wide at the outlet.			
10	10	Parshall Flume at the intake of headgate of Christian Lateral 10. It is 3 ft. wide at the intake, 1½ ft. wide in the middle, and 2½ ft. wide at the outlet.			

width of the swing-gate opening. The upstream end of the swing gate is under a 2-x-8-in. board catwalk that spans the width of the headgate. The width of the swing-gate opening is maintained by two pins placed in holes drilled through the catwalk.

In addition to the headgates, 10 features were also recorded along the Orchard Ranch Ditch: an overflow return channel on the main diversion headgate on Surface Creek, five Parshall flumes, two concrete pipe intake boxes, a concrete-lined portion of the ditch, and an abandoned takeout feature. All of these features are further described in Table 2. Three modern culverts were also observed where the ditch intersected Running Deer Road, North Road, and Happy Hollow Road. Three modern footbridges were also identified during the documentation, and included two wooden bridges and a make-shift bridge constructed from iron sheet-metal truck beds.

SUMMARY

Level I documentation was performed on 1.53 mi. of the Orchard Ranch Ditch (site 5DT2067.1) in advance of piping the lateral as part of the BOR's Colorado River Basin Salinity Control Program. Along the route of the Orchard Ranch Ditch, 13 headgates were documented. In addition, 10 features, including five Parshall Flumes, two concrete pipe intake boxes, a concrete-lined portion of ditch, a concrete overflow return channel, and an abandoned diversion feature, were recorded. A list of maps and photographs are included in Appendix A, and the listed maps and reproductions of photographs are included in Appendix B. Original archival black-and-white photographs are also submitted with the documentation package to the Colorado SHPO.

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APPENDIX A

Level I Documentation: List of Maps and List of Photographs

List of Maps

Map 1: Orchard Ranch Ditch (5DT2067.1) showing photographic points for lateral Headgates 1–12. Map 2: Orchard Ranch Ditch (5DT2067.1) showing photographic points for Features 1–10 and landscape overviews.

List of Photographs

Subject: Orchard Ranch Ditch (5DT2067.1)

Photographer: Abbie L. Harrison Dates: August 29 and 30, 2016

Photographs of the Orchard Ranch Ditch (5DT2067.1)

Photograph 1. Looking northeastward at Feature 1, the main diversion headgate for the Orchard Ranch Ditch.

Photograph 2. Main diversion headgate structure. View is to the southeast looking at the creek return gates. The headgate for the Orchard Ranch Ditch is on the far right.

Photograph 3. A sloping concrete overflow return channel returns water into Surface Creek. View is to the north-northwest.

Photograph 4. Looking westward at the Winkler Lateral 1 headgate.

Photograph 5. Overview of the Orchard Ranch Ditch from Happy Hollow Road. View is to the east-southeast.

Photograph 6. Overview of the Orchard Ranch Ditch from Happy Hollow Road. View is to the west-northwest.

Photograph 7. Latta Lateral 2 headgate, facing west-southwest.

Photograph 8. Myrna Lane Lateral 3 headgate. View is to the southwest.

Photograph 9. Looking southward at Feature 3, a concrete channel and pipe intake box with iron debris gate that is associated with the Myrna Lane Lateral 3 headgate.

Photograph 10. Zeller Lateral 4 headgate, facing southwest.

Photograph 11. Feature 2, a Parshall Flume associated with the Zeller Lateral 4 headgate. View is to the east-northeast.

Photograph 12. Looking northward at Feature 4, and abandoned diversion structure.

Photograph 13. Eckert Estates Lateral 5 headgate. View is to the south.

Photograph 14. Looking southwestward at Feature 5, a Parshall Flume associated with the Eckert Estates Lateral 5 headgate.

Photograph 15. Overview of the Orchard Ranch Ditch from North Road. View is to the northeast.

Photograph 16. Overview of the Orchard Ranch Ditch from North Road. View is to the south-southwest.

Photograph 17. Looking south-southwestward at the Kehmeier Lateral 6a headgate.

Photograph 18. Lateral 6b headgate. View is to the northwest.

Photograph 19. Julia Lateral 7 headgate facing north-northeastward.

Photograph 20. Feature 6, a Parshall Flume associated with the Julia Lateral 7 headgate. View is to the south-southwest.

Photograph 21. Feature 7, a concrete pipe intake structure associated with the Julia Lateral 7 headgate. View is to the south-southwest.

Photograph 22. Looking west-northwestward at Feature 8, a concrete-lined portion of the Orchard Ranch Ditch.

Photograph 23. McKinney Lateral 8 headgate. View is to the west.

Photograph 24. Feature 9, a Parshall Flume associated with the McKinney Lateral 8 headgate. View is to the west.

Photograph 25. Looking westward at the McLaughlin Lateral 9 headgate.

Photograph 26. The Christian Lateral 10 headgate, facing east.

Photograph 27. Feature 10, a Parshall Flume associated with the Christian Lateral 10 headgate. View is to the north-northeast.

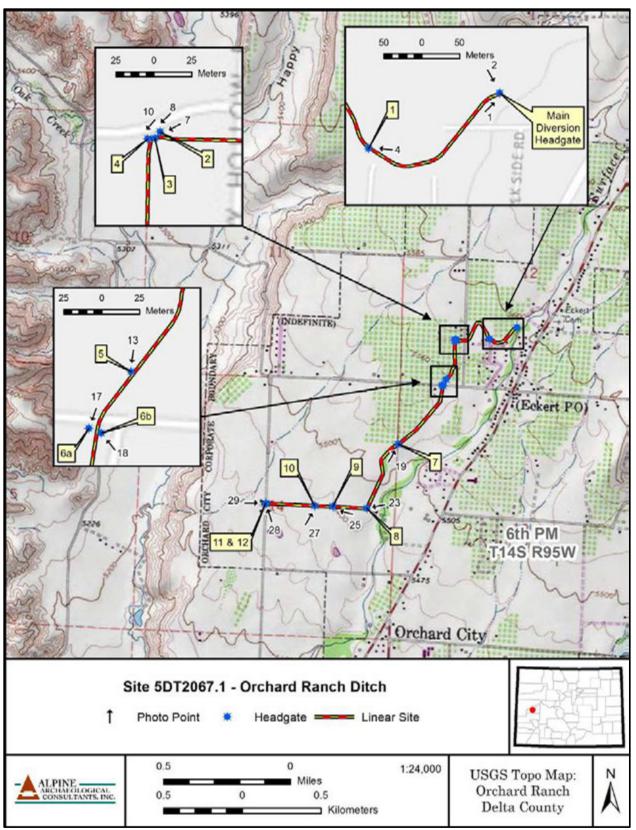
Photograph 28. Looking north-northwestward at the Schmaltz Lateral 11 headgate.

Photograph 29. Eastward view of the Morris Lateral 12 headgate.

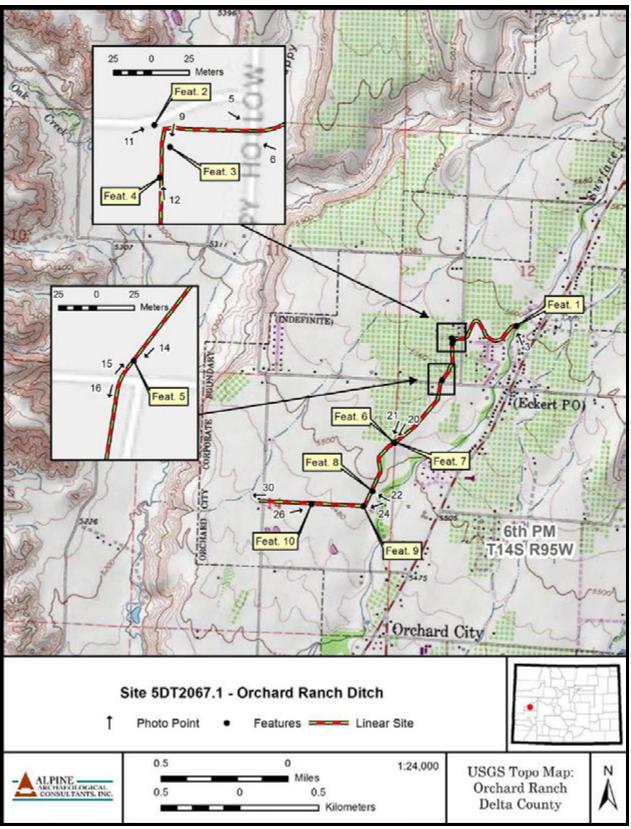
Photograph 30. Overview of the Orchard Ranch Ditch facing west-southwestward as it extends outside the project area.

APPENDIX B

Level I Documentation: Maps and Photographs



Map 1.



Map 2.



Photograph 1.



Photograph 2.



Photograph 3.



Photograph 4.



Photograph 5.



Photograph 6.



Photograph 7.



Photograph 8.



Photograph 9.



Photograph 10.



Photograph 11.



Photograph 12.



Photograph 13.



Photograph 14.



Photograph 15.



Photograph 16.



Photograph 17.



Photograph 18.



Photograph 19.



Photograph 20.



Photograph 21.



Photograph 22.



Photograph 23.



Photograph 24.



Photograph 25.



Photograph 26.



Photograph 27.



Photograph 28.



Photograph 29.



Photograph 30.

Orchard Ranch Ditch (5DT2067.1)