

**LEVEL II DOCUMENTATION OF
A PORTION OF THE STEWART DITCH (5DT1832.10),
DELTA COUNTY, COLORADO**

by

Abbie L. Harrison

and

Sara A. Millward

Under the direction of

Matthew J. Landt
Principal Investigator

Alpine Archaeological Consultants, Inc.
PO Box 2075
Montrose, Colorado 81402

Prepared for

Stewart Ditch and Reservoir Company
PO Box 386
Paonia, Colorado 81428

and

Bureau of Reclamation
Western Colorado Area Office
2764 Compass Drive
Grand Junction, Colorado 81506

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History Colorado
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Denver, Colorado 80203

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INTRODUCTION

Stewart Ditch and Reservoir Company (SDRC) of Paonia, Colorado, is a private, non-profit, mutually funded irrigation company that manages several miles of water conveyance ditches, canals, and reservoirs in Delta County, Colorado. The SDRC plans to pipe 2.6 miles (mi.) of the Stewart Ditch. A segment of the ditch was recorded by Alpine Archaeological Consultants, Inc. (Alpine) during a cultural resource inventory in November 2018 (Millward 2019). The segment of the ditch is considered eligible for inclusion in the National Register of Historic Places, and consultation under Section 106 of the National Historic Preservation Act resulted in the execution of a Memorandum of Agreement (MOA) by the Western Colorado Area Office of the Bureau of Reclamation (BOR), the SDRC, and the Colorado State Historic Preservation Officer on February 25, 2019. The MOA stipulates the production of a Level II report, as defined by Athearn (1990) and History Colorado (2013), for the portion of the historic earthen ditch that will be replaced with buried PVC piping.

The SDRC hired Alpine to complete Level II photographic documentation of the Stewart Ditch (segment 5DT1832.10), which was performed by Abbie L. Harrison for Alpine on November 23, 2020. The Level II documentation focused on photographically documenting elements of the site and its setting. The purpose of the documentation is to provide a permanent record of the site prior to its being modified. The documentation is combined into a package that includes photography, site descriptions, a scale drawing, GIS mapping, and background historical information. It was prepared in accordance with the guidelines established by History Colorado (History Colorado 2013) and the MOA.

METHODS

The Stewart Ditch (site 5DT1832.10) was photographically documented using a Nikon D5300 digital camera with photographs taken at extremely high resolution. Digital images were converted to black and white and printed using archival ink on archival photographic paper. Photographic points were collected using a Trimble Global Positioning System unit capable of submeter accuracy. Historical information about the property was gathered from the records on file at the Delta County Clerk and Recorder's Office in Delta, Colorado.

DESCRIPTION

Site 5DT1832.10 is a 2.6-mi.-long segment of the Stewart Ditch. The majority of this segment consists of an earthen ditch that has been cut into the hillslopes. The ditch is generally about 6–9 feet (ft.) deep from the top of the bank to the bottom of the ditch and around 20 ft. wide at its top with a 10–13-ft.-wide channel. There is a concrete-lined section near the northern end of the project area, as well as a section that flows through an approximately 4-ft.-diameter corrugated metal pipe. The ditch extends to the east and north beyond the northern end of the recorded segment; the southern end of this segment corresponds to the northern end of site 5DT1832.8. Water was present within the ditch during the current recordation.

Four headgates were observed along the recorded segment of the Stewart Ditch (Table 1). Three of these consist of side-outlet headgates, which generally consist of open-ended concrete channels with 6–8-inch (in.)-thick walls that line the sides and bottom of the ditch. The walls are vertical, and have 45-degree angled wing walls that extend into the bank of the ditch, providing extra support to the bank. The fourth headgate is a standard handwheel-operated lift gate. None of the headgates have markings identifying the headgate number within the overall Stewart Ditch system.

Table 1. Headgates Recorded Along Site 5DT1832.10.

Headgate Number	Ditch Side	Handwheel Diameter (in.)	Gate Width (in.)	Stem Diameter (in.)	Notes	Markings
1	West	-	40	-	Board-formed concrete with 11.5-ft.-long side and 2.5-ft.-long wing walls. Walls are 8 in. thick.	-
2	West	-	40	-	Board-formed concrete with 10-ft.-long side and 2-ft.-long wing walls. Walls are 8 in. thick.	-
3	South	-	42	-	Board-formed concrete with 11.5-ft.-long side and 3-ft.-long wing walls. Walls are 8 in. thick.	-
4	North	10	9	¾	Metal handwheel-operated lift gate in a concrete “U”-shaped headwall measuring 2-x-2.5-ft.	Fresno Valves H23445A

Five culverts were observed along the recorded segment of the Stewart Ditch. Three of the culverts are associated with roads that the ditch flows under, and the other two are the beginning and ending of a previously piped section. Feature 1 is the concrete culvert under Lamborn Mesa Road at the northernmost extent of the project area. It is a board-formed, modern concrete culvert. Features 2 and 3 are located within the ditch on either side of the piped section of ditch. Both features are board-formed concrete with 6-in.-thick, 9-ft.-long, 45-degree angled wing walls and 2-ft. 9-in.-long straight walls that extend from a 1-ft.-thick, 10.5-ft.-long headwall that crosses the ditch. The metal culvert supported by Features 2 and 3 is set into the concrete headwall. Feature 4 is the culvert running under O Road; it is a modern corrugated metal culvert, with cut limestone and concrete slabs surrounding the culvert. The culvert that runs under Skyhill Road, Feature 5, is also a corrugated metal culvert that is surrounded by stacked, cut limestone slabs. Because the installation of the culverts has occurred over a span of decades, during routine maintenance, and is not tied to a specific construction event, the construction dates are not known. All of the observed culverts appear to have been built in the last 50 years.

HISTORICAL BACKGROUND

The Stewart Ditch draws water from the North Fork of the Gunnison River, 4 mi. above and to the northeast of Paonia. Construction and survey of the ditch began in 1894 by George and Daniel J. Stewart, who served as its namesake. The ditch was finished in 1896 (Rockwell 1945:99–100). The statement of claim to water rights for the Stewart Ditch was made by George Stewart in 1894 (Delta County Clerk and Recorder’s Office [DCCR]: Ditch Reception No. 9189). The ditch was initially managed by the Stewart Ditch Company, which was incorporated in 1894 and by owners Daniel J. Stewart, George Stewart, Marvin Stewart, James B. Lowe, and Thomas C. Ward (DCCR: Articles of Incorporation No. 9185). The ditch was originally constructed to be 13 ft. wide on top, 8 ft. wide on the bottom, and 2.5 ft. deep, with a fall of 4.22 ft./mi. The ditch had a maximum carrying capacity of 67.95 cubic feet per second (cfs), which is the amount that was claimed for appropriation. The claim to water rights, filed in November 1894, lists that the work began on August 11, 1894. This is the same date listed as the start of work on Stewart Ditch’s first enlargement (DCCR: Reception No. 12458).

The 1894 enlargement widened roughly 4.5 mi. of the ditch to be 10 ft. wide at the bottom and 15 ft. wide at the top and also increased the capacity by 24 cfs. Although the enlargement filing lists an 1894 work start date, the document itself wasn’t actually signed and filed until March 1897; it is therefore unclear if the date of the first enlargement truly corresponds to the initial construction of the ditch or if the statement of claim for the ditch was not filed until work began on the enlargement, indicating an earlier construction date for the ditch at large, which may be supported

by the appropriation of 1.25 cfs to the Stewart Ditch in 1882 (Colorado Hydro Base, Admin. No. 14413.118). The 1904 decree established an appropriation of 50.75 cfs for the ditch, with a priority date of November 30, 1895 (District Court 1904). The 1930 decree enlarged the appropriated amount to a total of 70 cfs (District Court 1930). In 1931, 7.04 cfs of water that had been granted to the Goodwin and Tropic Ditches was transferred into the Stewart Ditch (District Court 1931). The Stewart Ditch and Reservoir Company was incorporated in 1934, buying up the resources and responsibilities of the Stewart Ditch Company (DCCR: Article of Incorporation No. 166962). Shares of the Stewart Ditch Company and the Stewart Ditch and Reservoir Company have generally been tied to the land that the ditch serves, allowing transfers of water rights to likewise be tied to ownership of the land.

The Stewart Ditch System has changed over the years, as other related ditch systems (such as the Stewart Lateral and Stewart Extension) have been incorporated or trimmed from management. Examples include, but are not limited to, the obliteration of an approximately 1,200-ft.-long section of the Stewart Ditch near Paonia by a land slide in 1986. At that time, the ditch was reported as providing irrigation for 2,400 acres of agricultural and ranching land (DCCR: Resolution No. 86-R-028). Other examples of management changes to the Stewart Ditch include the Stewart Ditch and Reservoir Company's filing of a Quit Claim Deed in 1987 on a portion of the ditch that corresponds with Minnesota Creek (DCCR: Reception No. 429863). The SDRC manages the current Stewart Ditch system and continues to maintain and upgrade the ditch to meet current agricultural water needs.

REFERENCES CITED

District Court, Delta County

1904 Decree of February 20, 1904: In the matter of the adjudication of the Priorities of Water Rights, in Water District No. 40 of the said State, The Stewart Ditch Company, a corporation, Petitioners.

1931 In the matter of Priorities of Water Rights in Water District No. 40 of the State of Colorado.

District Court, Delta County before Harry W. Gueno

1930 Decree on February 10, 1930: In the Matter of the Adjudication of the Priorities of Water Rights in Water District Number Forty in the State of Colorado. The Fire Mountain Canal and Reservoir Company, Petitioner.

History Colorado

2013 *Historic Resource Documentation, Standards for Level I, II, and III Documentation.* Colorado Historical Society Publication No. 1595. Colorado Historical Society, Office of Archaeology and Historic Preservation, Denver.

Reed, Charles A.

2012 *Cultural Resource Inventory of Portions of the Stewart Ditch, Delta County, Colorado.* Prepared by Alpine Archaeological Consultants, Inc., Montrose, Colorado. Prepared for Stewart Ditch and Reservoir Company, Paonia, Colorado and the Bureau of Reclamation, Eastern Colorado Office, Grand Junction, Colorado

2013 *Cultural Resource Inventory of a Portion of the Stewart Ditch, Delta County, Colorado.* Prepared by Alpine Archaeological Consultants, Inc., Montrose, Colorado. Prepared for Stewart Ditch and Reservoir Company, Paonia, Colorado and the Bureau of Reclamation, Western Colorado Office, Grand Junction, Colorado

Rockwell, Wilson

1945 *New Frontier: Saga of the North Fork.* The World Press, Inc., Denver.

List of Maps

Map 1: General location of the documented segment of the Stewart Ditch (5DT1832.10).

Map 2: Location of the documented segment of the Stewart Ditch (5DT1832.10).

Map 3: Planview map of the documented segment of the Stewart Ditch showing photographic points.

Map 4: Profile drawings of canal cross-sections.

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Illustration 1: Three-dimensional Digital Elevation profile for site 5DT1832.10, represented by the blue line.

List of Photographs

Subject: Stewart Ditch (5DT1832.10), Delta County, Colorado

Photographers: Abbie Harrison and Sara Millward

Dates: November 23, 2020

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Photograph 2. Looking downstream at an overview of the Stewart Ditch. View is to the northwest.

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Photograph 5. Looking upstream and to the northeast at the Stewart Ditch. Associated with Map 4, Cross Section 1.

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Photograph 9. Looking to the southeast at Headgate 2, a side-outlet headgate on the western side of the ditch.

Photograph 10. Headgate 3, a side-outlet headgate on the southern side of the ditch. View is to the south.

Photograph 11. Feature 4, a metal culvert under O Road. View is to the southwest.

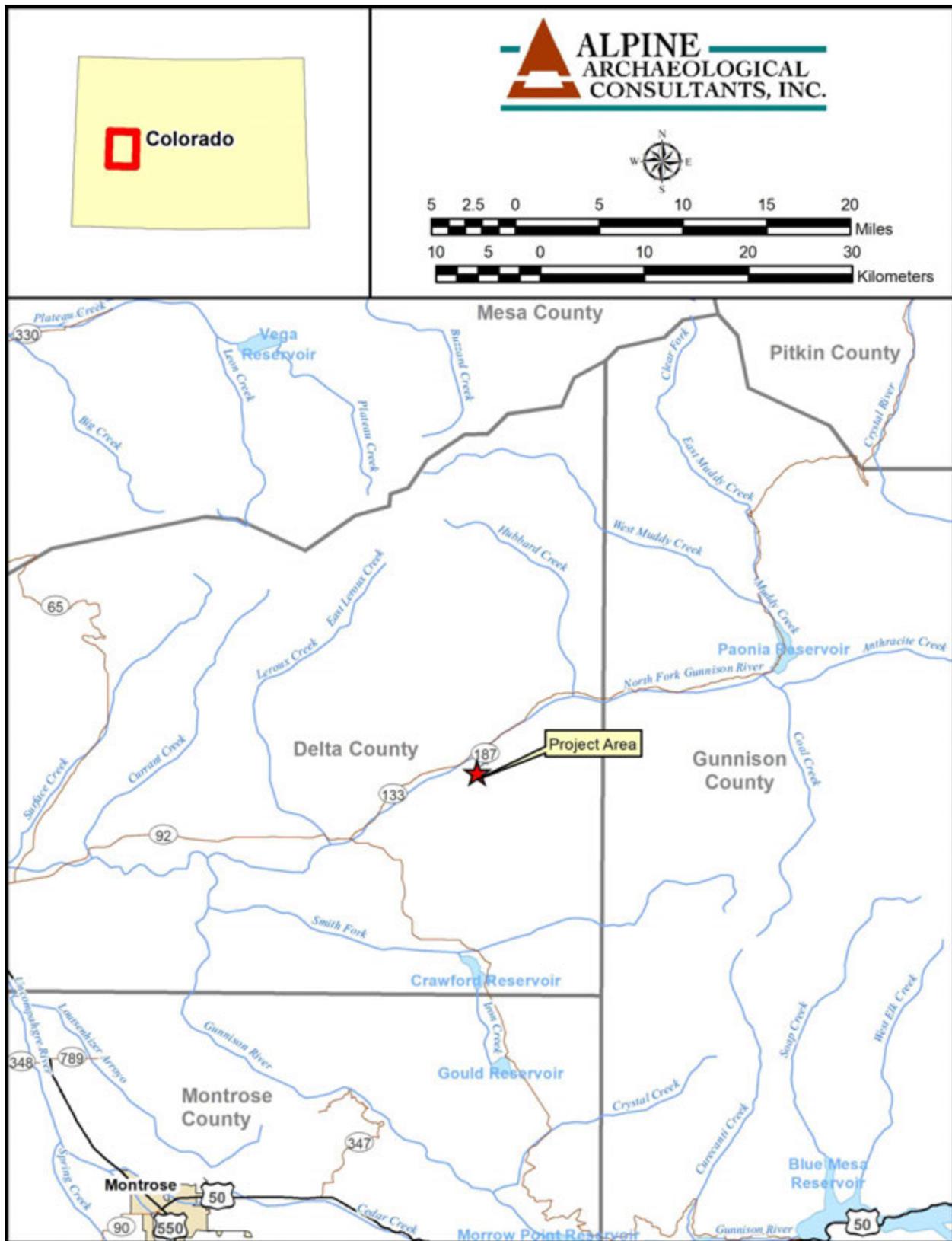
Photograph 12. Looking upstream and to the northeast at a section of the Stewart Ditch.

Photograph 13. Overview of the Stewart Ditch, looking downstream and to the southeast. Note the earthen construction of the ditch. Associated with Map 4, Cross Section 2.

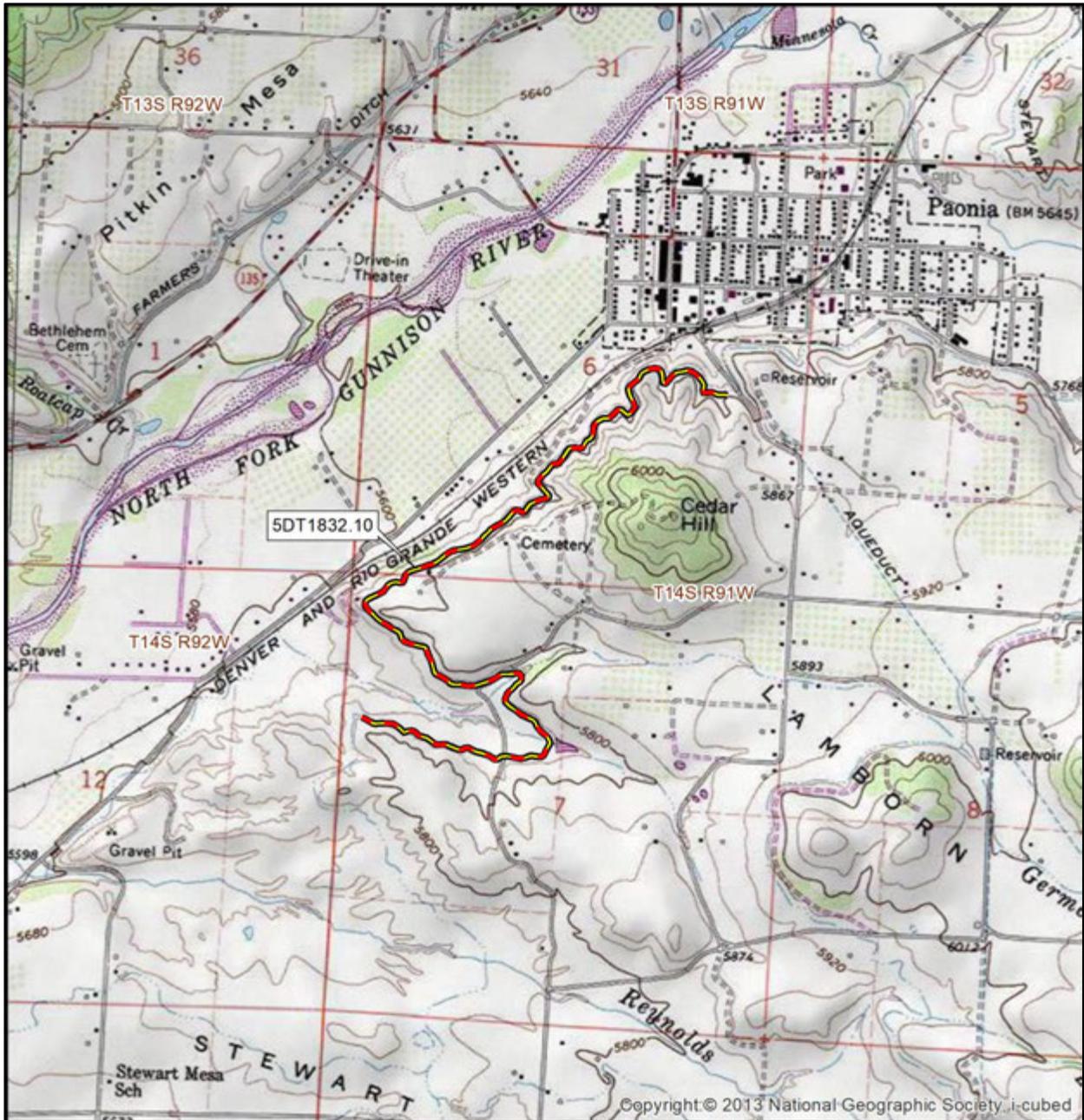
Photograph 14. Feature 5, a metal culvert under Skyhill Road. View is to the southwest.

Photograph 15. Looking to the west at Headgate 4, a standard handwheel-operated lift gate on the northern side of the ditch.

Photograph 16. Overview of the Stewart Ditch, looking upstream and to the southeast.



Map 1.



Stewart Ditch Level II Documentation Project Area Map

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—
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 Linear Site

ALPINE
ARCHAEOLOGICAL
CONSULTANTS, INC.

0.5 0 0.5

Miles

0.5 0 0.5

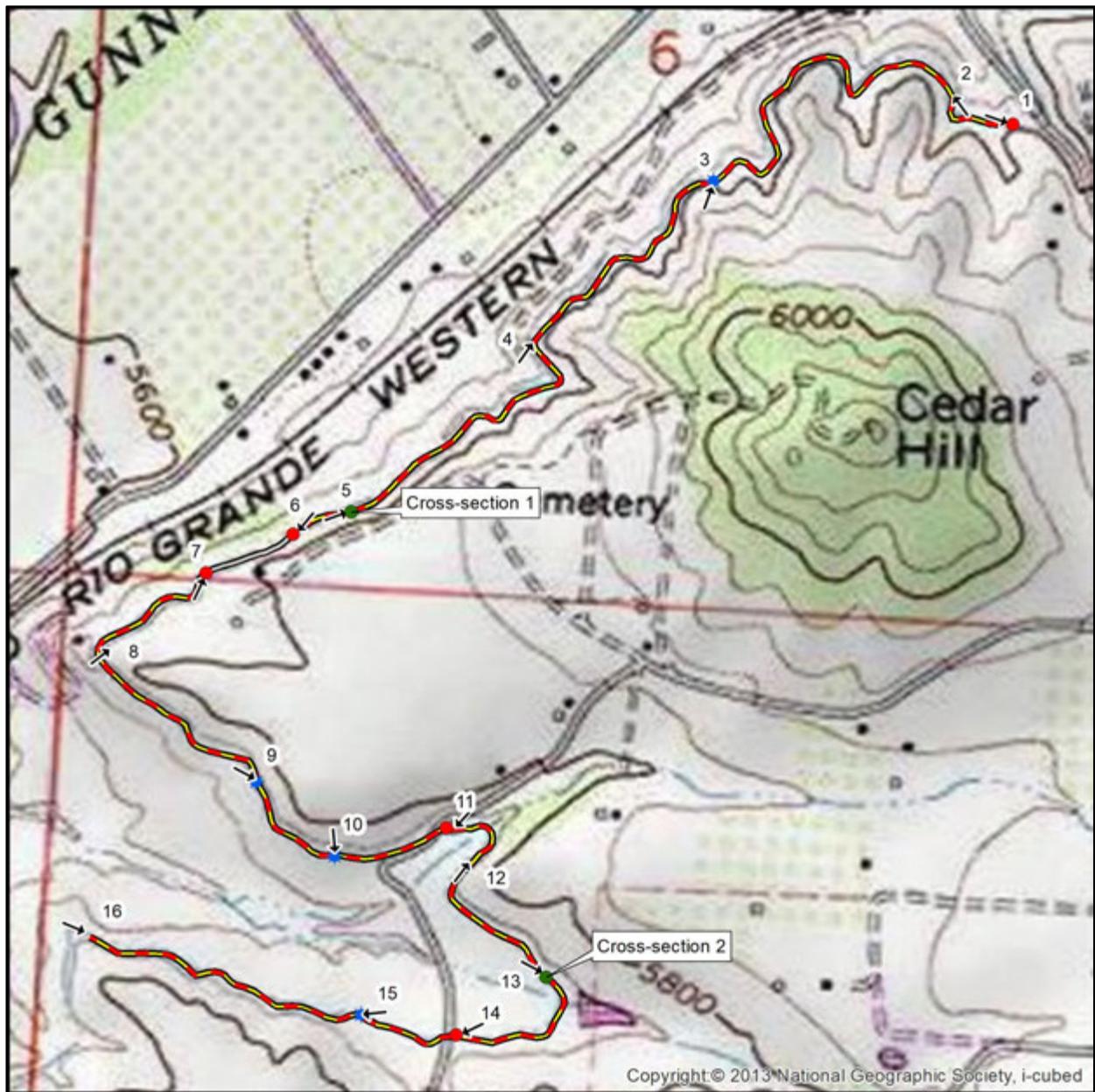
Kilometers

1:24,000

USGS Topo Map:
Paonia

N

Map 2.



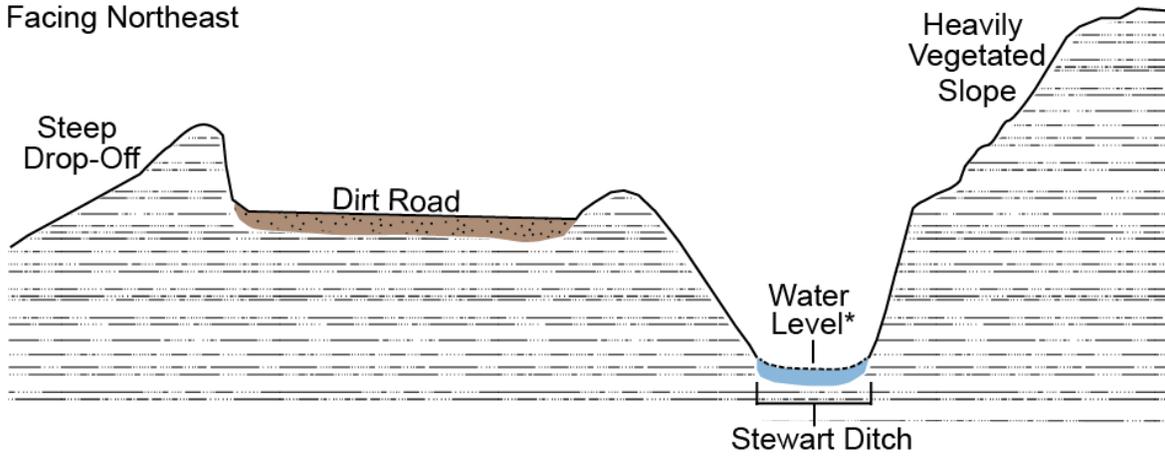
Site 5DT1832.10 Level II Documentation

- Cross-section Location ↑ Photo Point ★ Headgate — Piped Section
- Feature — Linear Site

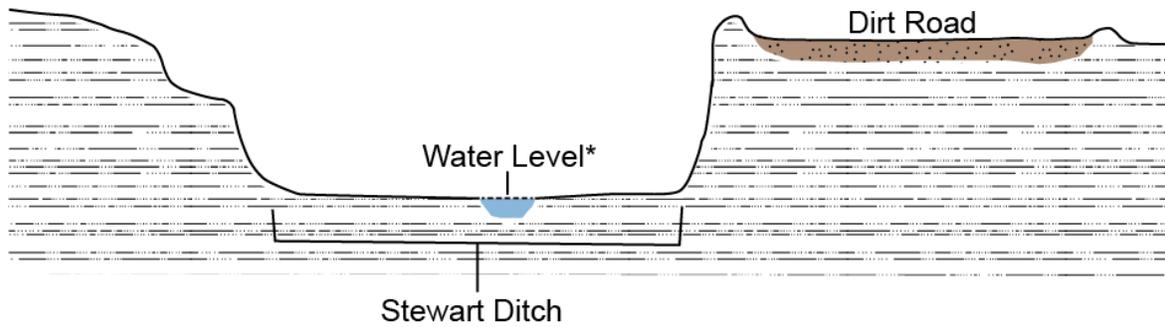


Map 3.

Cross Section 1
Photo Point 5
Facing Northeast



Cross Section 2
Photo Point 13
Facing Southeast



*Water levels recorded at low levels during the off season.

Map 4.

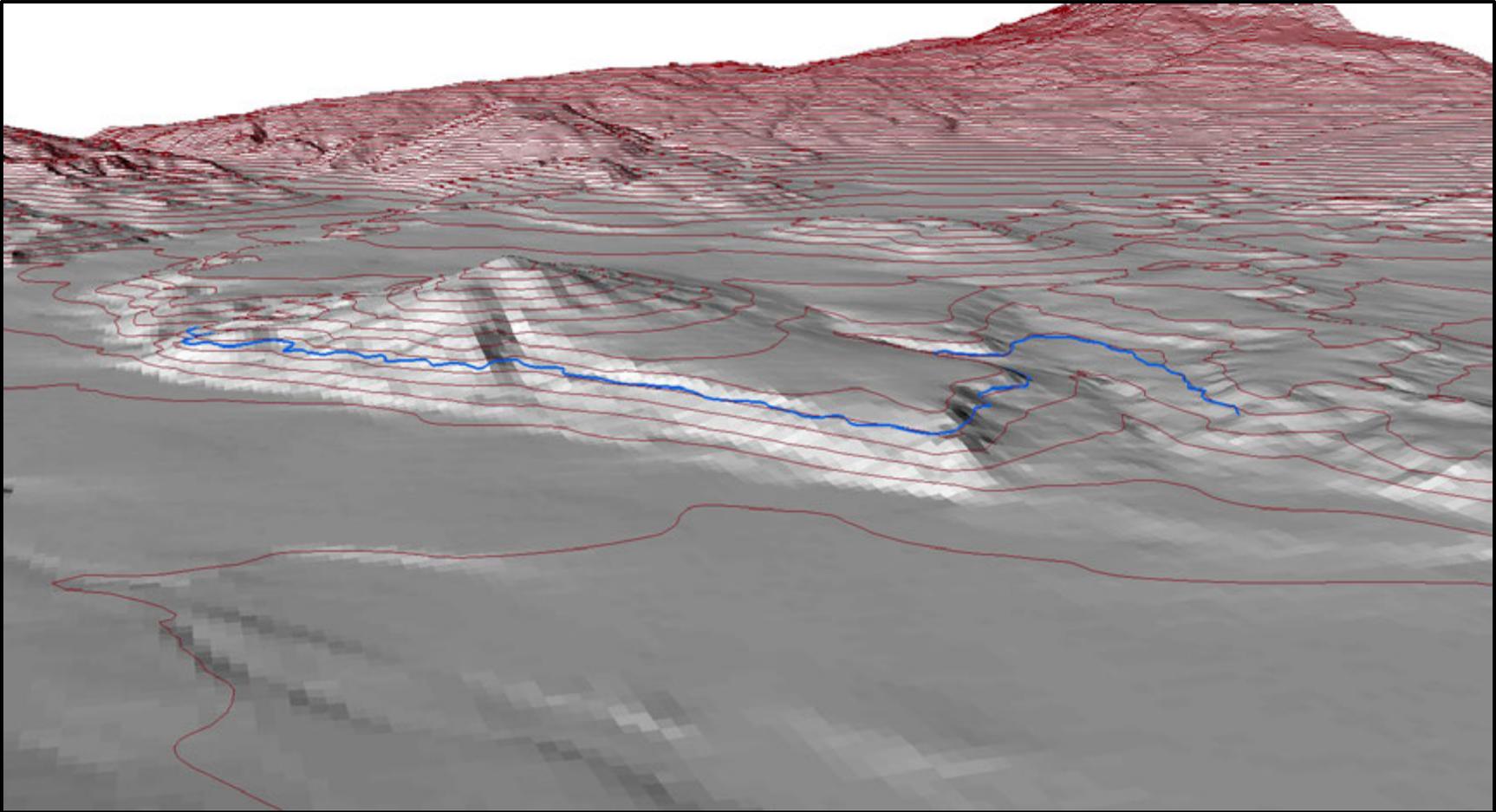


Illustration 1.

5DT1832.10
Photograph No. 1



5DT1832.10
Photograph No. 2



5DT1832.10
Photograph No. 3



5DT1832.10
Photograph No. 4



5DT1832.10
Photograph No. 5



5DT1832.10
Photograph No. 6



5DT1832.10
Photograph No. 7



5DT1832.10
Photograph No. 8



5DT1832.10
Photograph No. 9



5DT1832.10
Photograph No. 10



5DT1832.10
Photograph No. 11



5DT1832.10
Photograph No. 12



5DT1832.10
Photograph No. 13



5DT1832.10
Photograph No. 14



5DT1832.10
Photograph No. 15



5DT1832.10
Photograph No. 16

