Summary Report of the Level I Documentation of the Uncompahgre Valley Water Users Association's GK, EU, EO, and GB Laterals in Delta and Montrose Counties, Colorado

by

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INTRODUCTION

The Uncompahgre Valley Water Users Association (UVWUA) of Montrose has been funded through the Bureau of Reclamation's (BOR) Colorado River Basin Salinity Control Program to bury portions of the GK, EO, EU, GB, and GBA laterals in pipe as part of the BOR's Colorado River Basin Salinity Control Program. The purpose of the project is to lessen the amount of salt and selenium that reaches the Colorado River. The project is primarily on private land, although portions of the canals cross lands managed by Bureau of Land Management (BLM) Uncompahgre Field Office (UFO). 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 (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 historic and prehistoric cultural resources important to our national heritage are not inadvertently harmed or destroyed by federally initiated or authorized actions. The canal was inventoried by Alpine Archaeological Consultants, Inc. (Alpine) of Montrose, Colorado, in 2017 (Boyd and Harrison 2017). Because the GK, EO, EU, and GB laterals were determined to be eligible for the National Register of Historic Places (NRHP), a Memorandum of Agreement between the BOR, UVWUA, and the Colorado State Historic Preservation Officer (SHPO) stipulated Level I Documentation as mitigation for adverse effects to the 20.69 miles (mi.) of NRHP-eligible canals proposed to be piped as part of the project. The specifications for Level I Documentation are presented in History Colorado Publication No. 1595 (History Colorado 2013). The UVWUA 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 is 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 (2013).

METHODS

The information used in the preparation of the Level I Documentation was gathered during the Class III cultural resource inventory by Joshua R. Boyd and Trevor R. Lindland from March 13–20, 2017 and Abbie L. Harrison and Tosh McKetta from July 19–26, 2017 (Boyd and Harrison 2017). The existing canal to be piped—including all of the associated water-control structures and features––was recorded using a Global Positioning System unit capable of sub-meter accuracy. Documentation also included photographs and descriptions of the canal that focused on water-control features. A list of maps and photographs are included in Appendix A. The maps and reproductions of photographs, themselves, are included in Appendix B.

LOCATION AND ENVIRONMENTAL SETTING

The project area and surveyed laterals are on the eastern side of the Uncompahgre Valley, bounded by Highway 92 to the north and Highway 50 to the west (Figure 1). The GK, EU, and EO laterals trend generally northward in the landscape surrounding Peach Valley and east of Garnet Mesa. The GB Lateral trends north on the western edge of East Mesa overlooking the Uncompahgre River Valley. The Grand Mesa dominates the view to the north, while the Uncompahgre Plateau is prominent to the west. The terrain is relatively level, with areas of steep eroding Mancos Shale slopes. The project area lies predominantly in a Mancos Shale deposit that is the result of an ancient inland sea, although the GK Lateral's southern terminus is located in the riparian floodplain of the Gunnison River. The elevation of the project area ranges from 5,380 feet (ft.) (1,640 meters [m]) to 5,000 ft. (1,524 m).

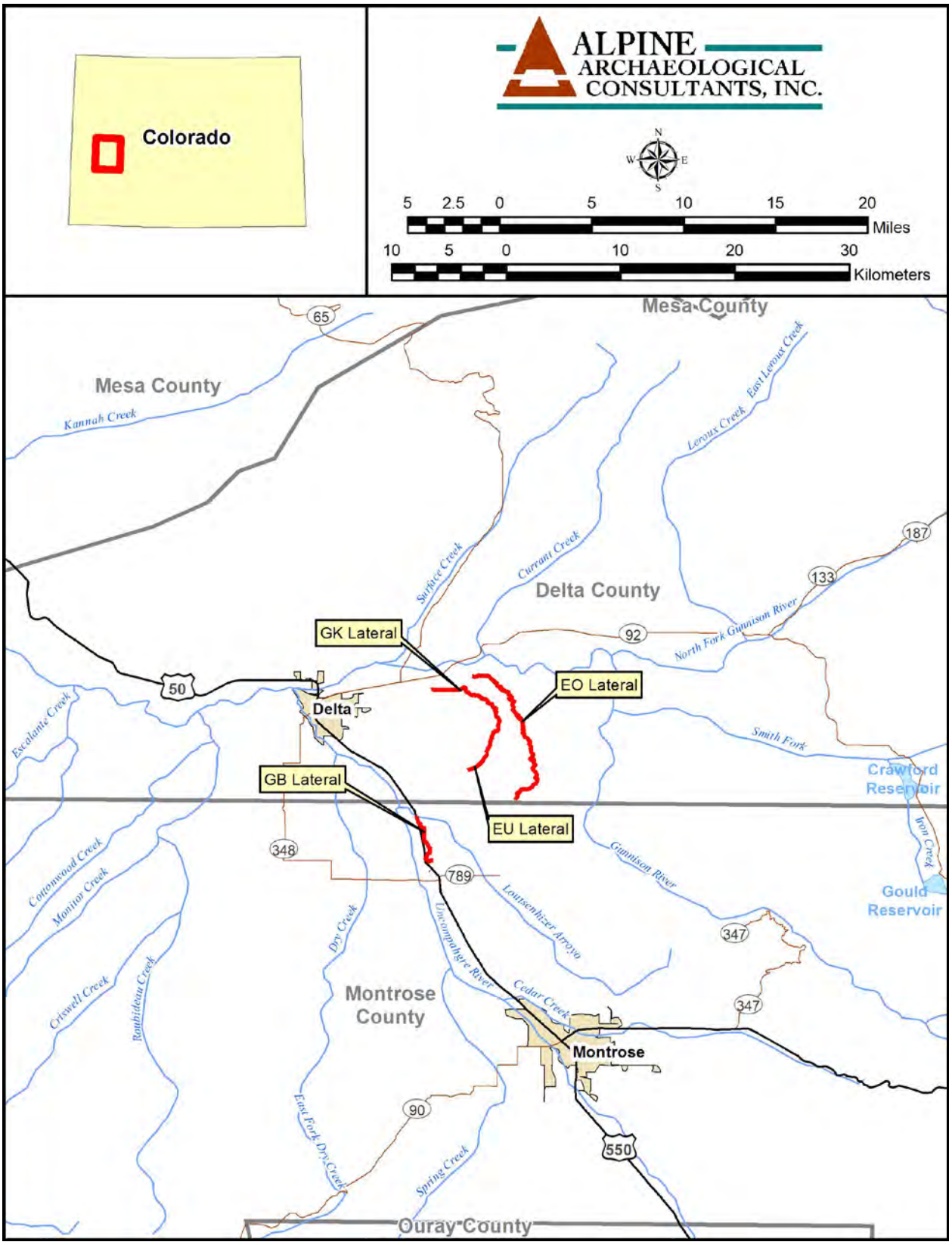

Figure 1. General location map of the project area.

Much of the Mancos Shale Lowlands has been converted to agricultural fields and pasture or is in residential use. 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). The region is drained by ephemeral tributaries of the Uncompahgre River to the southwest and the Gunnison River to the northeast. While much of the vegetation in the area is related to active and fallow agricultural fields and animal pastures, natural vegetation is predominantly greasewood and rabbitbrush, with areas of dense grasses. Moisture from the canals has attracted a lush vegetation community that includes Russian olive, cottonwood, willow, Chinese elm, common reed (Phragmites sp.), cattail, kochia, Russian thistle, tar weed, horsetail, wild rose, aster, clover, thistle, asparagus, morning glory, and burdock.

REGIONAL OVERVIEW OF CULTURE HISTORY

The following culture history represents a brief synthesis of the 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). Historical information specific to the North Fork Valley is from the cultural resource overview of the BLM-UFO (Greubel et al. 2010:180).

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 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 pattern termed the Archaic tradition. Archaic peoples exploited a greater variety of plant and animal foodstuffs and manufactured tools quite distinct from their predecessors. Regionally, the Archaic era is very well represented archaeologically. Sometime after 250 B.C., a Formative-stage lifeway emerged on the northern Colorado Plateau and in the Great Basin. The Formative era is characterized by considerable reliance on horticulture and the adoption of a sedentary or semisedentary lifestyle. Accompanying horticulture and increased sedentism were construction of habitation structures and production of ceramics. Some Formative-era sites in west-central Colorado share some, but not all, attributes of the Fremont and Anasazi. By the time of Euroamerican contact, the primary aboriginal group in the project area was the Ute, living an Archaic-like lifestyle. Utes were Numic speakers who may have arrived in western Colorado as early as A.D. 1100. As a result of Euroamerican contact, the Utes acquired the horse and underwent rapid culture modification, including assimilation of various Plains Indian traits.

Western Colorado was designated as the reservation of the Utes as a result of the Treaty of 1868. In 1873, the Brunot Agreement removed the San Juan Mountains from the previously established reservation. The Brunot Agreement ultimately increased hostilities between Utes and Euroamericans, culminating in the Meeker Massacre in 1879. The Meeker Massacre served as the catalyst for removing the White River and Uncompahgre (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 in late 1881 led to immediate Euroamerican settlement of the Uncompahgre Valley and expansion of the Denver and Rio Grande Railroad line from Gunnison through the newly founded towns of Montrose, Delta, and Grand Junction in 1882. Farming and ranching quickly took hold. The use of irrigation in the Uncompahgre Valley was vital to increase the fertility of the semiarid valley, but the water that could be obtained was limited. Locally financed irrigation companies constructed several large canals, allowing for the irrigation of 30,000 acres of land, but water shortages nonetheless severely

impacted agricultural production. A possible solution to the problem came in 1890, when it was proposed that water be diverted from the Gunnison River. In 1894, money was allocated to have the U.S. Geological Survey investigate the possibility of diverting the river, resulting in the conclusion that that a tunnel would have to be constructed through the geologic uplift of the Black Canyon. While the formidable task was not thought impossible, it was considered beyond the capabilities of local entities. In 1900, William W. Torrence led a survey into the Black Canyon to determine a location for the tunnel and to assess the feasibility of its construction. The survey resulted in identifying a feasible location for the tunnel. Spurred by the findings, the Colorado Legislature passed the Gunnison Tunnel Bill in 1901 and appropriated 25,000 dollars for tunnel construction. Within a year, with only 900 ft. of the tunnel was completed, the project was abandoned due to lack of funds. The project received new life in 1902, when President Roosevelt signed the Reclamation Act into law; the Gunnison Tunnel project was transferred from state to federal hands in 1903. With the transfer, the project became known as the Uncompahgre Project and was one of the first five projects of the fledgling Reclamation Service. The project was considered important because it was estimated that nearly 171,000 acres could be made agriculturally productive with water from the project. Work resumed on the project in July 1904, but after four months, the contractor for the tunnel went bankrupt. It was determined that the tunnel was situated poorly, so a new location was selected 5 mi. farther upstream. Even with the new location, tunnel construction was plagued with difficulties and was not completed until 1909. Upon completion, the Gunnison Tunnel was 30,650 ft. long and capable of carrying 1,300 cubic ft. per second (cfs) of water. The cost for the tunnel was nearly 3 million dollars. The opening of the Gunnison Tunnel was presided over by President William H. Taft on September 23, 1909, indicating its importance to both the Uncompahgre Valley and the nation as an example of a federal improvement project opening new land for agricultural settlement (Collins et al. 1981; Dudley 2001).

While the tunnel was under construction, the Reclamation Service began to build large-volume canals to transport water from the tunnel throughout the Uncompahgre Valley. The first of the large-volume canals to be built was the South Canal. The South Canal and the Gunnison Tunnel were constructed concurrently and were both completed in 1909. The South Canal is 11.4 mi. long and carries up to 1,010 cfs of water directly from the opening of the Gunnison Tunnel to a point on the Uncompahgre River about 9 mi. southeast of Montrose. The canal provides water to lateral canals near the outlet of the tunnel, directly supplies up to 172 cfs of water to the West Canal, and increases the volume of the Uncompahgre River, from which additional canals are supplied. Taking water from the Uncompahgre River downstream of the South Canal as part of the Uncompahgre Project system are the Montrose and Delta Canal, the Loutsenhizer Canal, Selig Canal, Ironstone Canal, East Canal, and the Garnet Canal. A system of 438 mi. of lateral canals and ditches has been constructed off of these canals that distributes water to about 73,600 acres of agricultural land for a distance of 34 mi. on both sides of the Uncompahgre River from south of Montrose to just north of Delta. Although the acreage brought under cultivation was more than twice what was possible before the project was completed, the total is considerably less than estimates made at the time the project was initiated.

The East Canal, originally part of the Loutsenhizer Canal, was constructed between 1911 and 1914. In its original design, the canal was to divert 600 cfs of water from the Uncompahgre River just west of Montrose, Colorado. The East Canal was to parallel the Loutsenhizer Canal, crossing it at various points. Construction was expected to be costly. The survey of the route was completed at a cost of 8,910 dollars, but the route was found to be unfeasible and was abandoned when a more feasible route was found to exist via the purchase of the Loutsenhizer Canal. With the acquisition of the Loutsenhizer Canal, water for the East Canal was diverted from the Uncompahgre River 1 mi. south of Olathe into a section of the Old Colorow Canal and emptied into the northern section of the Loutsenhizer Canal, terminating in the southeastern quarter of Section 36 of Township 15 South, Range 95 West, at which point the Cade and Union laterals began. The diverted water was carried in a channel that was 24 ft. wide on the bottom, had sloping sides, was capable of

transporting 325 cfs of water, and was expected to irrigate 22,000 acres of land. The work on the East Canal began with enlarging the upper portion of the Loutsenhizer Canal. The work was performed by Sayler Construction Company of Lamar, Colorado, under two different contracts, with the construction beginning on December 14, 1911 (U.S. Department of the Interior 1912:236-238). Based on Uncompahgre Project maps, the canal was completed by 1913 or 1914 (U.S. Department of Interior 1913:161; U.S. Department of the Interior 1914:178).

To unify the Uncompahgre Project under the Federal Government, the Reclamation Service purchased 110 existing canals and ditches. Once purchased, the Reclamation Service began to upgrade the canals and ditches to improve their efficiency and incorporate them into the expanded irrigation system. This included replacing and standardizing water-control features. The Reclamation Service also constructed several new canals and laterals to irrigate various areas of the Uncompahgre Valley.

According to the Uncompahgre Project histories housed at the UVWUA office in Montrose, the GK Lateral was improved and expanded by 1915 (U.S. Department of the Interior 1915). By 1917, the UVWUA switched from a named system of referring to the canals and ditches to a lettered system. The East Canal System was assigned the letter "G." As water was diverted from primary water sources, they were assigned a secondary number; e.g. "GB" Lateral. A third diversion was assigned a tertiary number with a fourth diversion assigned a quaternary number, in the order of their construction; e.g., "GBA" Lateral. The GB, GK, and GBA laterals are part of the East Canal system. The Selig Canal was assigned the letter "E," and the EU and EO laterals are part of the Selig Canal system.

It was required by the Reclamation Act that an association of landowners who would benefit from the irrigation project be formed; this entity was created in 1903. The association was required to pay back the cost of the irrigation system to the government. In addition, the association was also responsible for the operation and maintenance of the system. The newly formed organization met on May 5, 1903, referring to itself as the Uncompahgre Valley Water Users Association. The Uncompahgre Project was practically completed by 1925 and was transferred to the UVWUA for operation and maintenance in 1932 (Clark and Simonds 1994). Since then, the organization has maintained and operated the system under the oversight of the Reclamation Service, renamed the Bureau of Reclamation in 1923.

The building of the Uncompahgre Project is recognized as the key historical event in the rise of agricultural development of the Uncompahgre Valley. The Uncompahgre Project is a massive water-distribution system comprising many parts. The Project consists of the diversion on the Gunnison River, the Gunnison Tunnel, and major and minor canals and ditches for distribution of irrigation water. When the tunnel was first constructed, enough water was diverted to irrigate 73,600 acres of arable land on both sides of the Uncompahgre River in the Uncompahgre Valley (Collins et al. 1981). The canals and ditches of the Uncompahgre Project shaped the landscape through which they were built, resulting in a settlement pattern and agricultural landscape dating to the 1903 to 1932 period of significance for the Project that is the dominant characteristic of the Uncompahgre Valley at the present time.

The area served by the GK, GB, EU, and EO laterals and related sublaterals were largely settled beginning in the middle 1880s, with Homestead Entry Patents being granted between 1888 and 1896. Irrigation of most of these lands would have been difficult and unreliable, so distribution of water by way of these laterals and sublaterals as part of the Uncompahgre Project would have made the land considerably more productive. In addition, unclaimed land in the area was withdrawn for the benefit of the Uncompahgre Project by the Secretary of the Interior under the Reclamation Act (Clark and Simonds 1994). These lands were then made available for settlement as "Farm Units" and were obtained by new settlers as Reclamation Homesteads between 1915 and

1921. Money obtained by the government as a result of acquisition of the Reclamation Homesteads was earmarked to pay for the project. As a result, the vast majority of the land associated with the land patents viewed on the BLM General Land Office online database was settled between 1915 and 1925, with Homestead-Reclamation Patents being granted between 1917 and 1927.

DESCRIPTIONS OF THE UVWUA LATERALS

5DT2021.2 – GK Lateral

Site Description

Site 5DT2021.2 is a newly documented segment of the GK Lateral on BLM and private lands. The segment traverses north through the Mancos Shale Lowlands between Peach Valley, East Mesa, and Garnet Mesa and eventually makes a sharp bend in the southeastern quarter of Section 12 in Township 15 South, Range 95 West. From there, the canal parallels H Road through the Gunnison River floodplain. Vegetation surrounding the canal is willow, common reed, cattail, kochia, Russian thistle, tar weed, horsetail, mixed grasses, and forbs. Soils surrounding the canal are eolian, alluvial, and residual light brown silty loam, typical of Mancos Shale deposits. The canal has experienced moderate disturbances from erosion and mechanical excavation associated with the cleaning and maintenance of the ditch.

The GK Lateral originates and draws its water supply from the East Canal (site 5DT116) in Section 36, Township 15 South, Range 95 West, approximately 2.3 mi. to the west of the currently documented segment. Another segment (site 5DT2021.1), from the takeout on the East Canal to the currently documented segment, was recorded in 2016 by Alpine (Prouty 2016). The currently documented segment of the GK Lateral picks up where the 2016 documentation concluded and details the remaining 6.4-mi.-long segment to its termination in the northern portion of Section 14, Township 15 South, Range 95 West into a north-flowing ephemeral drainage that empties into the floodplain of the Gunnison River. Site 5DT2021.2 is a 6.4-mi.-long canal that runs in a generally northern trajectory, although the last 1 mi. runs straight west. The size of the canal varies over its entire course, generally becoming smaller with distance. Where it starts at 5DT2021.1, Segment 2 is 15–20 ft. wide at the top and 4 ft. deep, but near its termination, the average dimensions narrow to 7–10 ft. wide and 4 ft. deep. The canal has been regularly maintained and upgraded, and most of the currently documented water diversion features and takeouts are of modern age (Table 2), although some of the associated features are likely historical in age (i.e. concrete chutes). Twenty-seven handwheel-operated lift gates were documented. All of them are standard types with 10-in.-diameter handwheels and ¾-in. stem diameters. An additional four spill-box diversions were documented along the northern extent paralleling H Road. Most water-diversion structures are associated with I-shaped or X-shaped board-formed concrete drop structures and standard-sized Parshall Flumes. Three of the headgates are associated with stacked tabular sandstone and concrete drop structures (GK 7.70, 7.75, and 8.31). These drop structures are constructed of a board-formed concrete chute measuring 48 in. wide with a 1-ft. concrete slab water stop at the bottom. Four to five courses of mortared, medium- to large-sized tabular sandstone boulders form the walls and extend outwards at the head and base to form wing walls that extend 3–5 ft. A thin layer of cement has been applied to the tops of these features. These features are highly consistent in construction, although lengths are variable (Table 1). Historical research at the UVWUA history and photo archives indicate that these structures were originally constructed by the Civilian Conservation Corps (CCC) in 1941.

Table 1. Historical Concrete Chute Features on the GK Lateral (Site 5DT2021.2).

Feature Number	Description
GK 7.70	12 ft. long over 2 pitches
GK 7.75	12 ft. long over 2 pitches
GK 8.31	9 ft. long over 2 pitches
Feature 1	14 ft. long over 2 pitches

Table 2. Modern Headgates Recorded along the GK Lateral (Site 5DT2021.2).

Headgate Number	Canal Side	Handwheel Diameter (in.)	Gate Width (in.)	Stem Diameter (in.)	Notes	Markings
GK 2.68	East	10	11	¾	Wooden headwall measuring 5-x-2½ ft. with concrete X-shaped drop structure with a 4-ft. mouth and 7-ft. sidewall.	AB&I 22445A, HYDRO 701150
GK 2.69	West	10	15.5	¾	Wooden headwall measuring 5-x-6 ft. Shares drop structure with HG GK 2.68.	FRESNO VALVES H22445A
GK 3.10	West	10		¾	Wooden headwall measuring 5½-x-5 ft., standard-sized Parshall Flume.	WATERMAN W-1428-02-01
GK 3.12	East	10	15	¾	Wooden headwall measuring 5½-x-5 ft. I-shaped drop structure with 4-ft. mouth.	FRESNO VALVES H22445A
GK 3.41	West	10	16	¾	Wooden headwall measuring 5½-x-3 ft. with concrete and sandstone rubble dam measuring 7-x-8 ft. and a 2-ft.-deep catchment and a crushed large-sized Parshall Flume.	WATERMAN
GK 3.48	West		15.5	¾	Inactive, wooden headwall measuring 5½-x-3½ ft.	
GK 3.90	West	10	16	¾	Wooden headwall measuring 5½-x-3 ft., directed into a hydraulic rotary-powered clean-out and T-shaped pipe-in covered with rebar screen.	WATERMAN
GK 4.10	West	10	15.5	¾	Brand new L-shaped concrete headwall measuring 6-x-3 ft. with an I-shaped drop structure.	FRESNO VALVES H22445A
GK 4.38	East	10	15.5	¾	Concrete L-shaped headwall measuring 6-x-3 ft. with 4-ft.-high face.	FRESNO VALVES H22445A
GK 4.57	West	10	15	¾	Wooden headwall 5-x-2½ ft. associated with I-shaped drop structure and standard-sized Parshall Flume.	AB&I 22445A, HYDRO 701150
GK 5.25	West	10	15	¾	Wooden headwall measuring 5-x-4 ft. with metal gabian fence screening the intake and associated with I-shaped drop structure and standard-sized Parshall Flume.	HYDRO 701150
GK 5.67	East	10	15	¾	Wooden headwall measuring 5-x-4 ft., associated with T-shaped drop structure and standard-sized Parshall Flume.	FRESNO VAL ES H22445A
GK 6.15	East	10	15	¾	Wooden headwall measuring 5-x-3½ ft. with I-shaped drop structure and standard-sized Parshall Flume.	22445A
GK 6.25	East	10	11.5	¾	Wooden headwall measuring 5½-x-3 ft., concrete & sandstone rubble dam and a T-shaped diversion box (8-x-3 ft.) with pipe-in and hand-wheel-operated lift gate incorporated into eastern side of canal.	WATERMAN
GK 6.69	West	12	23	¾	Wooden headwall measuring 5-x-4 ft. Primary takeout for the GKB Lateral.	W-1429 WATERMAN
GK 6.70	East	10	15	¾	Wooden headwall measuring 5½-x-3 ft., associated with X-shaped drop structure and standard-sized Parshall Flume.	HYDRO 701150, AB&I 22445A
GK 6.71	East	10	12	¾	Wooden headwall measuring 5½-x-3 ft., associated with X-shaped drop structure and standard-sized Parshall Flume.	WATERMAN

Headgate Number	Canal Side	Handwheel Diameter (in.)	Gate Width (in.)	Stem Diameter (in.)	Notes	Markings
GK 7.15	East	10	15	¾	Wooden headwall measuring 5½-x-3 ft., associated with X-shaped drop structure and standard-sized Parshall Flume.	AB&I 22445A, HYDRO 701150
GK 7.16	East	10	15	¾	Wooden headwall measuring 5-x-3 ft., associated with I-shaped board stop check dam and double-stacked Parshall Flume with modern concrete form and a separation screen.	AB&I 22445A, HYDRO 701150
GK 7.17	East		22		Metal spill-box diversion with I-shaped drop structure.	
GK 7.20	East	10	15	¾	Wooden headwall measuring 5½-x-3½ft., associated with standard-sized Parshall Flume.	AB&I 22445A, HYDRO 701150
GK 7.22	East	10	15	¾	Angle-iron brackets affixed to bank associated with standard-sized Parshall Flume spilling into a concrete-formed round and screened pipe-in.	22445A
GK 7.23	East		14		Sheet-metal spill box diversion atop an I-shaped drop structure, water directed into a rotary mesh screener in concrete box.	
GK 7.64	East	10	15	¾	Wooden headwall measuring 5-x-4½ ft. with angled aluminum brackets, associated with I-shaped drop structure, across road there is a diversion box measuring 5-x-3 ft.	FRESNO VALVES H22445A
GK 7.68	West		14		Sheet-metal spill-box diversion atop an I-shaped drop structure.	
GK 7.69	East		15		Sheet-metal spill-box diversion atop an I-shaped drop structure.	
GK 7.70	East		14		Wooden spill-box diversion headgate associated with concrete and stone drop-structure chute.	
GK 7.75	East		13		Wooden spill-box diversion headgate associated with concrete and stone drop-structure chute.	
GK 8.31	East	10	15	¾	Concrete headwall with 4-x-4-ft. face and 2-ft. wingwalls, associated with concrete and stone drop structure/chute and concrete basin diversion box pipe-in.	FRESNO VALVES H22445A
GK 8.32	West	10	12	¾	Destroyed wooden headwall associated with concrete and stone drop structure/ chute.	ARMCO 4100
GK 8.52	East	10	11.5	¾	Wooden headwall measuring 7-x-2 ft.	ARMCO 4106A

Historical Background

The GK Lateral, originally known as the Union Lateral, was constructed as a lateral canal at the far northern end of the Loutsenhizer Canal by the late 1890s and early 1900s (Uncompahgre Valley Water Users Association 1912). Originally operated by the Loutsenhizer Canal Company, the Union Lateral, along with the rest of the Loutsenhizer Canal system, was transferred to the BOR in early 1908 (Uncompahgre Valley Water Users Association 1912). As part of the consolidation of canals and ditches associated with the Uncompahgre Project, the northern end of the Loutsenhizer Canal and its associated laterals became a part of the East Canal system in 1908–1910

(Uncompahgre Valley Water Users Association 1912). It was then that the UVWUA took ownership of the canal. In 1911, the northern end of the East Canal was expanded to accommodate a planned increase of water and, as a result, improvements were needed to both the Union and Cade (which would be renamed GH in 1917) laterals. Between 1914 and 1915, construction was completed, which included the installation of a new headgate structure off of the East Canal, new diversion structures along the Union Lateral, and expanding the canal to accommodate a flow of over 100 cfs. The improvements to the Union Lateral also applied to its two laterals (U.S. Department of the Interior 1915:184). By 1917, the UVWUA switched from a named system of the canals and ditches to a lettered system. The East Canal System was assigned the letter "G," and the Union Lateral was given the secondary letter "K."

5DT2086.1 – EU Lateral

Site Description

Site 5DT2086.1 is the entire length of the EU Lateral, which trends east to northeast across BLM and private lands on the uplands west of Peach Valley. Vegetation surrounding the canal is willow, common reed, cattail, kochia, Russian thistle, tar weed, horsetail, mixed grasses, and forbs. Soils surrounding the canal are eolian, alluvium, and residual light brown silty loam, typical of Mancos Shale deposits. The canal has experienced moderate disturbances and impacts from erosion and mechanical excavation associated with cleaning and maintenance of the ditch.

The EU Lateral originates from the takeout on the eastern side of the Selig Canal (Site 5DT117) within Section 14, Township 51 North, Range 10 West and dumps into the GK Lateral near the intersection of Last Chance Road and D50 Road in the eastern half of Section 31, Township 15 South, Range 94 West. Site 5DT2086.1 is 1.31 mi. long, 15–20 ft. wide across the top, and averages 7 ft. deep. The canal runs in an east–northeast trajectory. The canal has been regularly maintained and upgraded, with water-control features seeing regular replacement. All of the currently documented water-control features are of modern age. The primary takeout from the Selig Canal is a standard handwheel-operated lift-gate. Three spill-box diversion headgate structures were documented along the canal (Table 3). The concrete diversion structures are all of the same basic construction—including 6-in.-thick concrete dams, sidewalls, and stem walls—but vary slightly in configuration. In addition to the headgates and associated spill-box features, there are two isolated features. Feature 1 is a modern wooden I-shaped drop structure with 4-ft. side walls, a 2-ft.-wide mouth, and a 1-ft. drop. Feature 2 is a bridge and culvert taking water underneath County Road 2225. The bridge may be of historical age but has been improved with restacking and mortaring of tabular sandstone boulders, board-formed concrete walls poured on top of the stones, and pipe handrails.

Historical Background

The EU Lateral, originally known as the No. 11 Lateral, was constructed as a lateral of the Selig Canal. The Selig Canal supplied water to areas west of the Uncompahgre River in 1883 (Clark and Simonds 1994). During the establishment of the Uncompahgre Project, a series of dams, including the Selig diversion dam, were constructed between 1882 and 1925 to provide irrigation to the valley (Clark and Simonds 1994). The Selig Canal system was under construction in 1913, after being purchased by the United States, to enlarge portions of the Selig Ditch (Engineering and Contracting 1913). The Selig Canal system was projected to irrigate 22,400 acres of land on the eastern side of the Uncompahgre River, with a maximum capacity of 320 cfs (Davis 1917; Engineering and Contracting 1913; Getty 1915). Construction of the Selig Canal was completed by 1920 (Foster 1921).

Table 3. Modern Headgates Recorded along the EU Lateral (Site 5DT2086.1).

Headgate Number	Canal Side	Handwheel Diameter (in.)	Gate Width (in.)	Stem Diameter (in.)	Notes	Markings
EU takeout	—	10	19.5	¾	Wooden board headwall measuring 5.5-x-3 ft.	WATERMAN
EU 0.30	East		16		Sheet-metal spill-box diversion with slide gate associated with an I-shaped drop structure.	
EU 0.85	East		17		Sheet-metal spill-box diversion with slide gate associated with an I-shaped drop structure.	
EU 1.25	East		15		Sheet-metal spill-box diversion with slide gate associated with an I-shaped drop structure.	

5DT2087.1 – EO Lateral

Site Description

Site 5DT2087.1 is a segment of the EO Lateral that crosses BLM and private lands in the Mancos Shale east of and generally paralleling Peach Valley; Smiths Mountain is to the northeast. Vegetation surrounding the canal is willow, common reed, cattail, kochia, Russian thistle, tar weed, horsetail, mixed grasses, and forbs. Soils surrounding the canal are residual grayish brown silt with less than 5 percent poorly sorted angular shale gravels, typical of Mancos Shale deposits. The canal has experienced moderate disturbances from erosion and mechanical excavation associated with cleaning and maintenance of the ditch.

The EO Lateral originates from the takeout on the eastern side of the Selig Canal (site 5DT117) within Section 30, Township 51 North, Range 9 West and spills into an arroyo of the interior Peach Valley drainage in the western half of Section 7, Township 15 South, Range 94 West. Site 5DT2087.1 is a 10.09-mi.-long segment of the EO Lateral that averages 8 ft. in width across its top, with a depth of 3 ft. The canal runs in a north–northwest trajectory. The canal has been regularly maintained and upgraded, with water-control features seeing regular replacement. Seventeen modern headgates or diversions were documented along this segment of the EO Lateral (Table 4). Most of the headgates are associated with board-formed I-shaped or T-shaped drop structures with Parshall Flumes on the field ditches.

Other Canal Features

Forty-five additional features were documented along the EO Lateral. The majority of features are board-formed concrete chutes with dry-stacked tabular sandstone retaining walls. As the canal travels north-northwestward, the elevation drops, necessitating a reduction in the flow velocity to reduce erosion. The chutes permit the canal to be constructed in a series of flat sections, with each one at different elevations. The concrete chutes are all of similar construction, with 33-in.-wide bases, 4-in. depths, and 8-in.-thick sidewalls with stacked tabular sandstone wall reinforcements. Nine additional features consist of concrete and stone drop structures/chutes. Slight variations in lengths and number of pitches are noted in Table 5.

Five features are concrete bridge tunnel/culverts. These features consist of board-formed concrete walls connected by an underground concrete tunnel/culvert overlaid by a gravel and dirt road. One feature (Feature 12) is a long metal flume pipe suspended atop concrete footers with concrete intake and outtake walls. The concrete headwall of the pipe intake holds an inlaid metal sign with the marking "BUILT BY CCC." Another feature (Feature 13) consists of the abutment remains of a bridge located on the northeastern and southwestern sides of the arroyo that Feature 12 spans. A circular concrete overflow structure (Feature 14) and its associated cap/lid (Feature 15) are

also located along the lateral. A tabular rock retaining wall was documented, as well. Feature 31 consists of a 75-ft.-long board-formed siphon feature that was constructed by the CCC. "CCC 1941" is stamped into the concrete at the intake of the siphon. Feature 41 is a field-access bridge constructed of 2-x-12-in. boards atop 8-x-6-in. timber girders.

Table 4. Modern Headgates and Diversions Recorded along the EO Lateral (Site 5DT2087.1).

Headgate Number	Canal Side	Handwheel Diameter (in.)	Gate Width (in.)	Stem Diameter (in.)	Notes	Markings
EO 0.98	Center	18	72	1 ½	Metal hand wheel attached to wooden stop board within a concrete structure. A spillway is located immediately to the west. A wooden catwalk spans the spillway, the middle of the spillway has an I beam in center to hold spillway boards and catwalk upright. Spillway drop is about 4 ft. deep. A wooden bridge spans the channel and concrete chute, boards vary 6–12 in. wide and 12–12½ ft. long. Spillway chute is concrete lined and 65 ft. long over two pitches. Water is deposited into a pool with concrete rip rap.	VULCAN 7815
EO 1.63	South	11	12	1	Wooden board headwall, 6 ft.	HYDRO 22445A 701150
EO 2.15	West	10	13	¾	Wooden board headwall measuring 5-x-4 ft. I-shaped concrete drop structure downstream of headgate.	22445A
EO 2.56	West	10	13	¾	Wooden board headwall, approx. 5 ft. wide, attached to headgate with rebar, associated with standard-sized Parshall Flume. I-shaped concrete drop structure downstream of headgate.	WATERMAN OPEN
EO 2.85	West	10		¾	Wooden board headwall. Associated with standard-sized Parshall Flume. I-shaped concrete drop structure downstream of headgate.	HYDRO 22445A AB&I 701150
EO 3.43	West	10	13	¾	Wooden board headwall. T-shaped concrete drop structure downstream of headgate.	HYDRO AB&I 701150 22445A
EO 3.79	West	10	13	¾	Wooden board headwall, 5 ft. wide. Associated with standard-sized Parshall Flume. I-shaped concrete drop structure downstream of headgate.	HYDRO AB&I 701150 22445A
EO 3.96	West	10	13	¾	Wooden board headwall, 4½ ft. wide. Associated with standard-sized Parshall Flume. T-shaped concrete drop structure downstream of headgate.	HYDRO AB&I 22445A 701150
EO 4.26	West	10	13	¾	Wooden board headwall measuring 5 ft. wide. Associated with standard-sized Parshall Flume. T-shaped concrete drop structure downstream of headgate.	HYDRO AB&I 701150 22445A
EO 5.26	Center				Spillway with adjacent wooden bridge. On eastern side of spillway, concrete walls are 12 ft. long with 5-ft.-long wingwalls. On western side of spill-way, concrete walls are 4 ft. long with 17½ ft. walls extending westward under bridge. Bridge is 5 ft. long, 17 ft. wide.	-
EO 9.09	West	10	12	¾	Wooden board headwall, 5½-x-3½ ft.	WATERMAN

Headgate Number	Canal Side	Handwheel Diameter (in.)	Gate Width (in.)	Stem Diameter (in.)	Notes	Markings
EO 10.01	West	10	11.5	¾	Wooden board headwall, 4-x-3½ ft., attached with associated stone rubble dam, small wooden drop structure and culvert and stone retaining wall.	22445A
EO 10.09	West	10	11.5	¾	Wooden board headwall, 4-x-3 ft., attached with stone retaining wall and standard Parshall Flume.	ARMCO LC 49
EO 10.53	East	10	16	¾	Wooden board headwall, 5-x-2½ ft.	WATERMAN
EO 10.58	West	10	15	¾	Wooden board headwall, 5½-x-2½ ft., attached with T-shaped angle-iron bracketed check dam and standard-sized Parshall Flume.	AB&I 22445A, HYDRO 701150
EO 10.60	East	10	18	¾	Wooden board headwall, 8-x-2½ ft., attached with associated standard-sized Parshall Flume and concrete diversion box.	AB&I 22445A, HYDR 701150
EO 11.49	East	14	18	¾	Large-sized Parshall Flume.	—

Table 5. Features on the EO Lateral (Site 5DT2087.1).

Feature Number	Description
Feature 1	Board-formed concrete chute. Approximately 60 ft. long over two pitches.
Feature 2	Concrete and stone drop structure/chute. 23 ft. long over one pitch.
Feature 3	Concrete and stone drop structure/chute. 32 ft. long over one pitch.
Feature 4	Concrete and stone drop structure/chute. 22 ft. long over one pitch.
Feature 5	Concrete and stone drop structure/chute. 22 ft. long over two pitches.
Feature 6	Concrete and stone drop structure/chute. 29 ft. long over three pitches.
Feature 7	Concrete and stone drop structure/chute. 21 ft. over one pitch.
Feature 8	Concrete and stone drop structure/chute. 20 ft. long over one pitch.
Feature 9	Concrete and stone drop structure/chute. 20 ft. long over one pitch.
Feature 10	Concrete and stone drop structure/chute. Exposed masonry on downstream end of feature. 82 ft. long over three pitches.
Feature 11	Board-formed concrete chute with dry-stacked tabular sandstone retaining walls. 66 ft. long over two pitches.
Feature 12	Board-formed concrete pipe intake structure, 11-x-4½ ft., with 45-degree wing walls and inlaid metal sign "BUILT BY THE CCC." Metal pipe flume is 3 ft. in diameter, extends 20 ft. in length, and is suspended 30 ft. above arroyo by four concrete footers. A board-formed concrete headwall holds the pipe in place on the northern side of the arroyo, and a board-formed concrete pipe outtake, measuring 4½-x- 4½ ft., with 45-degree wing walls is located at the downstream end of the flume.
Feature 13	Wooden bridge abutments, at least 9 ft. long, are partially buried on northern and southern sides of arroyo. Wood debris and wire nail concentrations on both sides of arroyo. Cross beams and perpendicular logs located on northern side of arroyo. Historical barbwire present.
Feature 14	Circular concrete overflow structure. 3 ft. tall with 5 ft. diameter.
Feature 15	Concrete circle, related to Feature 14 (lid/cap). 7½ in. tall with 4 ft. diameter.
Feature 16	Concrete bridge tunnel/culvert. Concrete retaining walls are 18 in. long with 8-ft.-long wing walls that extend at 45-degree angles into the ditch bank. The concrete tunnel has a rectangular intake and outtake and extends 26 ft. from intake to outtake. A dirt and gravel bridge spans the length between retaining walls.
Feature 17	Board-formed concrete chute with dry-stacked tabular sandstone retaining walls. Some sections of tabular rock are capped with poured concrete. 150 ft. long over four pitches.
Feature 18	Tabular rock retaining wall. 18 ft. long, 2 ½ ft. high, with 1–4 courses.
Feature 19	Concrete bridge tunnel/culvert. Concrete retaining walls are 18 in. long with 8-ft.-long wing walls that extend at 45-degree angles into the ditch bank. The concrete tunnel has a rectangular intake and outtake, and extends 26 ft. from intake to outtake. A dirt and gravel bridge spans the length between retaining walls.

Feature Number	Description
Feature 20	Concrete bridge tunnel/culvert. Concrete retaining walls are 18 in. long with 8-ft.-long wing walls that extend at 45-degree angles into the ditch bank. The concrete tunnel has a rectangular intake and outtake, and extends 20 ft. from intake to outtake. A dirt and gravel bridge spans the length between retaining walls.
Feature 21	Board-formed concrete chute with dry-stacked tabular sandstone retaining walls. 140 ft. long over five pitches.
Feature 22	Board-formed concrete chute with dry-stacked tabular sandstone retaining walls. 35 ft. long over two pitches.
Feature 23	Board-formed concrete chute with dry-stacked tabular sandstone retaining walls. 95 ft. long over two pitches. Riff raff extends 33 ft. downstream from chute over additional two pitches.
Feature 24	Concrete bridge tunnel/culvert. Concrete retaining walls are 18 in. long with 8-ft.-long wing walls that extend at 45-degree angles into the ditch bank. The concrete tunnel has a rectangular intake and outtake and extends 26 ft. from intake to outtake. A dirt and gravel bridge spans the length between retaining walls.
Feature 25	Board-formed concrete chute with dry-stacked tabular sandstone retaining walls. 90 ft. long over one pitch. Downstream of chute, water enters a PVC culvert.
Feature 26	Board-formed concrete chute with dry-stacked tabular sandstone retaining walls. 32 ft. long over two pitches.
Feature 27	Board-formed concrete chute with dry-stacked tabular sandstone retaining walls. Top course is capped with poured concrete on eastern side. Wall has collapsed on western side. 25 ft. long over two pitches.
Feature 28	Board-formed concrete chute with collapsed dry-stacked tabular sandstone retaining walls. Concrete rip raff on western side of ditch and collapsed wall on eastern side of ditch. 25 ft. long over two pitches.
Feature 29	Board-formed concrete chute with dry-stacked tabular sandstone retaining walls. 28 ft. long over two pitches. Concrete rip raff extends 20 ft. downstream from chute.
Feature 30	Concrete bridge tunnel/culvert. Concrete retaining walls are 18 in. long with 8-ft.-long wing walls that extend at 45-degree angles into the ditch bank. The concrete tunnel has a rectangular intake and outtake and extends 26 ft. from intake to outtake. A dirt and gravel bridge spans the length between retaining walls.
Feature 31	Concrete siphon. Intake is 4½ ft. wide and has "CCC 1941" stamped into the intake wall. Wing walls are 11½ ft. long. Distance from intake to outtake is 75 ft. Outtake has an approximate 2 to 3 ft. drop.
Feature 32	Board-formed concrete chute with dry-stacked tabular sandstone retaining walls. 140 ft. long over five pitches.
Feature 33	Board-formed concrete chute with dry-stacked tabular sandstone retaining walls. 30 ft. long over two pitches.
Feature 34	Board-formed concrete chute with dry-stacked tabular sandstone retaining walls. 18 ft. long over two pitches.
Feature 35	Board-formed concrete chute with dry-stacked tabular sandstone retaining walls. 15 ft. long over two pitches.
Feature 36	Board-formed concrete chute with dry-stacked tabular sandstone retaining walls. 15 ft. long over two pitches.
Feature 37	Board-formed concrete chute with dry-stacked tabular sandstone retaining walls. 25 ft. long over two pitches.
Feature 38	Board-formed concrete chute with dry-stacked tabular sandstone retaining walls. 16 ft. long over two pitches.
Feature 39	Board-formed concrete chute with dry-stacked tabular sandstone retaining walls. 19 ft. long over two pitches.
Feature 40	Board-formed concrete chute with dry-stacked tabular sandstone retaining walls. 15 ft. long over two pitches.
Feature 41	Field-access bridge. 12-x-12 ft.
Feature 42	Board-formed concrete chute with dry-stacked tabular sandstone retaining walls. 21 ft. long over two pitches.
Feature 43	Board-formed concrete chute with dry-stacked tabular sandstone retaining walls. 20 ft. long over two pitches.
Feature 44	Board-formed concrete chute with dry-stacked tabular sandstone retaining walls. 18 ft. long over two pitches.
Feature 45	Board-formed concrete chute with dry-stacked tabular sandstone retaining walls. 25 ft. long over two pitches, terminating into the earthen wall where the canal bends sharply south.

Historical Background

The EO Lateral, originally known as the Peach Valley Lateral, was constructed as a lateral of the Selig Canal. The Selig Canal supplied water to areas east of the Uncompahgre River in 1883 (Clark and Simonds 1994). The Selig Canal system was enlarged in 1913 after having been purchased that year by the United States government (Engineering and Contracting 1913). After significant urging from local farmers, the Peach Valley Lateral was contracted to be built by the Orman Construction Company out of Montrose, Colorado, with work beginning March 11, 1916. After several extension requests due to weather and lack of labor, the lateral was finally completed on July 19, 1916 (U.S. Department of the Interior 1916). After extensive damage resulting from flooding in 1938, the CCC spent several days repairing the damage; the results of some of the repair work are still visible along the lateral.

5MN10852.1 – GB Lateral

Site Description

Site 5MN10852.1 represents the entire length of the GB Lateral. The lateral crosses private lands in the agricultural fields to the east of and above the Uncompahgre River. Vegetation surrounding the canal is willow, common reed, cattail, kochia, Russian thistle, tar weed, horsetail, mixed grasses, and forbs. Soils surrounding the canal are residual grayish brown silt with less than 5 percent poorly sorted angular shale gravels, typical of Mancos Shale deposits. The canal has experienced moderate disturbances from erosion and mechanical excavation associated with cleaning and maintenance of the ditch.

The GB Lateral originates from the takeout on the East Canal (site 5MN1856) within the southwestern portion of Section 3, Township 50 North, Range 10 West and initially trends west before abruptly bending north. The entire length of the lateral is 3.15 mi. The lateral terminates within a heavily vegetated riparian area east of Highway 50. As the GB Lateral drains north, the size of the canal decreases—from an average of 18 ft. wide and 5 ft. deep across the length of the canal to around 5 ft. wide and 2 ft. deep at its end. The canal has been regularly maintained and upgraded, and all of the currently documented water-control features are of modern age (Table 6). The primary takeout is on the western side of the East Lateral and consists of a 36-in.-wide standard handwheel-operated lift gate. Twenty-two headgates were documented along the segment during the current survey. Ten of the headgates are standard handwheel-operated lift gates and twelve are spill-box diversions. Several of the drop structures incorporate two spill-box diversion headgates. In addition to features associated with headgates, there is an I-shaped drop structure with a 4-ft.-wide mouth and 2-ft. drop (Feature 1) just below the primary takeout from the East Canal.

Historical Background

The GB Lateral, originally known as No. 1 Lateral, was constructed as a lateral canal of the East Canal. The East Canal originates from a diversion on the Uncompahgre River and was an early irrigation canal acquired as part of the Uncompahgre Project in 1911. A formal contract was entered on August 30, 1913 for extensions and improvements to the East Canal, and this included the excavation of Laterals 1 and 2 by government workers (Pile 1915). A 1912 map shows the GB Lateral as surveyed, but not yet constructed. By 1916, the GB Lateral is clearly depicted on the Uncompahgre Valley Project map.

Table 6. Modern Headgates Recorded along the GB Lateral (Site 5MN10852.1).

Headgate Number	Canal Side	Handwheel Diameter (in.)	Gate Width (in.)	Stem Diameter (in.)	Notes	Markings
GB HDGT		19	36	1½	Concrete headwall: 10-x-6 ft., 3-ft. wing walls.	FRESNO VALVES H22449A
GB 0.38	West	10	15	¾	Wooden board headwall measuring 5-x-4 ft. with an I-shaped concrete stop-board dam structure and standard-sized Parshall Flume.	FRESNO VALVES H22445A
GB 0.70	West	10	11.5	¾	Wooden board headwall measuring 5½-x-4 ft.	AB&I 22445A, HYDRO 701150
GB 0.74	West	10	16	¾	Wooden board headwall measuring 5½-x-4 ft. with standard-sized Parshall Flume spilling into a screened 3-x-3-ft. concrete box.	WATERMAN W-1428-02-01
GB 0.89	West		14		Spill-box diversion with slide gate with I-shaped drop structure.	
GB 0.98	West		15		Spill-box diversion with slide gate with I-shaped drop structure and dry-stacked tabular sandstone retaining walls on downstream side.	
GB 1.05	East		15		Spill-box diversion with slide gate with I-shaped drop structure.	
GB 1.48	West		15		Spill-box diversion with slide gate with X-shaped drop structure.	
GB 1.49	West	10	11	¾	Angle-iron brackets.	22445A
GB 1.55	West		22		Spill-box diversion with slide gate and I-shaped drop structure. Water is diverted into a flared concrete basin with two angle-iron brackets acting as spill overs for fining out debris and sediments as the water enters a mesh screen box with a pipe intake.	
GB 1.72	West		22		Spill-box diversion with slide gate with I-shaped drop structure.	
GB 1.74	East		22		Spill-box diversion with slide gate with I-shaped drop structure.	
GB 2.21	West		22		Spill-box diversion with slide gate with I-shaped drop structure.	
GB 2.20	West		15		Spill-box diversion with slide gate with I-shaped drop structure.	
GB 2.42	East	10	9.5	¾	Wooden board headwall measuring 6-x-4 ft.	FRESNO VALVES H22445A
GB 2.50	West	10	12	¾	Wooden board headwall measuring 5½-x-4 ft. with concrete rubble dam with 2-ft.-deep catchment and standard-sized Parshall Flume.	WATERMAN
GB 2.65	East	10	15.5	¾	Wooden board headwall measuring 5½-x-3 ft.	22445A

Headgate Number	Canal Side	Handwheel Diameter (in.)	Gate Width (in.)	Stem Diameter (in.)	Notes	Markings
GB 2.70	West		16		Spill-box diversion with slide gate with I-shaped drop structure.	
GB 2.78	West		14		Spill-box diversion with slide gate with T-shaped drop structure.	
GB 2.85	East		15		Spill-box diversion with slide gate with T-shaped drop structure and concrete diversion box.	
GB 2.90	West	10	12	¾	Wooden board headwall measuring 5½-x-4 ft. with I-shaped wooden drop structure.	WATERMAN
GB 3.03	West	10	15.5	½	Wooden board headwall measuring 5½-x-3 ft. with I-shaped wooden drop structure.	AB&I 22445A, HYDRO 701150

SUMMARY

The Level I Documentation was performed on portions of the GK, EU, EO, and GB Lateral canals in advance of replacing the canals with pipe as part of BOR's Colorado River Basin Salinity Control Program. Along the GK Lateral (5DT2021.2), 27 handwheel-operated headgates, four spill-box diversions, 19 drop structures, 12 Parshall flumes, and three dam/check-dams were documented. Along the EU Lateral (5DT2086.1), one handwheel-operated liftgate, four drop structures, three spill-box diversions, and a culvert/bridge were documented. Along the EO Lateral, 17 headgates, 24 concrete chutes, nine concrete and stone drop structures/chutes, nine Parshall flumes, eight drop structures, five bridge/tunnel culverts, one metal pipe flume, one feature with bridge abutments, one concrete overflow structure and associated cap/lid, one tabular rock wall, one siphon, and one field access bridge were documented. Along the GB Lateral (5MN10852.1), 10 handwheel-operated headgates, 12 spill-box diversions, fifteen drop structures, and 3 Parshall Flumes were documented. A list of maps and photographs are provided in Appendix A, along with maps and reproductions of photographs are included in Appendix B. Original archival black-and-white photographs are included 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

List of Photographs

Subject: The GK Lateral (5DT2021.2), the EU Lateral (5DT2086.1), the EO Lateral (5ST2087.1), and the GB Lateral (5DT10852.1).
Photographers: Joshua R. Boyd and Abbie L. Harrison
Dates: March 13–20, 2017 and July 19–26, 2017

Photographs of the GK Lateral (5DT2021.2).

Photograph 9. Hydraulic rotary-powered clean-out and T-shaped pipe-in covered with rebar screen. This feature is associated with Headgate GK 3.90. View is to the west.

Photograph 10. View of Headgate GK 4.10, facing east-northeast.

Photograph 11. Concrete drop structure associated with Headgate GK 4.10. View is to the south.

Photograph 12. Looking north-northwest at Headgate GK 4.38 and associated concrete drop structure.

Photograph 13. Headgate GK 4.57. View is to the north-northeast.

Photograph 14. View of Headgate GK 5.25, facing west-southwest.

Photograph 15. Concrete drop associated with Headgate GK 5.25. View is to the northwest.

Photograph 16. Looking south at Headgate GK 5.67.

Photograph 17. View of Headgate GK 6.15 and associated concrete drop structure facing west-southwest.

Photograph 18. Looking to the west at Headgates GK 6.69, GK 6.70, and GK 6.71.

Photograph 19. Looking to the southwest at a concrete drop structure associated with Headgates GK 6.69, GK 6.70, and GK 6.71.

Photograph 20. Headgate GK 7.15. View is to west-southwest.

Photograph 21. Looking to the south-southwest at Headgate GK 7.16.

Photograph 22. View of Headgate GK 7.17, facing south-southeast.

Photograph 23. Headgate GK 7.20. View is to the east.

Photograph 24. Looking to the south-southwest at Headgate GK 7.22.

Photograph 25. View of Headgate GK 7.64, facing south.

Photograph 26. Looking to the east-northeast at a concrete drop structure.

Photograph 27. Headgate GK 7.69 and associated spill-box diversion and concrete and stone drop structure chute. View is to the east-southeast.

Photograph 28. Overview of the GK Lateral, facing west.

Photograph 29. Looking to the south at Headgate GK 7.70.

Photograph 30. Headgate GK 7.75. View is to the south.

Photograph 31. Looking to the south-southwest at a concrete and stone drop-structure chute associated with Headgate GK 7.75.

Photograph 32. View of Headgate GK 8.31, facing west-northwest.

Photograph 33. Concrete and stone drop-structure chute associated with Headgate 8.31. View is to the east.

Photograph 34. Headgate GK 8.32. View is to the north-northeast.

Photograph 35. Looking to the east at a concrete and stone drop-structure chute associated with Headgate GK 8.52.

Photograph 36. View of Headgate 8.52, facing south-southeast.

Photographs of the EU Lateral (5DT2086.1)

Photograph 1. Overview of the EU Lateral (5DT2086.1), facing northeast.

Photograph 2. Looking to the south-southwest at the EU Lateral takeout.

Photograph 3. Feature 1, a concrete drop structure associated with the EU Lateral takeout. View is to the north-northeast.

Photograph 4. Feature 2, a bridge and culvert taking water underneath County Road 2225. View is to the southwest.

Photograph 5. Looking to the north-northwest at Headgate EU 0.30.

Photograph 6. Overview of the EU Lateral (5DT2086.1), facing southwest.

Photograph 7. Concrete drop structure associated with Headgate EU 0.85. View is to the north.

Photograph 8. Looking to the west at Headgate EU 0.85

Photograph 9. Headgate EU 1.25 and associated concrete drop structure. View is to the north.

Photograph 10. View of Headgate EU 1.25, facing west-northwest.

Photograph 11. Overview of the EU Lateral (5DT2086.1), facing south-southeast.

Photographs of the EO Lateral (5DT2086.1)

Photograph 1. Headgate EO 0.98, spillway, catwalk, and bridge. View is to the northeast.

Photograph 2. Looking to the southeast at Headgate EO 1.63.

Photograph 3. Feature 1, a board-formed concrete chute. View is to the west-southwest.

Photograph 4. Looking to the south-southwest at the exposed masonry on Feature 3, a concrete and stone drop structure/chute.

Photograph 5. Upstream view of Feature 4, a concrete and stone drop structure/chute. View is to the west.

Photograph 6. Looking upstream and to the southwest at a concrete and stone drop structure/chute (Feature 5).

Photograph 7. Feature 6, a concrete and stone drop structure/chute. View is to the north.

Photograph 8. Looking downstream and to the east at a concrete and stone drop structure/chute (Feature 7).

Photograph 9. Upstream view of Feature 8, a concrete and stone drop structure/chute. View is to the southwest.

Photograph 10. Looking upstream and to the southwest at Feature 9, a concrete and stone drop structure/chute.

Photograph 11. View upstream and to the west-southwest at a concrete and stone drop structure/chute (Feature 10).

Photograph 12. View of a portion of Feature 12, a board-formed pipe intake structure with inlaid metal sign that reads “BUILT BY THE CCC.” View is to the east-northeast.

Photograph 13. Looking east-northeast at a portion of Feature 12, a metal pipe flume suspended 30 feet above the arroyo by concrete footers.

Photograph 14. Wooden bridge abutments and debris on both sides of the arroyo (Feature 13). View is to the south-southwest.

Photograph 15. Overview of the EO Lateral (5DT2086.1). View is to the north-northeast.

Photograph 16. Looking south-southeast at Headgate EO 2.15 and associated concrete drop structure.

Photograph 17. Looking to the north-northeast at Feature 14, a circular concrete overflow structure.

Photograph 18. Headgate EO 2.56 and associated concrete drop structure. View is to the east-southeast.

Photograph 19. Looking to the east at Headgate EO 2.85 and associated concrete drop structure.

Photograph 20. Feature 16, a concrete bridge tunnel/culvert. View is to the south-southeast.

Photograph 21. Board-formed concrete chute with dry-stacked tabular sandstone retaining walls (Feature 17). View is to the southeast.

Photograph 22. Overview of the EO Lateral (5DT2086.1). View is to the northwest.

Photograph 23. Looking to the east at Headgate EO 3.43.

Photograph 24. Feature 18, a tabular rock retaining wall. View is to the west-northwest.

Photograph 25. Looking to the north-northeast at a concrete bridge tunnel/culvert (Feature 19).

Photograph 26. Overview of the EO Lateral (5DT2086.1). View is to the southeast.

Photograph 27. Looking to the southeast at Headgate EO 3.79 and associated concrete drop structure.

Photograph 28. Feature 20, a concrete bridge tunnel/culvert. View is to the northeast.

Photograph 29. EO Headgate 3.96 and associated concrete drop structure, facing north-northeast.

Photograph 30. Board-formed concrete chute with dry-stacked tabular sandstone retaining walls (Feature 21). View is to the northeast.

Photograph 31. Looking to the west at Feature 22, a board-formed concrete chute with dry-stacked stacked tabular sandstone retaining walls.

Photograph 32. Headgate EO 4.26 and associated concrete drop, facing east-southeast.

Photograph 33. Board-formed concrete chute with dry-stacked tabular sandstone retaining walls (Feature 23). View is to the south-southeast.

Photograph 34. Looking upstream and to the northeast at Feature 24, a concrete bridge tunnel/culvert.

Photograph 35. Overview of the EO Lateral (5DT2086.1) from upstream. View is to the southwest.

Photograph 36. Looking to the southeast at Headgate EO 5.26, spillway, and adjacent bridge.

Photograph 37. Overview of the EO Lateral (5DT2086.1), facing north.

Photograph 38. Feature 25, a board-formed concrete chute with dry-stacked tabular sandstone retaining walls. View is to the east-southeast.

Photograph 39. Looking to the north at a board-formed concrete chute with dry-stacked tabular sandstone retaining walls (Feature 26).

Photograph 40. View upstream and to the east-southeast at a board-formed concrete chute with collapsed dry-stacked tabular sandstone retaining walls (Feature 28).

Photograph 41. Feature 30, a concrete bridge tunnel/culvert. View is to the east-northeast.

Photograph 42. Looking upstream and to the southwest at an overview of the EO Lateral (5DT2086.1).

Photograph 43. Feature 31, Concrete siphon intake with "CCC 1941" stamped into the intake wall. View is to the northwest.

Photograph 44. Looking upstream and to the southwest at Feature 31, a concrete siphon.

Photograph 45. View upstream of the EO Lateral (5DT2086.1), facing south.

Photograph 46. Headgate EO 10.01 facing northeast.

Photograph 47. Wooden drop structure associated with Headgate EO 10.01. View is to the south.

Photograph 48. Looking to the east-northeast at Headgate EO 10.09.

Photograph 49. Headgate EO 10.53, facing northwest.

Photograph 50. Feature 32, a board-formed concrete bridge tunnel/culvert. View is to the northeast.

Photograph 51. Looking to the east at a board-formed concrete bridge tunnel/culvert (Feature 33).

Photograph 52. A board-formed concrete chute with dry-stacked tabular sandstone retaining walls (Feature 34). View is to the east.

Photograph 53. Headgate EO 10.58, facing north.

Photograph 54. View of Headgate EO 10.60, looking to the south.

Photograph 55. Looking to the east at Feature 35, a board-formed concrete chute with dry-stacked tabular sandstone retaining walls.

Photograph 56. A board-formed concrete chute with dry-stacked tabular sandstone retaining walls (Feature 36). View is to the southeast.

Photograph 57. Looking to the northeast at a board-formed concrete chute with dry-stacked sandstone retaining walls (Feature 37).

Photograph 58. View of Feature 38, a board-formed concrete chute with dry-stacked tabular sandstone retaining walls, facing east-northeast.

Photograph 59. Feature 39, a board-formed concrete chute with dry-stacked tabular sandstone retaining walls. View is to the east.

Photograph 60. Looking to the west at a board-formed concrete chute with dry-stacked tabular sandstone retaining walls (Feature 40).

Photograph 61. Feature 41, a field access bridge. View is to the southeast.

Photograph 62. A board-formed concrete chute with dry-stacked tabular sandstone retaining walls (Feature 42), facing northeast.

Photograph 63. Feature 43, a board-formed concrete chute with dry-stacked tabular sandstone retaining walls. View is to the east.

Photograph 64. Looking to the east at Feature 44, a board-formed concrete chute with dry-stacked tabular sandstone retaining walls.

Photograph 65. A board-formed concrete chute with dry-stacked tabular sandstone retaining walls (Feature 45). View is to the north.

Photograph 66. Headgate EO 11.49, facing northeast.

Photograph 67. Overview of the EO Lateral (5DT2086.1). View is to the east-southeast.

Photographs of the GB Lateral (5DT10852.1)

Photograph 1. Looking to the southeast at the GB Lateral Headgate.

Photograph 2. Concrete drop structure associated with the GB Lateral Headgate. View is to the southwest.

Photograph 3. Headgate GB 0.38. View is to the northeast.

Photograph 4. Looking to the west at a concrete stop-board dam structure associated with Headgate GB 0.38.

Photograph 5. Overview of the GB Lateral (5DT10852.1). View is to the north.

Photograph 6. Headgate GB 0.70, facing southeast.

Photograph 7. Headgate GB 0.74. View is to the southeast.

Photograph 8. Looking to the east at a concrete drop structure associated with Headgate GB 0.89.

Photograph 9. Headgate GB 0.89 and spill-box diversion. View is to the south-southeast.

Photograph 10. Looking to the east at Headgate GB 0.98.

Photograph 11. Spill-box diversion and concrete drop structure associated with Headgate GB 1.05. View is to the southeast.

Photograph 12. Overview of the GB Lateral 5DT10852.1). View is to the northwest.

Photograph 13. Looking to the north at a dry-stacked tabular sandstone wall.

Photograph 14. Facing southeast, a view of Headgate GB 1.48 and associated concrete drop structure and spill-box diversion.

Photograph 15. Headgate GB 1.49. View is to the southeast.

Photograph 16. Looking to the west-southwest at Headgate GB 1.55, associated spill-box diversions, and a flared concrete basin with pipe intake feature.

Photograph 17. Overview of the GB Lateral (5DT10852.1). View is to the north.

Photograph 18. Headgate GB 1.72 with associated spill-box diversions and concrete drop structure. View is to the northwest.

Photograph 19. Looking to the east at Headgate GB 2.21.

Photograph 20. Overview of Headgate GB 2.20, facing west.

Photograph 21. Headgate GB 2.42. View is to the southeast.

Photograph 22. Looking to the east at Headgate GB 2.50.

Photograph 23. Overview of Headgate GB 2.65, facing north-northeast.

Photograph 24. Headgate 2.70 with associated spill-box diversion and concrete drop structure. View is to the northwest.

Photograph 25. Looking to the north-northwest at Headgate GB 2.78 with associated spill-box diversion and concrete drop structure.

Photograph 26. Headgate GB 2.85 with associated spill-box diversion and concrete drop structure. View is to the northwest.

Photograph 27. Overview of Headgate GB 2.90 facing southwest.

Photograph 28. Headgate GB 3.03. View is to the west-northwest.

Photograph 29. Looking to the southwest at concrete drop structure associated with Headgate GB 3.03.

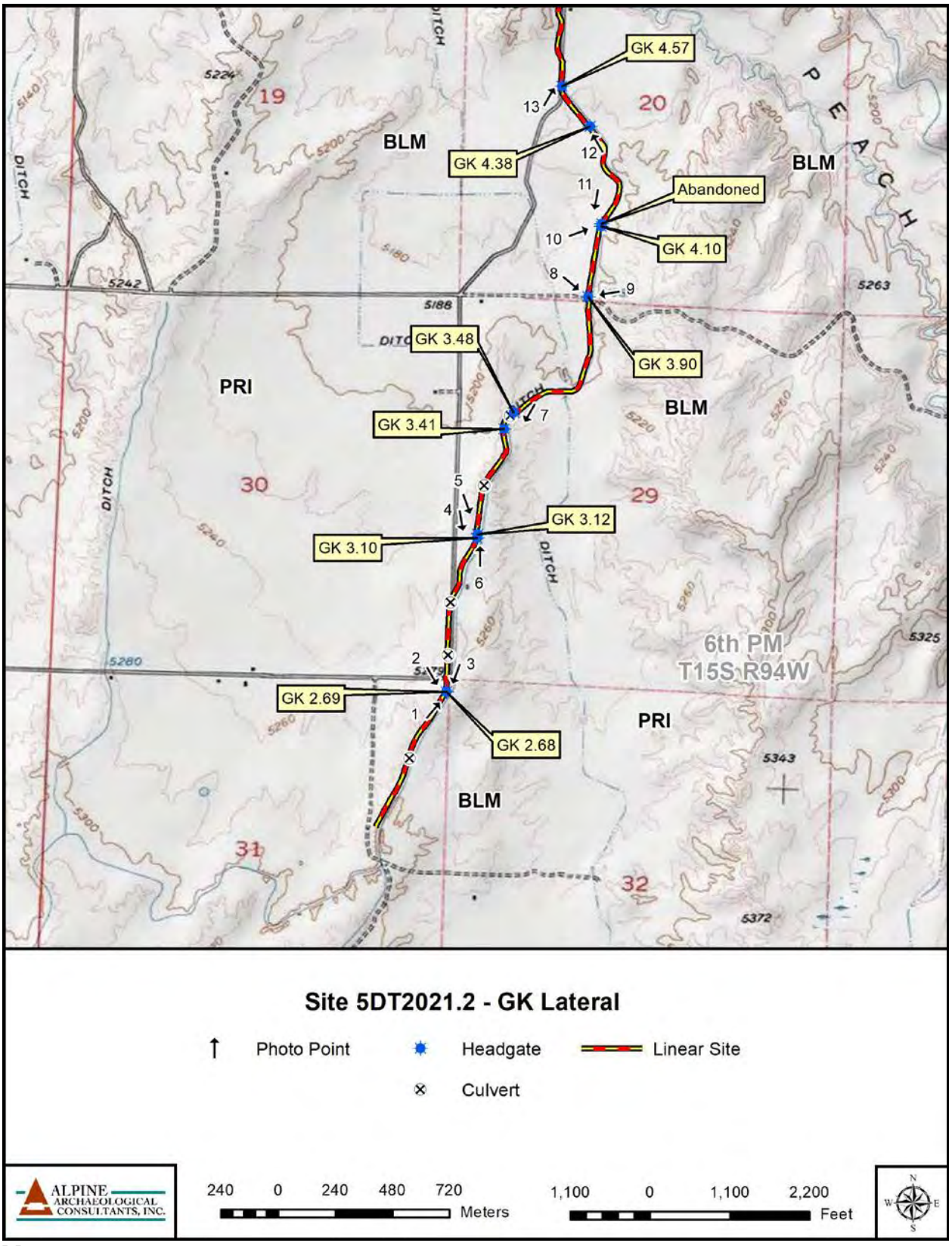
Photograph 30. Parshall flume and pipe intake structure associated with Headgate GB 3.03. View is to the north.

Photograph 31. Overview of the GB Lateral (5DT10852.1). View is to the south.

APPENDIX B

Level I Documentation: Maps and Photographs

GB Lateral (5DT2021.2)



Map 1.

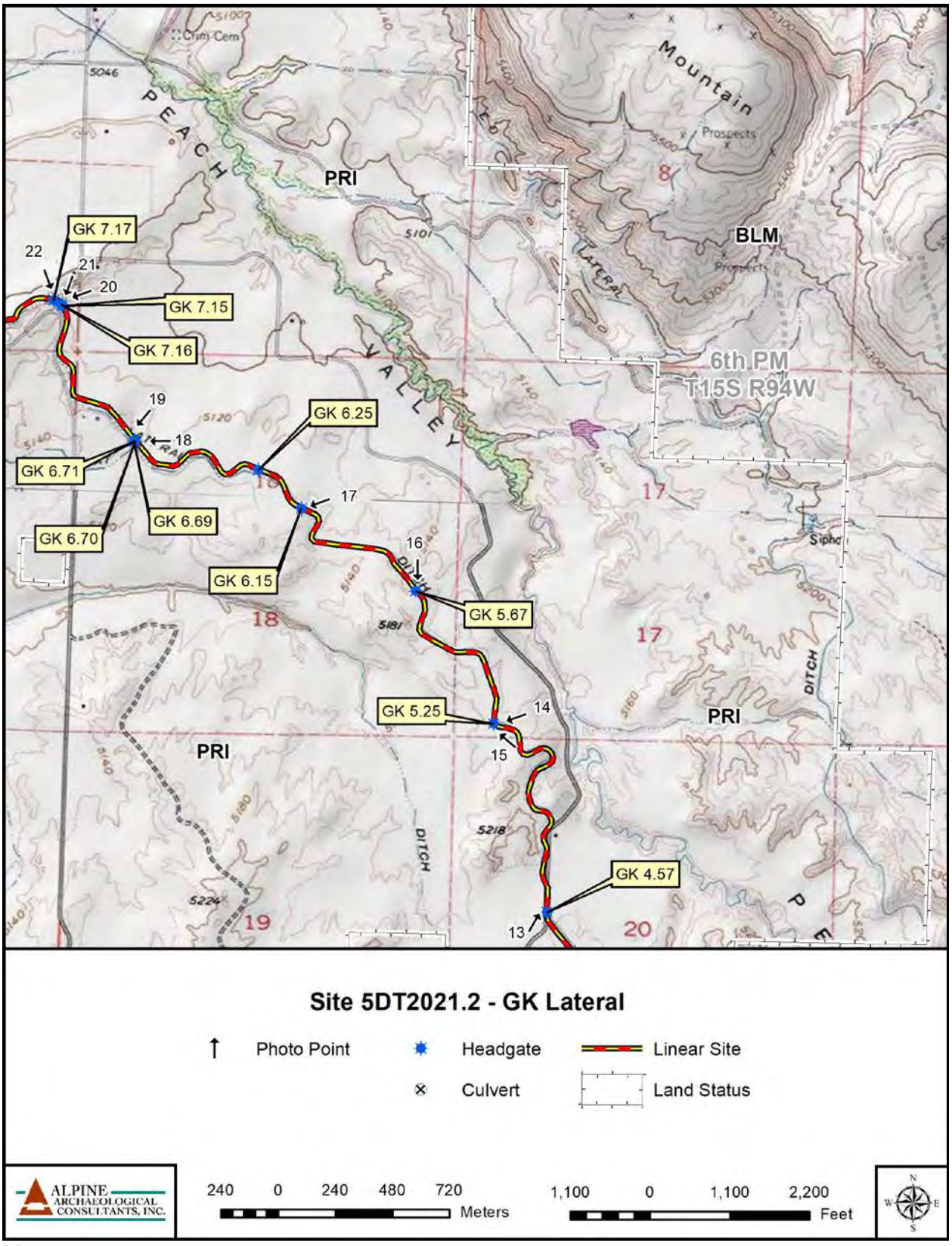

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Photo Point
Headgate
Linear Site
Culvert
Land Status
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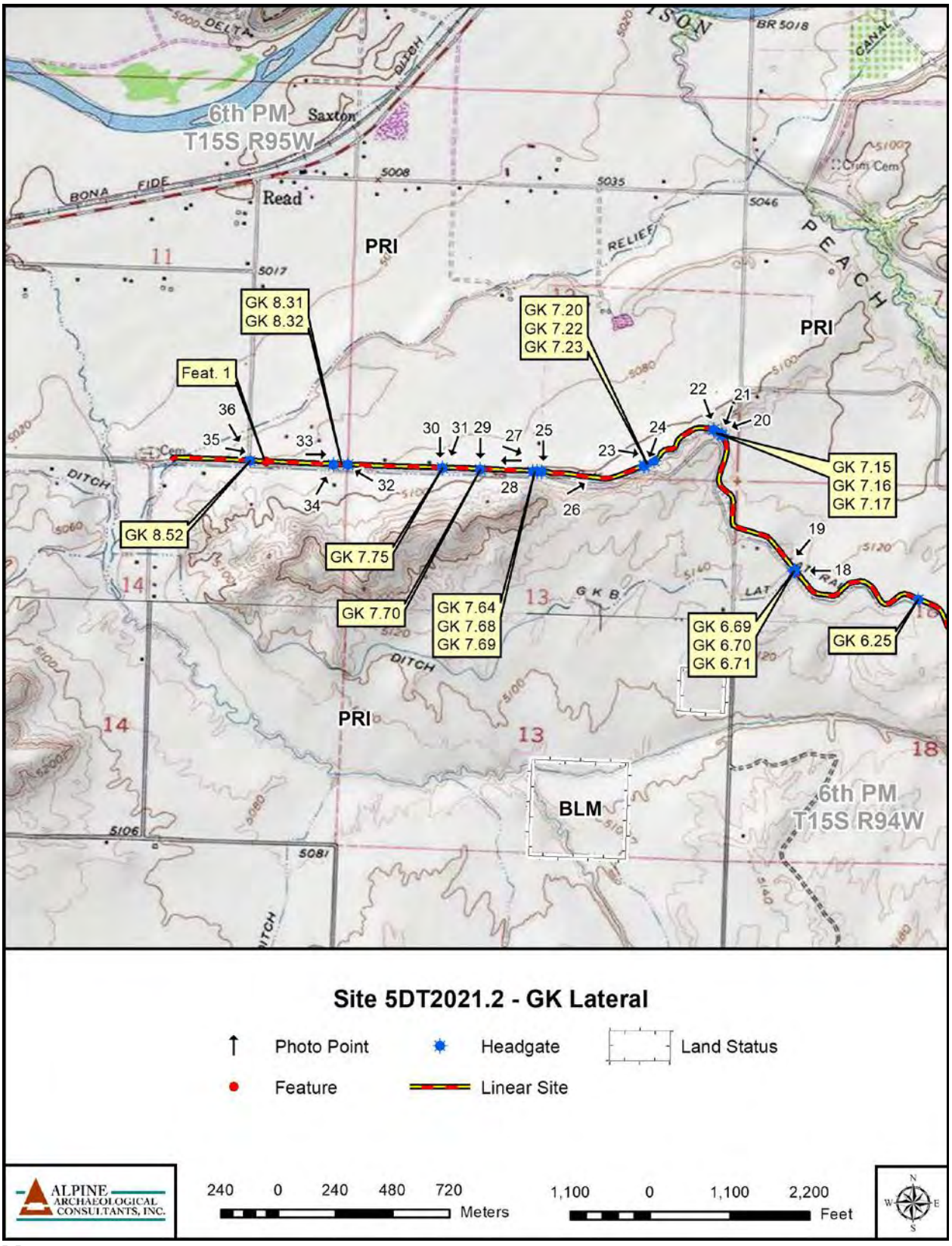
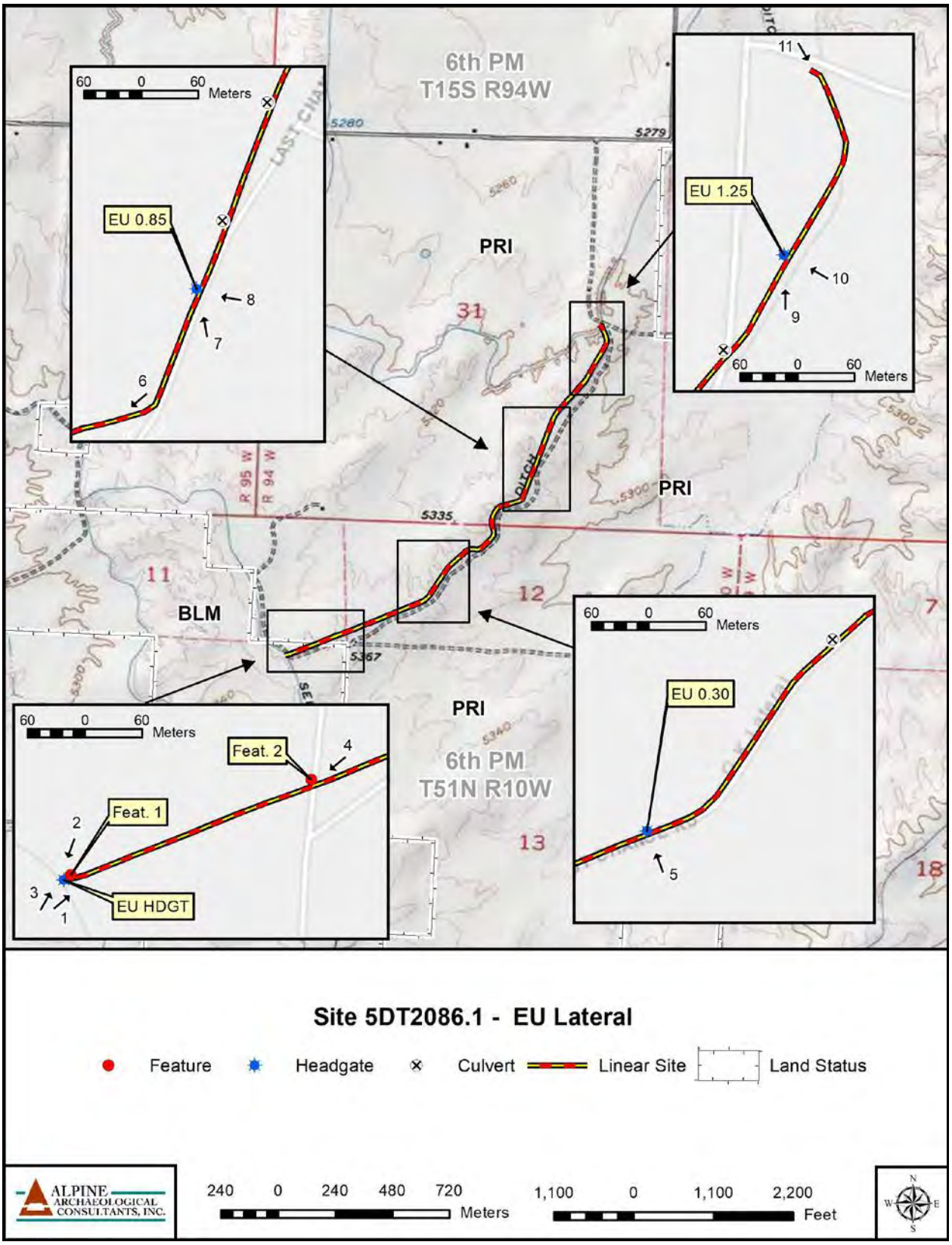
240 0 240 480 720
Meters
1,100 0 1,100 2,200
Feet
GK 7.17
GK 7.15
GK 7.16
GK 6.25
GK 6.71
GK 6.69
GK 6.70
GK 6.15
GK 5.67
GK 5.25
GK 4.57
22
21
20
19
18
17
16
15
14
13
PEACH
VALLEY
Mountain
PRI
BLM
6th PM
T15S R94W
DITCH
LATERAL

Map 2.


6th PM
T15S R95W
Saxton
Read
BONA FIDE
PRI
RELIEF
PEACH
GK 8.31
GK 8.32
Feat. 1
GK 7.20
GK 7.22
GK 7.23
GK 7.15
GK 7.16
GK 7.17
GK 8.52
GK 7.75
GK 7.70
GK 7.64
GK 7.68
GK 7.69
GK 6.69
GK 6.70
GK 6.71
GK 6.25
DITCH
GKB
LAT
BLM
6th PM
T15S R94W
Site 5DT2021.2 - GK Lateral
Photo Point
Headgate
Land Status
Feature
Linear Site
ALPINE ARCHAEOLOGICAL CONSULTANTS, INC.
240 0 240 480 720
Meters
1,100 0 1,100 2,200
Feet

Map 3.


6th PM
T15S R94W
PRI
31
BLM
11
12
13
6th PM
T51N R10W
PRI
PRI
5280
5279
5335
5367
5340
5300
R 95 W
R 94 W
60 0 60 Meters
EU 0.85
6
7
8
EU 1.25
9
10
11
EU 0.30
5
Feat. 1
Feat. 2
EU HDGT
1
2
3
4
Site 5DT2086.1 - EU Lateral
Feature
Headgate
Culvert
Linear Site
Land Status
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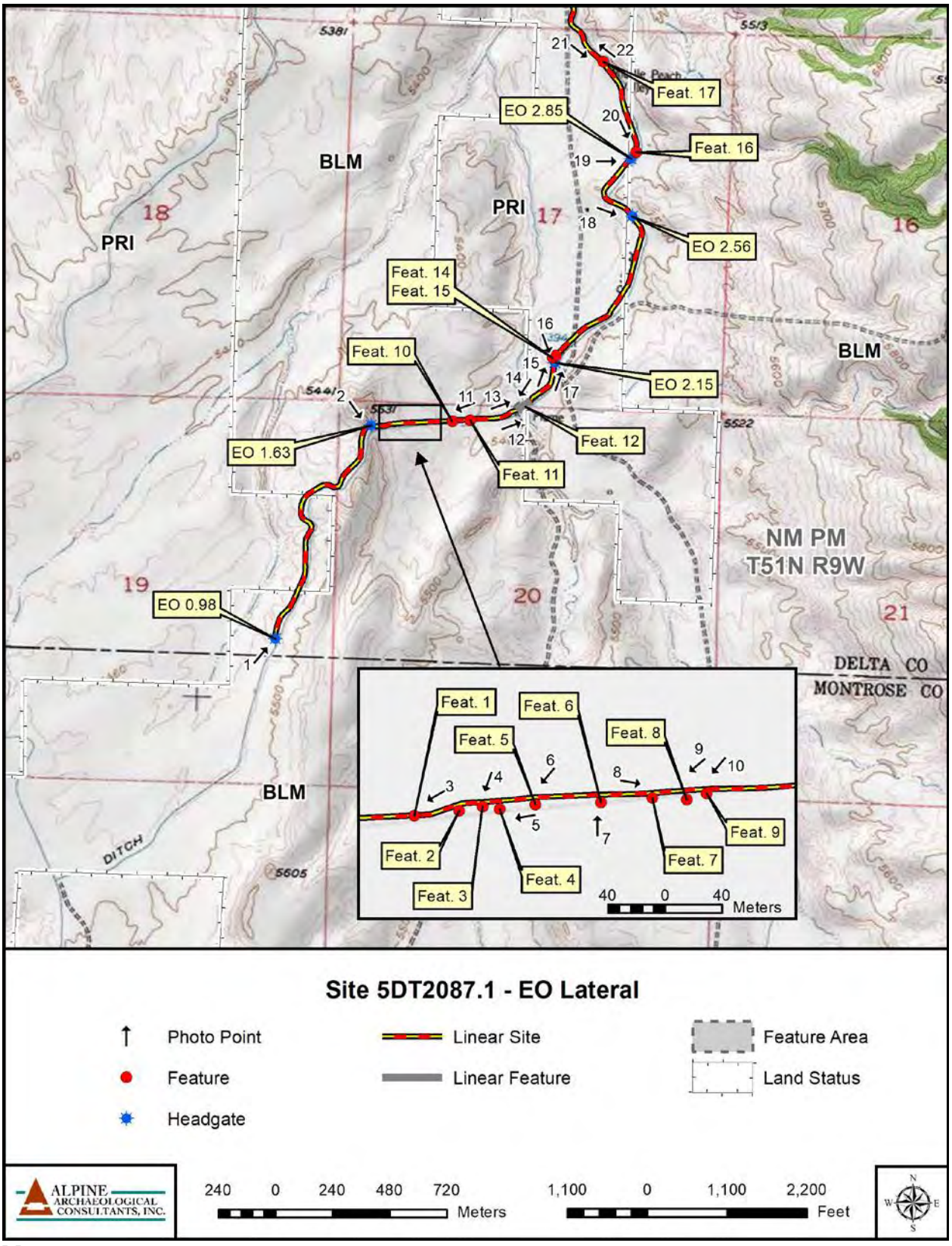
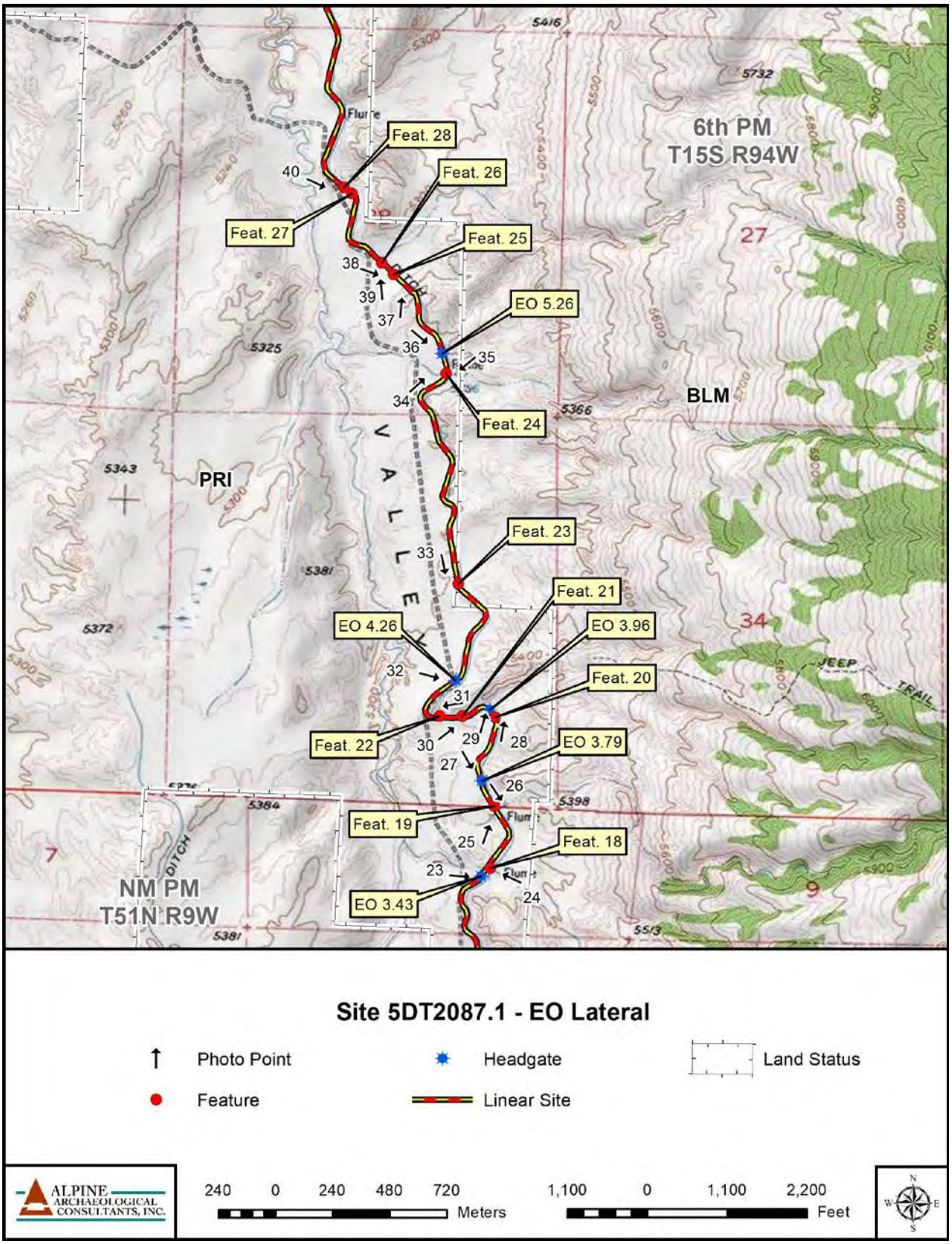
1,100 0 1,100 2,200 Feet
N
W
E
S

Map 4.


Site 5DT2087.1 - EO Lateral
Photo Point
Feature
Headgate
Linear Site
Linear Feature
Feature Area
Land Status
EO 0.98
EO 1.63
EO 2.15
EO 2.56
EO 2.85
Feat. 10
Feat. 11
Feat. 12
Feat. 14
Feat. 15
Feat. 16
Feat. 17
Feat. 1
Feat. 2
Feat. 3
Feat. 4
Feat. 5
Feat. 6
Feat. 7
Feat. 8
Feat. 9
BLM
PRI
NM PM
T51N R9W
DELTA CO
MONTROSE CO
DITCH
ALPINE ARCHAEOLOGICAL CONSULTANTS, INC.
240 0 240 480 720 Meters
1,100 0 1,100 2,200 Feet
40 0 40 Meters

Map 5.


6th PM
T15S R94W
NM PM
T51N R9W
PRI
BLM
VALLEY DITCH
JEEP TRAIL
Feat. 28
Feat. 26
Feat. 27
Feat. 25
EO 5.26
Feat. 24
Feat. 23
Feat. 21
EO 4.26
EO 3.96
Feat. 20
Feat. 22
EO 3.79
Feat. 19
Feat. 18
EO 3.43
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36
35
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33
32
31
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28
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23
24
Site 5DT2087.1 - EO Lateral
Photo Point
Headgate
Land Status
Feature
Linear Site
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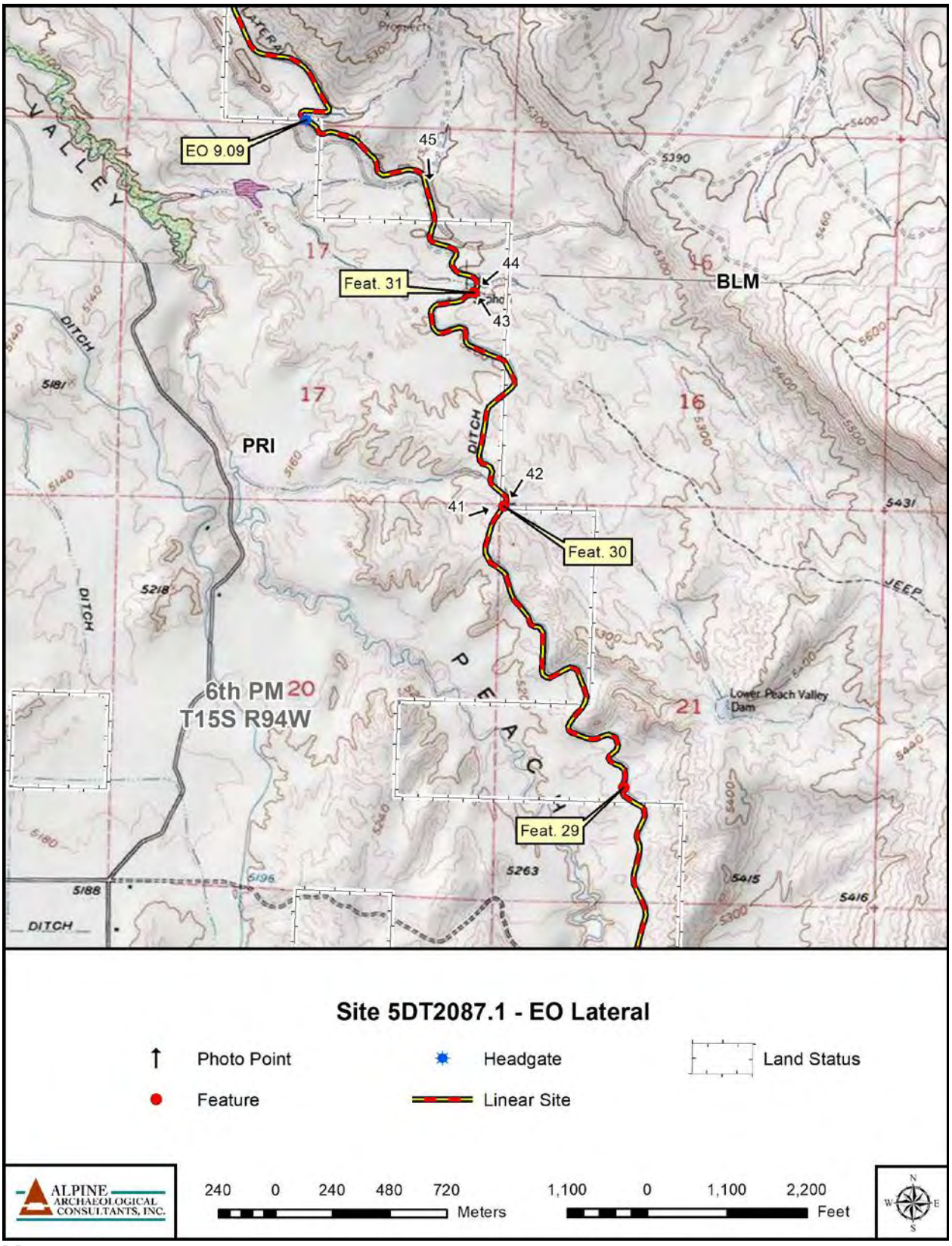
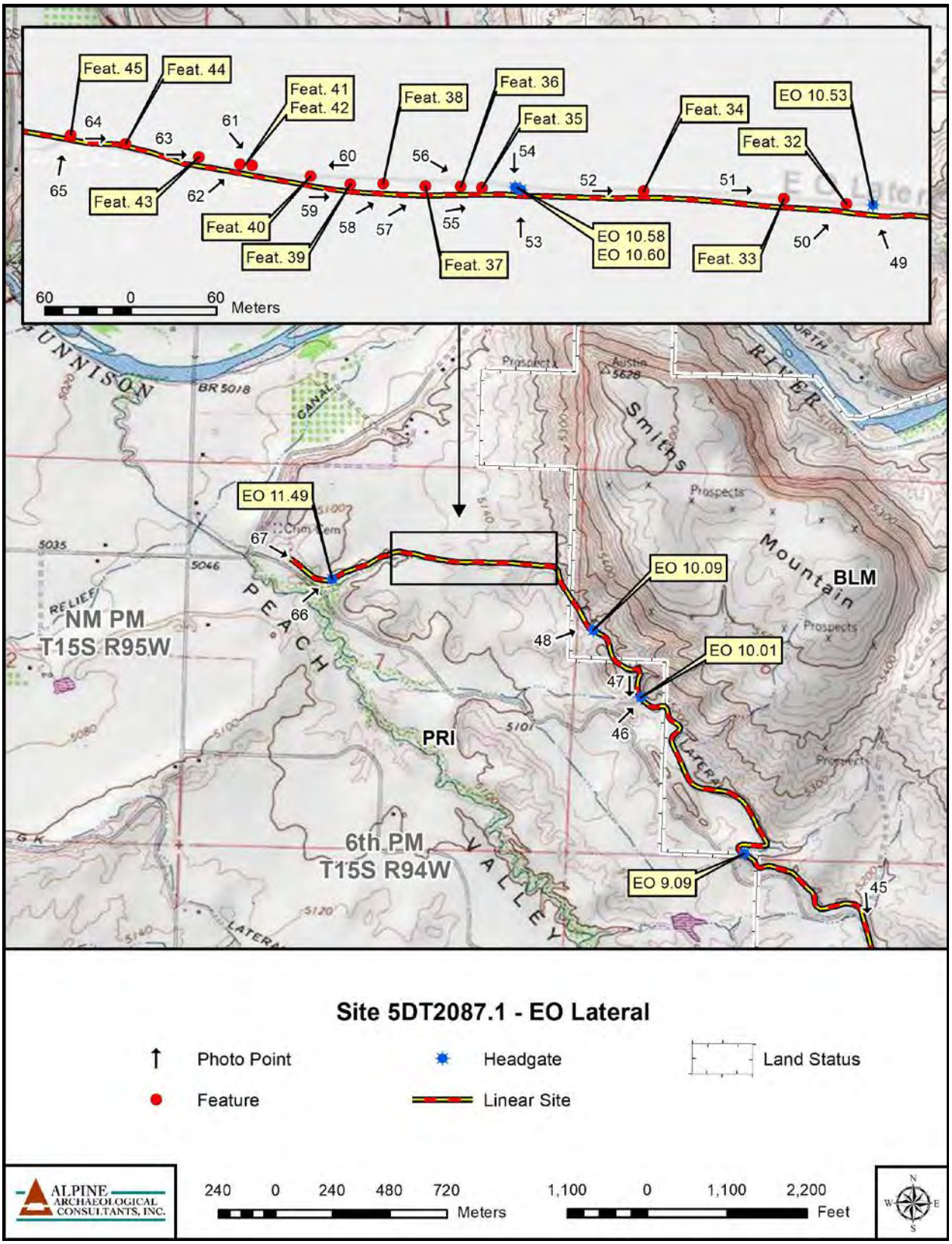
240 0 240 480 720
Meters
1,100 0 1,100 2,200
Feet

Map 6.


EO 9.09
45
44
43
42
41
Feat. 31
Feat. 30
Feat. 29
BLM
PRI
DITCH
VALLEY
PEACH
JEEP
6th PM
T15S R94W
Lower Peach Valley Dam
Site 5DT2087.1 - EO Lateral
Photo Point
Headgate
Land Status
Feature
Linear Site
ALPINE ARCHAEOLOGICAL CONSULTANTS, INC.
240 0 240 480 720
Meters
1,100 0 1,100 2,200
Feet

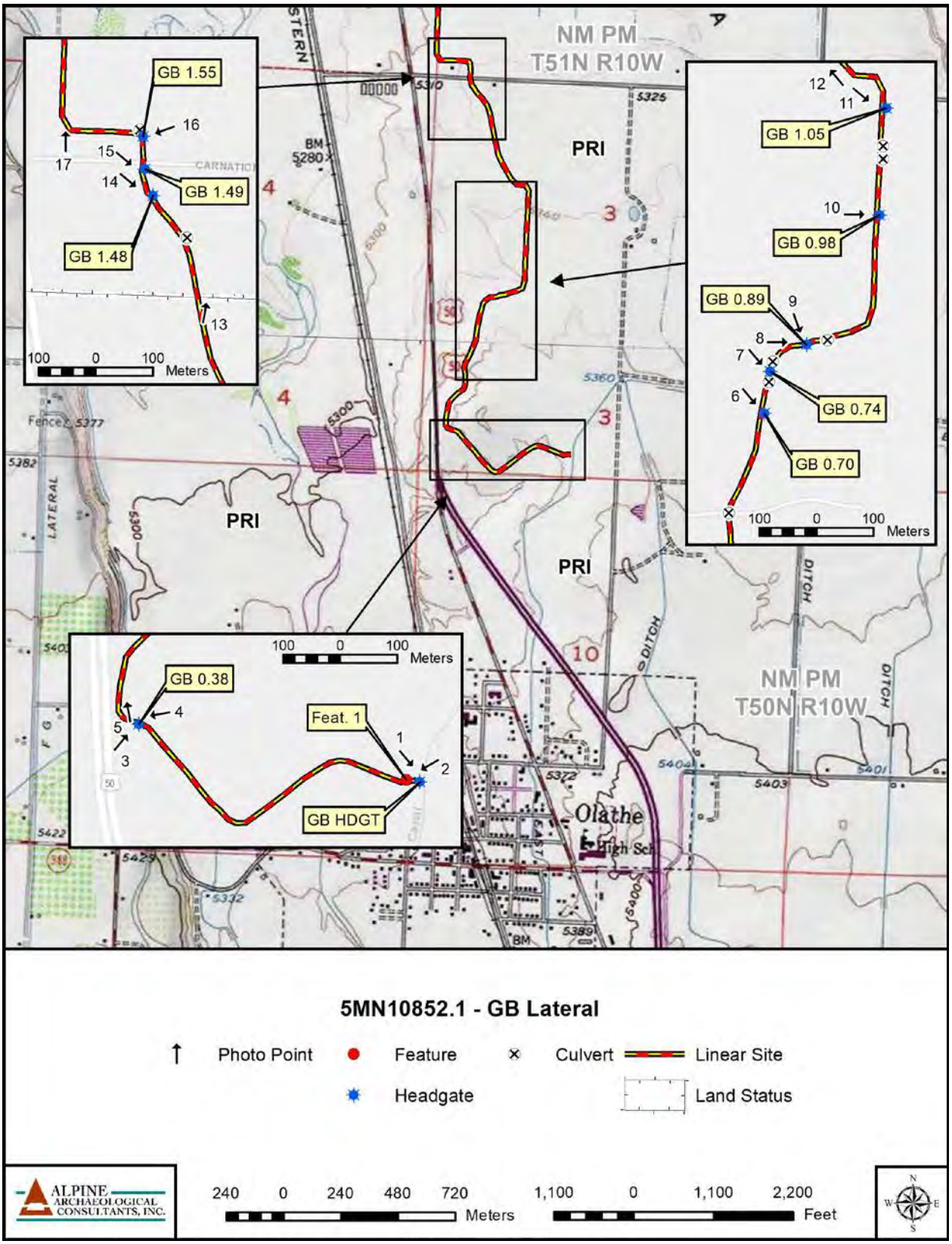
Map 7.

GB Lateral (5DT2087.1)



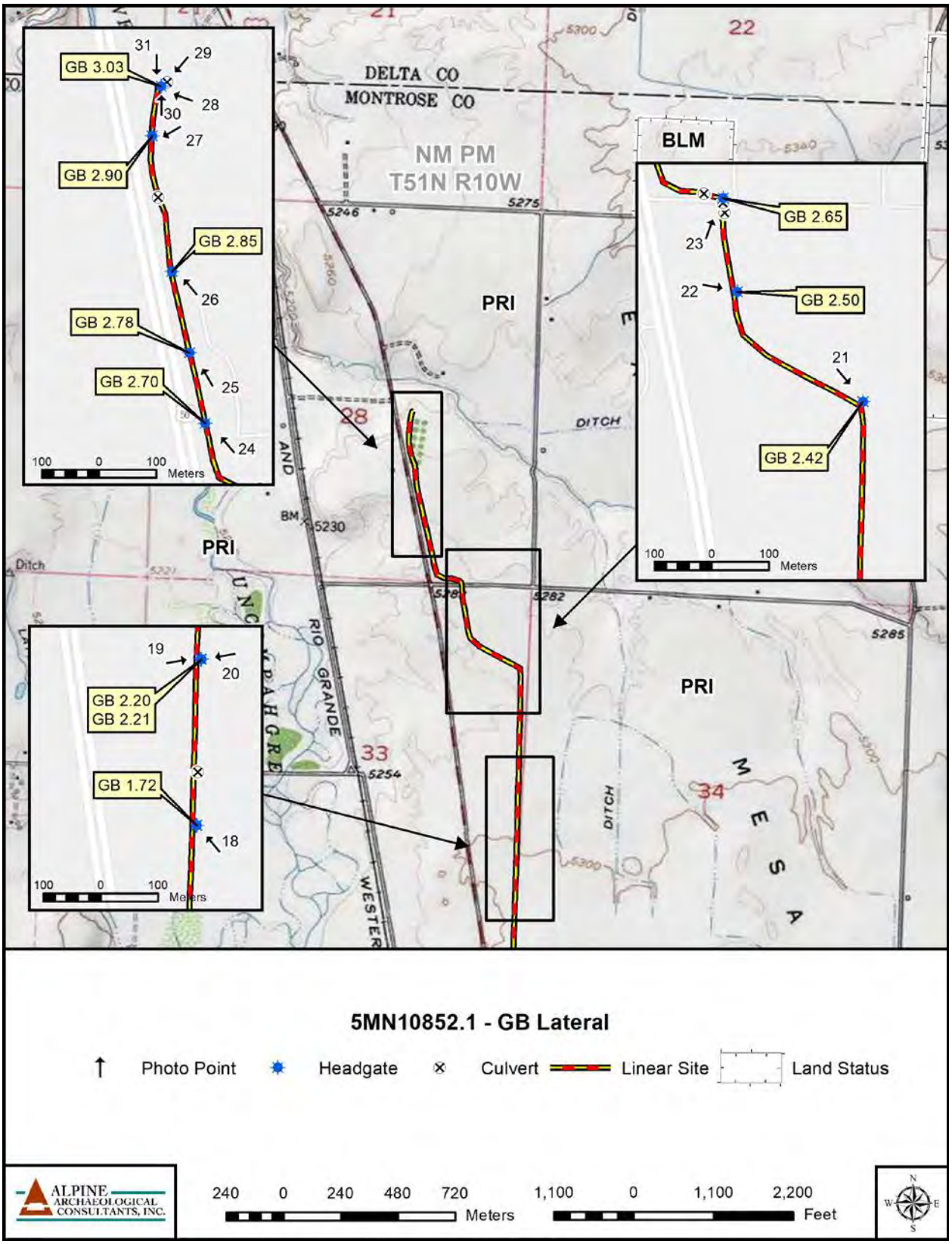
Map 8.

GB Lateral (5MN10852.1)



Map 9.

GB Lateral (5MN10852.1)



Map 10.

Photograph 1.

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Photograph 36.

Photograph 1.

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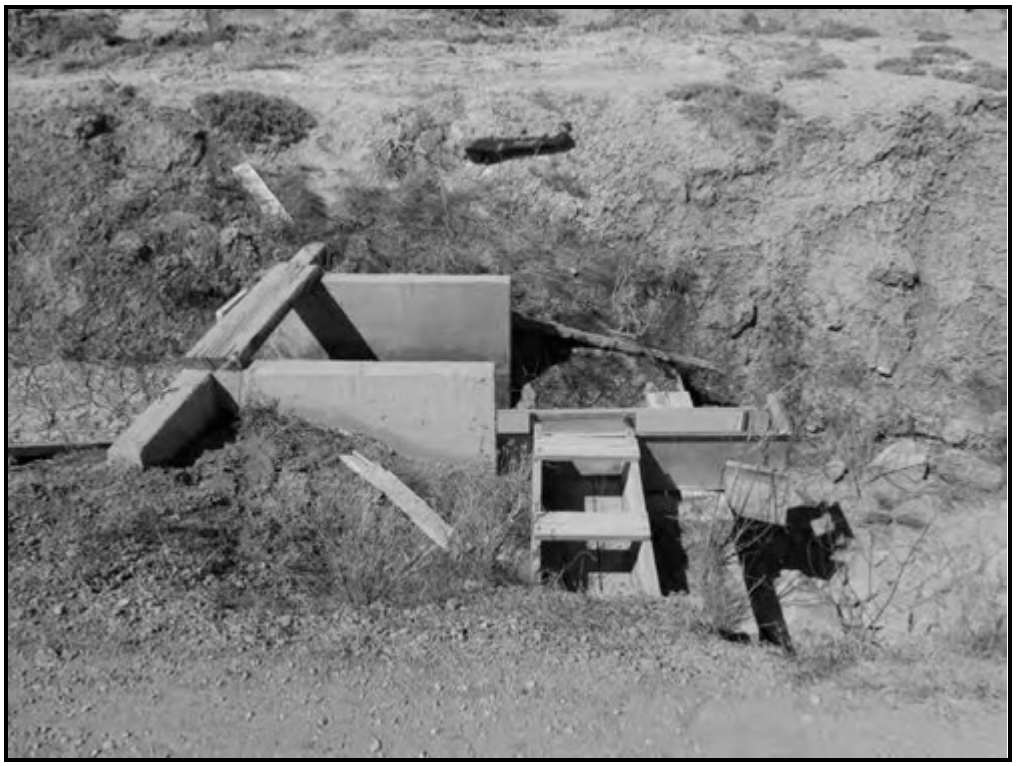
Photograph 7.



Photograph 8.

Photograph 9.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Photograph 29.

Photograph 30.

GB Lateral (5MN10852.1)

Photograph 31.