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CLASS III CULTURAL RESOURCE SURVEY OF THE PROPOSED ANDALUSIA RESIDENTIAL DEVELOPMENT, WELD COUNTY, COLORADO

Report Prepared by:

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for:
I & J Partnership LP

State of Colorado Archaeological Permit #2014-28

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ABSTRACT

At the request of I & J Partnership LP, a Class III intensive cultural resource survey was conducted for the proposed Andalusia residential development. This property has been annexed by the Town of Erie, which requires the survey and report as part of its Preliminary Plat review and approval process. The project is located in Section 6 of Township (T) 1N, Range (R) 68W, in southwestern Weld County, Colorado.

Five segments of four linear sites—5WL1423.40 and .41, 5WL1526.4, 5WL2248.14, and 5WL5461.3—and three isolated finds—5WL7644, 5WL7645, and 5WL7646—were recorded during this survey. 5WL1423.40 and 5WL1423.41 are discontiguous, previously unrecorded segments of the Burlington and Missouri River Railroad; 5WL1526.4 is a previously unrecorded segment of the South Platte Supply Canal/Coal Ridge Ditch; 5WL2248.14 is a previously unrecorded segment of the Cottonwood Extension Ditch; and 5WL5461.3 is a previously unrecorded segment of the Boulder-Weld County Ditch. The State Historic Preservation Officer (SHPO) officially determined the railroad as a whole eligible for the National Register of Historic Places (NRHP) in 1993. The two segments recorded during the current project (5WL1423.40 and 5WL1423.41) are recommended not supporting of this overall eligibility because of their marked deterioration. The State Historic Preservation Office (SHPO) previously determined segments of the South Platte Supply Canal/Coal Ridge Ditch officially not eligible, in 1990 and 2013, because of its mid-century modifications. However, newly recorded segment 5WL1526.4 is recommended contributing to a Colorado-Big Thompson Project National Register district for the canal's relationship to the Bureau of Reclamation's massive engineering project. The SHPO has officially determined some segments of the Boulder-Weld County Ditch not eligible and some eligible, so the eligibility of the entire resource appears to be undetermined. Because the entire ditch has not yet been evaluated, it is considered to be eligible overall for purposes of Section 106 of the National Historic Preservation Act. Accordingly, 5WL5461.3 is recommended supporting of the ditch's overall eligibility. Likewise, because the entire Cottonwood Extension Ditch has not yet been evaluated, the SHPO considers it eligible overall. The segment recorded during the current project, 5WL2248.14, is recommended supporting of this overall eligibility. Isolated Finds (IF's) 5WL7644–5WL7646 consist of a depression of unknown origin, a displaced historic artifact scatter, and a partially exposed, collapsed terra cotta irrigation pipe. All are recommended not eligible for the NRHP.

Any proposed development activities that could cause direct adverse effects or marked changes in the setting, feeling, and association of 5WL1526.4, 5WL2248.14, and/or 5WL5461.3 should be avoided, minimized, or mitigated. The only known such effects at this time are visual. The open, agricultural setting which characterized these 3 ditches historically will be compromised visually by the proposed modern residential development. However, current plans to mitigate these adverse visual effects include retaining these earthen channel ditches in their original, historic locations and courses without modification, and preserving them within an undeveloped corridor at least 100 ft. wide or more. These corridors will be vegetated with pasture grasses, and existing ditch access roads will be retained, effectively preserving the agricultural appearance and setting of the ditches. Accordingly, no additional mitigative measures are recommended for these ditches, or for any of the 7 cultural resources recorded during this survey.

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OAHP1421

History Colorado-Office of Archaeology and Historic Preservation

COLORADO CULTURAL RESOURCE SURVEY

Cultural Resource Survey Management Information Form

I. PROJECT SIZE

Total federal acres in project	-0-	Total federal acres surveyed	-0-
Total state acres in project	-0-	Total state acres surveyed	-0-
Total private acres in project	311	Total private acres surveyed	311
Total other acres in project	-0-	Total other acres surveyed	-0-

II. PROJECT LOCATION

County: Weld

USGS Quad Map: Erie 1979

Principal Meridian: 6

Township	1N	Range	68W	Section	6	E1/2/SW	1/4		1/4		1/4		1/4
Township	1N	Range	68W	Section	6	E1/2	1/4		1/4		1/4		1/4
Township		Range		Section			1/4		1/4		1/4		1/4
Township		Range		Section			1/4		1/4		1/4		1/4
Township		Range		Section			1/4		1/4		1/4		1/4

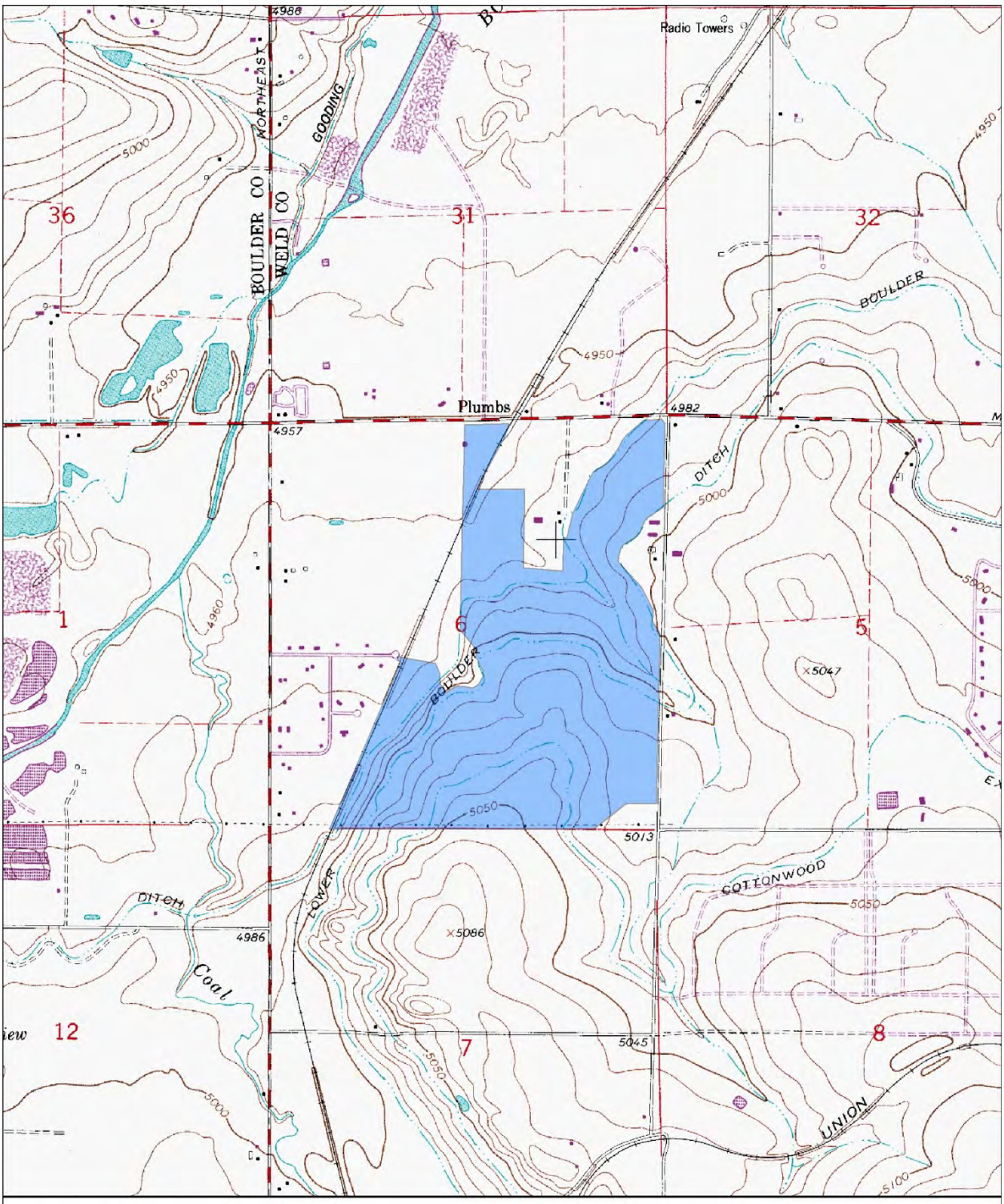
III. SITES

Smithsonian Number	Resource Type				Eligibility				Management Recommendations						
	Prehistoric	Historic	Paleontological	Unknown	Eligible	Not Eligible	Need Data	Contributes to a District	No Further Work	Preserve / Avoid	Monitor	Test	Excavate	Archival Research	Other
5WL1423.40		X				X			X						
5WL1423.41		X				X			X						
5WL1526.4		X			X					X					
5WL2248.14		X			X					X					
5WL5461.3		X			X					X					

IV. ISOLATED FINDS

Smithsonian Number	Resource Type			
	Prehistoric	Historic	Paleontological	Unknown
5WL7644		X		
5WL7645		X		
5WL7646		X		

Smithsonian Number	Resource Type			
	Prehistoric	Historic	Paleontological	Unknown



0 feet 2,000

0 meters 500

1:24,000

USGS 7.5' Quadrangle:
Erie, CO (1979)
T1N, R68W, Section 6
6th PM, UTM NAD83 Zone 13

Project Area

INTRODUCTION

The proposed undertaking is the Andalusia residential development, which has been annexed by the Town of Erie. Said development will include the building of homes, streets, utilities, etc. The project area is an irregularly shaped, approximately 311-acre parcel (Figure 1). A Class III intensive inventory of this parcel was conducted at the request of I & J Partnership LP, as required by the Town of Erie. Fieldwork for this project was conducted on June 24 and 25, 2014 by Dr. Rebecca Schwendler, Lindsey Clark, and Shelly Martin on behalf of James Enterprises, Inc.

AFFECTED ENVIRONMENT

The following description of environmental conditions in the project area is derived from observations made during fieldwork, and from data contained in Crabb (1982). The general location of the project area is the northern Colorado Piedmont, an area of high, nearly flat to gently rolling plains located approximately one-half mile east of Coal Creek, which is part of the South Platte River watershed. There are no natural streams or other sources of surface water within the surveyed parcel, aside from a section of wetlands in the east-central portion of the parcel that are fed by a small stream that enters the project area from the southeast. This general region has average precipitation of 12 inches, average relative humidity of 40%, and average summer and winter temperatures of 70 and 29 degrees Fahrenheit, respectively. However, extreme seasonal departures from these averages are common, and until one or two years prior to the time of this survey, the entire Colorado Piedmont region had experienced recurrent episodes of drought conditions for approximately 10 years. Soils throughout this broad region include loams and sandy loams of both residual and eolian origin, underlain by clay and hardpan, with the underlying bedrock in this region being comprised of Cretaceous sediments. Within this region, these bedrock outcrops sometimes include conglomerates and associated siliceous lag gravels, some of which may contain knappable lithic raw material. No gravels of this type were noted within the area surveyed for this project.

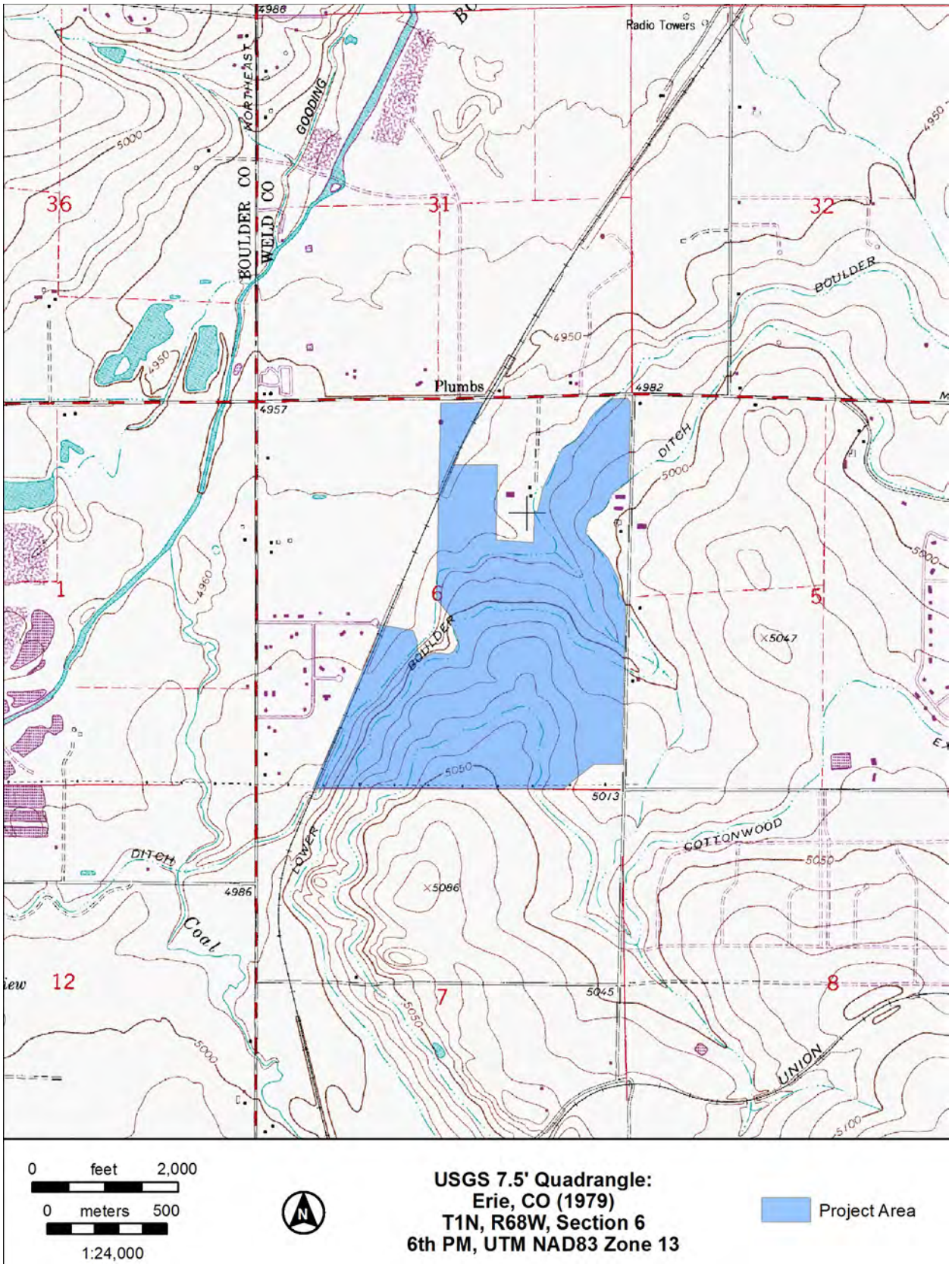


Figure 1. Location of the project area.

Native vegetation in the project area consists mostly of various bunchgrasses, sage, and yucca, although all of the surveyed area has been under cultivation for some time, the proposed project being located in active wheat and alfalfa fields and cow and horse pastures, bordered by patches of cheatgrass and Canadian thistle and stands of cottonwood and Russian olive trees. Ground cover at the time of this survey was comprised mostly of planted wheat, alfalfa, and thick weedy plants resulting in 0–90 percent ground visibility depending on the stage of growth of the agricultural fields. Ground visibility was considered generally adequate for purposes of this survey, considering the effects of long term cultivation. Fauna native to this general area include small burrowing rodents, various raptors (e.g. hawks, owls, and eagles), predatory mammals (e.g. foxes and coyotes), and large herbivores (e.g. mule deer, pronghorn antelope, and bison prehistorically). The use of many of these fauna as subsistence resources by prehistoric cultures has been well established archaeologically in this region. Voles, horses, cattle, and hawks were observed within the project area during survey.

CULTURE HISTORY

In the Platte River Basin, within which the proposed project area lies, human history is typically divided into five major stages or periods: Paleoindian, Archaic, Late Prehistoric, Protohistoric, and Historic. For the first three periods, information is largely summarized from Gilmore et al. (1999). Information about the Protohistoric and Historic eras is derived from the references specifically cited.

Paleoindian Period (12,000–7500 B.P.)

While a growing body of archaeological evidence from across North America and beyond suggests that people lived here tens of thousands of years ago, the oldest period of human occupation of the Platte River Basin that is currently well documented is the Paleoindian period, dating between about 12,000 B.P. and 7500 B.P. From oldest to youngest, broad Paleoindian traditions observed in the Platte River Basin are Clovis (ca. 12,000–11,000 B.P.), Folsom (ca. 11,000–10,000 B.P.), and Plano (ca. 10,000–7500 B.P.). The Paleoindian period was characterized by a cooler and wetter climate than is known today, with widespread grasslands and boreal forest in this area. Paleoindian food economies in general were based on the hunting of megafauna—including mammoth, bison, and camels—although people using the foothills and mountains also hunted small game such as bighorn sheep, elk, and deer and used plant foods such as limber pine nuts. Hunters employed large, lanceolate, stone project points. Groups were probably small and highly mobile, following game into the mountains during warm months and onto the plains during cooler times.

Archaic Period (7500–1800 B.P.)

The Archaic period is defined as that time when people still relied on hunting and gathering but used a larger variety of food resources and technologies and adapted to a highly variable but generally warming climate. The Archaic is typically broken into three sub-periods. For the Platte River Basin they are the Early Archaic (7500–5000 B.P.), the Middle Archaic (5000–3000 B.P.), and the Late Archaic (3000–1800 B.P.). Adapting to changing environmental conditions and food resources, people invented new tool forms, including stemmed and notched projectile points that were generally smaller than Paleoindian points, and grinding implements including one-hand manos and small grinding slabs and simple metates. Those ground stone technologies were used

both for wild plants (and other materials) and for domesticated maize, which was incorporated into the diet to various degrees, in some areas, during the later Archaic. Like Paleoindians before them, Archaic peoples inhabited and used the plains, hogbacks/foothills, and mountains, taking advantage of the proximity of diverse plant and animal species.

Late Prehistoric Period (1800–400 B.P./A.D. 150–1540)

The Late Prehistoric period is also sometimes called the Ceramic Period for the new use of that technology, albeit with a continued emphasis on a hunting and gathering economy. During this period people also introduced bow and arrow technology and made small corner- and side-notched projectile points for it. Evidence for horticulture is sparse. In the Platte River Basin the period is divided into the Early Ceramic (A.D. 150–1150) and Middle Ceramic (A.D. 1150–1540). In general, people appear to have used the same camps for a longer period of time, and/or more frequently, than during the Archaic period, suggesting somewhat reduced mobility. Many site assemblages are also concomitantly more complex than those dating to the Archaic period.

Protohistoric Period (A.D. 1540–1860)

The Protohistoric period in the Platte River Basin is considered to date between approximately A.D. 1540 and 1860. This is also known as the Late Ceramic period, although "Protohistoric" is more commonly used. This period represents the time between initial non-Native American entry into or influence in the region, and permanent, widespread settlement by Mexicans and Euroamericans. By about 1816, there were Euroamerican reports that some Cheyenne and Arapaho were hunting together between the sources of the North and South Platte rivers (Baker et al. 1997), although the Cheyenne generally remained farther north (Fowler 2001). After Mexico declared its independence from Spain in 1822 and opened its borders for trade, an increasing number of trappers and traders traveled through or settled in the region, sending goods back to a market in Taos, in northern New Mexico (Clark 1999). Exploration also became more frequent during the 1830s and 1840s. Following the California Gold Rush in 1849, a steady stream of miners traveled through portions of Colorado's Front Range along overland routes, such as Trapper's Trail and the Cherokee Trail, to reach mining sites (Miller et al. 2005). Then in 1858 gold was discovered at the confluence of the Platte River and Cherry Creek about 25 miles south of the project area. This brought significantly larger numbers of Euroamerican settlers to the region, with miners moving onto lands reserved for tribes and demanding that the government dissolve Indian claims (Clark 1999). With a marked increase in Euroamerican presence in the region, the federal government increasingly tried to control land and resource use by the Arapaho and other tribes, leading to a series of treaties between the government and tribes.

Historic Period (A.D. 1860–1960)

The year 1860 is used as a somewhat arbitrary beginning of the Historic period, although in that year Anglos firmly established their control over most lands in eastern Colorado, relegating the Cheyenne and Arapaho to a small reservation located between the Arkansas River and Sand Creek. Then in 1861 the Colorado Territory was established and tensions between Native Americans and Anglos continued to increase, with one result being the massacre of at least 500 Arapaho and Cheyenne camping on their Sand Creek Reservation by federal troops on November 29, 1864. After subsequent revenge and counter attacks, the government crafted the Medicine Lodge Creek Treaty in October 1867, whereby the southern Cheyenne and Arapaho

agreed to move to Indian Territory in modern-day Oklahoma. More Anglo-Indian skirmishes occurred over the next two years, with the final military engagement between Indians and federal troops occurring at Summit Springs in northeastern Colorado. After that time, Colorado's Eastern Slope was permanently opened for rapid Anglo exploitation and settlement (Ubbelohde et al. 1995).

Denver and Golden were founded at the end of the 1850s as a result of the nearby discovery of gold. First Golden and then Denver, beginning in 1867, served as seats of government for the newly created Colorado Territory. Boulder became the county seat of Boulder County that same year. Located about 15 miles east of Boulder, the town of Erie began as an agricultural area, and then saw additional development as a small population center for mining the Northern Coalfields, along with nearby settlements such as Lafayette and Louisville. In 1871 the Union Pacific Railroad extended a spur west to Erie from Brighton off its Denver to Cheyenne line. Erie coal was used to fuel the steam locomotives, and the Boulder Valley Railroad, as the spur was called at that time, was a catalyst for coal field development. After subsequent growth, Erie was incorporated in 1874 (Town of Erie Colorado 2014). Development of silver, gold, coal, and other mining in the Northern Coalfields and in the mountains to the west of Boulder continued into the early 1900s, although the plains saw increasingly intensive ranching and agriculture (Clark and Corbett 2007). Today Erie's economy is based largely on agriculture and other services provided to a rapidly increasing population.

EXISTING DATA AND LITERATURE REVIEW

A Class I file search of the Office of Archaeology and Historic Preservation's (OAHP's) COMPASS database was conducted on June 19, 2014. This search indicated that 16 surveys have been conducted previously within a one-mile radius around the project area (Table 1). Thirteen of the surveys were intensive Class III inventories, one was a reconnaissance survey, and two were Class II sample surveys. These previous projects were conducted between 1977 and 2011. Twenty-six cultural resources have been recorded previously within the one-mile radius file search area (Figure A.1 and Table A.1). All but two of the cultural resources are historic and primarily pertain to historic farming and ranching. The two prehistoric resources are IFs comprising chipped and ground stone artifacts. Four of the previously recorded historic cultural resources (5WL1423, 5WL1526, 5WL2248, and 5WL5461) extend into the current project area and represent a railroad and three ditches, respectively. All were recorded during the current project.

Table 1. Surveys Conducted Previously within One Mile of the Project Area

Survey ID	Name	Institution	Method	Date
BL.LG.R141	CULTURAL RESOURCE SURVEY OF LOWER BOULDER CREEK, BOULDER COUNTY, COLORADO	Native Cultural Services	CLASS II	9/1/1997
BL.SHF.R49	UNINCORPORATED BOULDER COUNTY HISTORIC SITES SURVEY REPORT (SHF 98-02-064, 93-02-062, 96-02-171, 99-02-059)	Boulder County Parks & Open Space Department	Historic Survey - CII	2/1/2003
MC.CH.R155	AN INTENSIVE ARCHAEOLOGICAL RESOURCE INVENTORY OF THE BOULDER CREEK BRIDGE REPLACEMENT ON STATE HIGHWAY 52, BOULDER AND WELD COUNTIES, COLORADO (CDOT # BR 052A-025 BOULDER CREEK BRIDGE)	CDOT Colorado Department of Transportation	CLASS III	10/17/2006
MC.CPO.R27	SURVEY REPORT, WELD COUNTY, COLORADO FARM AND RANCH INVENTORY, WELD AND BROOMFIELD COUNTIES	Western Historical Studies, Inc.	RECONNAISSANCE SURVEY	3/15/1989
MC.EP.R1	A CULTURAL RESOURCE SURVEY OF SELECTED PORTIONS OF THE ERIE WATER AND SANITATION DISTRICT, BOULDER AND WELD COUNTIES, COLORADO	Cultural Resource Consultants	CLASS III	11/25/1977
MC.LM.NR110	AN INTENSIVE CULTURAL RESOURCES INVESTIGATION FOR INTERSECTION IMPROVEMENTS AT STATE HIGHWAY 52 AND COUNTY LINE ROAD, BOULDER AND WELD COUNTIES, COLORADO (SHE 052A-020)	CDOT Colorado Department of Transportation	CLASS III	9/30/2003
MC.R.R17	CULTURAL RESOURCES INVENTORY OF THE ANDERSON, LUMRY & NORTHRIDGE PARCELS, BOULDER AND WELD COUNTIES, COLORADO	Native Cultural Services	CLASS III	5/6/1996

WL.CH.NR34	AN INTENSIVE ARCHAEOLOGICAL RESOURCE INVENTORY AT FOUR COUNTY ROAD INTERSECTIONS ON STATE HIGHWAY 52 BETWEEN INTERSTATE 25 AND US HIGHWAY 287, BOULDER AND WELD COUNTIES, COLORADO (STA 052A-023, SH 52 I-25 TO US 287)	CDOT Colorado Department of Transportation	CLASS III	12/18/2003
WL.LM.NR24	CULTURAL RESOURCE INVENTORY OF THE FEDERAL NOAA #11-32 WELL. WELD COUNTY, CO. (CR-RG-02-92(N))	Native Cultural Services	CLASS III	7/31/2002
WL.R.NR17	A CULTURAL RESOURCES INVENTORY OF THE RICE PARCEL, WELD COUNTY, COLORADO	Tate and Associates Inc.	CLASS III	5/7/2002
WL.R.NR24	INTENSIVE CULTURAL RESOURCE SURVEY OF THE PROPOSED IHRIG NCWCD INCLUSION, WELD COUNTY, COLORADO (GRUP #03-GP-09-S)	James Enterprises, Inc. (JEI)	CLASS III	11/4/2004
WL.R.NR31	INTENSIVE CULTURAL RESOURCE SURVEY OF PROPOSED IRWIN NCWCD INCLUSION WELD COUNTY, COLORADO	James Enterprises, Inc. (JEI)	CLASS III	10/15/2008
WL.R.R16	A CLASS III CULTURAL RESOURCES SURVEY OF THE BELL TOWER ANNEXATION PARCEL WELD COUNTY, COLORADO	Western Cultural Resource Management, Inc. (WCRM)	CLASS III>	8/26/1999
WL.R.R37	CLASS III CULTURAL RESOURCE INVENTORY OF THE BELL TOWER EVENT CENTER PROJECT, TOWN OF ERIE, WELD COUNTY, COLORADO	Centennial Archaeology, Inc.	CLASS III>	3/7/2002
WL.R.R68	CULTURAL RESOURCE SURVEY OF PROPOSED MORGAN HILL DEVELOPMENT NCWCD INCLUSION, WELD COUNTY, COLORADO	Bureau of Reclamation - Eastern Colorado Area Office Loveland	CLASS III>	8/22/2011
WL.R.R70	CLASS III CULTURAL RESOURCE INVENTORY BRIDGEWATER DEVELOPMENT PROJECT, WELD COUNTY, COLORADO	Bureau of Reclamation - Eastern Colorado Area Office Loveland	CLASS III>	9/14/2011

Previous archaeological investigations conducted throughout the Colorado Piedmont region by the principal investigator and others suggest that prehistoric sites may have a higher occurrence in locations near reliable water sources, e.g. streams and/or large playas, as well as in blowouts and on elevated landforms with extensive overviews, or at locations which have surface deposits of knappable, siliceous gravels. The current project area generally lacks these favorable conditions. As summarized in the previous section, archaeological research in this region has confirmed the presence of aboriginal cultures on the Colorado Piedmont during the Paleoindian (>12,000–7500 B.P), Archaic (7500–1800 B.P.), Late Prehistoric (1800–400 B.P./A.D. 150–1540), and Protohistoric (A.D. 1540–1860) periods (Gilmore et al. 1999). More than 7600 sites and isolated artifacts, representing all of these periods, have been recorded in Weld County previously. These prehistoric periods are evidenced by various projectile points and other distinctive lithic and some ceramic artifacts; and by such sites as open campsites, which are often indicated by lithic scatters and hearth remnants, as well as stone rings and subsistence resource procurement and processing sites, e.g. quarry areas and game butchering sites. The differing types of cultural resources associated with each period are presumed to reflect variations in general prehistoric cultural adaptations and subsistence strategies over time. Historic themes associated with the Euroamerican history of this region include those of early exploration, ranching, farming, homesteading, irrigation developments, and the Great Depression (Mehls 1984).

STATEMENT OF OBJECTIVES AND RESEARCH DESIGN

This survey was conducted to fulfill Preliminary Plat submittal requirements for the Town of Erie. The objective of the survey was to locate and record all cultural resources within the project area, to evaluate those resources against National Register of Historic Places (NRHP) criteria, and to recommend management strategies for avoiding adverse effects to historic properties (cultural resources eligible for or listed on the NRHP). Such evaluation is made by assessing the significance of a cultural resource within the existing local/regional prehistoric and historic context outlined above, in terms of the following four NRHP Criteria:

Criterion A: Associated with events that have made a significant contribution to the broad patterns of our history.

Criterion B: Associated with the lives of persons significant in our past.

Criterion C: Embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction.

Criterion D: Have yielded or may be likely to yield information important in prehistory or history.

Based on existing regional data, the current project area was presumed to have some potential for cultural materials associated with any/all of the prehistoric periods and historic themes described above, although the potential for significant prehistoric resources was considered relatively low because of the project area's lack of extensive views and knappable stone materials, and the impacts of long-term cultivation as noted earlier. Nevertheless, potential prehistoric resources within the surveyed parcel could include various lithic artifacts (e.g., flaked and/or ground stone debitage and tools) and possibly ceramic artifacts, as well as open camps, stone rings, and lithic

procurement sites. Historic Euroamerican cultural resources for which the greatest potential in the project area might be anticipated could include scattered remains of structures and/or foundations associated with abandoned homesteads and/or ranches, as well as irrigation works and other agriculture-related materials. Any archaeological remains that might occur within the current project area could help elucidate general patterns of prehistoric settlement/subsistence on the Colorado Piedmont, and might also provide chronological data leading to the establishment of absolute date/artifact associations in this region.

FIELD METHODS

The field methods and the format of this report, including the resource evaluations and recommendations, follow the current standards and guidelines of the Colorado State Historic Preservation Office (SHPO), as this project was conducted under a State of Colorado Archaeological Permit. The Town of Erie Planning Dept. was contacted prior to conducting this survey. A Class III intensive inventory or survey was conducted for this project. The total area inventoried consisted of an irregularly shaped block containing approximately 311 acres. For purposes of this survey, a cultural resource *site* was defined as a discrete locus of interpretable, patterned human behavior, generally evidenced by more than 5 artifacts and/or one or more cultural features more than 50 years old. An *isolated find* was defined as one or very few artifacts not representing patterned behavior or multiple artifacts that lack context and integrity of location and do not represent a locus of interpretable patterned human behavior. The intensive survey was conducted using a series of parallel, pedestrian transects spaced not more than 20 meters (m) apart and covering all surveyed areas uniformly. No collections were made during this survey. Field notes and digital photo files pertaining to this project are on file at the office of James Enterprises, Inc. in Fort Collins, Colorado.

RESULTS

Approximately one-quarter of the project area exhibited limited or no ground surface visibility due to dense vegetation growth primarily in cow and horse pastures, a mature wheat field, and a wetlands area in the northern half of the survey block and a thriving alfalfa field in the south-central portion of the block. Otherwise no adverse field conditions prohibited a thorough survey of the project area, particularly given the effects of long-term cultivation on any existing cultural resources within the area. There were no surface indications of higher than usual potential for subsurface cultural resources within the area surveyed. Seven cultural resources were recorded, namely four sites (one of which is represented by two segments) and three IFs. All of these resources are described in detail on the Colorado Cultural Resource Forms included with the SHPO copy of this report, and they are summarized below.

Sites

The first site (5WL1423.40 and 5WL1423.41) is a segment of a historic railroad. The other three sites are segments of historic ditches (5WL1526.4, 5WL2248.14, and 5WL5461.3).

5WL1423.40 and 5WL1423.41

These are newly recorded, discontinuous segments of the Burlington and Missouri River Railroad, constructed in 1889, that runs along and near the western edge of the project area. The

SHPO officially determined the entirety of the resource eligible for the NRHP in 1993, although individual segment eligibility varies primarily based on the condition of the segment. The two segments documented during the current project were previously unrecorded. Segment 5WL1423.40 represents the portion of the railroad that runs along the southwest boundary of the project area, while 5WL1423.41 cuts through the northwest corner of the project area (Figure B.1). As a result of development and agriculture, the segments of the railroad that cross through the project area are hard to recognize.

Segment 5WL1423.40 appears as a discontinuous, heavily vegetated (willows, cheatgrass, Canadian thistle), elevated grade made of quartzite and granite ballast. Two sections of grade are visible, separated by a section that appears to have been destroyed by natural erosion from flooding or development or a combination thereof. The northern intact section terminates at the south edge of a horse pasture, about 341 feet (104 m) south of the north edge of this portion of the project area. No associated structural materials or artifacts were observed. The two discontinuous sections are approximately five meters wide on top, with five-meter wide slopes on either side. The southern section is approximately 1,247 feet (380 m) long, while the northern section is approximately 525 feet (160 m) long. The intervening, destroyed section is approximately 259 feet (79 m) long. Currently a barbed wire fence runs along the top of the grade.

Segment 5WL1423.41 is barely visible in the northwestern portion of the project area as a short section of heavily eroded grade, consisting of quartzite and granite ballast, with a maximum width of one meter (3.3 feet) and a maximum height of the same. The discernible section of grade, measuring only about 98 feet (30 m) long, is found at the southwest end of the segment. A wire fence runs along its southern end, at the eastern edge of a pasture with thick grass. The remainder of the segment, whose total length is approximately 1,312 feet (400 m) and whose location is assumed from the 1979 topographic map of the area, has been leveled, plowed over, and/or used as the location of a recently installed sewer line. As a result, this segment of the site has largely been destroyed, with only a very deteriorated remnant remaining.

5WL1526.4

This is a newly recorded segment of the South Platte Supply Canal/Coal Ridge Ditch. The Coal Ridge Ditch had been constructed in 1859 by the Lower Boulder Ditch Company, having some of the earliest water rights (Chambellan 1989). In 1954–1956 the Bureau of Reclamation (BOR) constructed the South Platte Supply Canal by widening and connecting the Coal Ridge Ditch, the Lower Boulder Ditch, and the Sullivan Ditch and a new 1.3-mile section. This was the BOR's last created element of the massive Colorado-Big Thompson Project (C-BT) that brings water from Colorado's Western Slope and mountains to the Eastern Slope and has contributed significantly to the state's 20th century economic development. The segment present within the project area, measuring approximately 5,855 feet (1,784 m) long, remains an earthen ditch that is still in use and routinely maintained, albeit with thick vegetation along its banks. It runs through a variety of environmental settings, including—from southwest to northeast—a heavily vegetated natural area, a field with nearly mature wheat, a cow pasture, wetlands, and a field containing young alfalfa. The ditch is approximately 16 feet (4.9 m) wide. The water appeared to be about 1 foot (0.3 m) deep at the time of recording. Four features were identified in association with this ditch.

Feature 1 is a T-shaped concrete diversion structure with a metal Parshall flume to the east. The diversion structure feeds water to an east-west trending lateral ditch (Feature 4) that has been abandoned. Feature 1 is no longer in use and a Russian olive tree is currently growing within the metal flume. Feature 4 is 8–12 inches (20–30 cm) deep and approximately 3 feet (0.9 m) wide.

Feature 2 is a second, more recently constructed, concrete diversion structure with a metal Parshall flume and attached gauge to its east. Feature 2 is located approximately 65 feet (20 m) southwest of Feature 1. Feature 2 diverts water to a second east-west running lateral ditch (Feature 3) that is younger than the Feature 4 ditch Feature 3 is approximately 1.5 feet (0.5 m) deep and approximately 5 feet (1.5 m) wide at ground level. Both features 3 and 4 run on the north side of an access road paralleling the South Platte Supply Canal/Coal Ridge Ditch. Feature 3 is located about 5 m south of Feature 4, separated from it by an earthen berm. Feature 3 may have been built to replace Feature 4 when Feature 1 became unusable due to the growth of the Russian olive tree.

5WL2248.14

This is a newly recorded segment of the Cottonwood Extension Ditch. This ditch diverts water from Coal Creek several miles south of the current project area and terminates several miles northeast of the project area. Because the entirety of the ditch has not yet been evaluated, the SHPO is treating it as eligible for the National Register. Previously recorded segments 5WL2248.11 and 5WL2248.12—both recommended supporting of the ditch's overall eligibility—immediately bracket the west and east ends of 5WL2248.14. The newly recorded segment is 3,534 feet (1,077 m) long and winds through fields with both young and more mature alfalfa, with tall wild grasses and plants generally flanking either side of the ditch. This segment remains a simple earthen ditch that is in well-maintained, albeit overgrown condition and was in use with approximately 6 inches (15 cm) of water at the time of recording. Eight features were recorded in association with this segment.

Feature 1 is a currently unused headgate located on the west side of 5WL2248.14. A typical headgate, it comprises a concrete wall paralleling the western wall of 5WL2248.14, with a metal screw stem and handwheel rising from the concrete. The headgate allows water to flow into a small parallel lateral irrigation ditch (Feature 2) that is approximately 3 feet (0.9 m) wide and 1.5 feet (0.5 m) deep. Feature 2 parallels the west side of 5WL2248.14 approximately 33 feet (10 m) from the ditch's western edge. Feature 2 flows north from Feature 1 until it bends slightly northeast then turns due north at a fence line, and south from Feature 1 until it disappears near the southern project boundary. It parallels 5WL2248.14 for only a short way. The gradual disappearance of the feature's southern end may be intentional, as it is likely used for flood irrigation. Feature 3 is an in-use headgate that was open at the time of recording. It is located on the north wall of 5WL2248.14 and allows water to flow from 5WL2248.14 through a PVC pipe into a lateral irrigation ditch (Feature 8) that borders an agricultural field located north of the headgate. Feature 4 is an in-use headgate and drop complex located on the east side of a dirt access road, north of 5WL2248.14. This headgate allows water to flow from 5WL2248.14 into a lateral ditch (Feature 7) that borders the western edge of an agricultural field, immediately east of an access road. A drop complex constructed of concrete, wood, and steel sheet metal is located near the south end of this portion of Feature 7. Feature 5 is an in-use headgate on the north side of

5WL2248.14. It appears to be modern and feeds a lateral irrigation ditch (also called Feature 7) paralleling the north bank of 5WL2248.14. Associated with the headgate in an adjacent agricultural field to the northeast is a 3-foot (0.9-m) wide square box built of cinder blocks that may act as a diversion structure. Feature 6 is the location of a possible former headgate or erosion control feature. It is currently a partially deteriorated concrete wall along the east bank of 5WL2248.14. Feature 7 is a 3-foot (0.9-m) wide parallel ditch that begins at Feature 4 and flows north for a short ways, as well as east then south along the east side of 5WL2248.14. It is located approximately 10 m from the eastern edge of 2248.14. The parallel ditch ends before the southern project area boundary and appears to feather out for flood irrigation. Feature 8 is a 3-foot (0.9-m) wide ditch paralleling the north side of 5WL2248.14 approximately 10 m from its northern edge. The lateral's east end is a north-south oriented dirt road that crosses the ditch. It flows west until it bends north at a fence line, parallelling Feature 2 on the opposite side of the fence. Water is diverted into this Feature 8 lateral from Feature 3.

5WL5461.3

This is a newly recorded segment of the Boulder-Weld County Ditch. The Boulder-Weld County Ditch originates at Boulder Creek, approximately 3 miles west of Erie, then flows northeast into Weld County and through the project area. The original construction of the ditch dates to 1871 (Winters and Winchell 1994). Several segments previously recorded in Boulder County have been determined officially not eligible for the NRHP, but at least two segments recorded previously in Weld County have been determined or recommended eligible or supporting of the ditch's overall eligibility. Because it appears that the entirety of the ditch has not yet been evaluated, it can be assumed that the SHPO is treating it as eligible for the National Register.

Newly recorded segment 5WL5461.3 is a simple earthen ditch measuring 7,362 feet (2,244 m) long and about 25 feet (7.6 m) at ground surface and 6 feet (1.8 m) near its base. This segment includes two features. It is still in use and is in good condition, albeit with heavy vegetation along both banks. According to Boulder and Weld County Ditch president Jon File, the ditch remains in its same location as when it was originally constructed, with the possible exception of some corners that may have been straightened after episodes of erosion (J. File, personal communication 2014). At the time of recording, the water in the ditch was approximately 21 inches (53 cm) deep. This segment flows past a gas well pad, through a densely vegetated unworked area, a cow pasture, wetlands, a field containing young alfalfa, and a field with mature hay. The ditch segment is in overall good condition, with some minor erosion observed along its banks at livestock crossings. Two features are associated with 5WL5461.3.

Feature 1 is a headgate on the western bank of 5WL5461.3 that does not appear historic although it is no longer in use. Feature 2 comprises a concrete diversion structure and concrete flume located west of Feature 1. The diversion structure and flume are separated by about 19.7 feet (6 m). No lateral ditches were observed extending from this feature so its degree and timing of use is unclear.

Isolated Finds

The three isolated finds include a depression (5WL7644), a historic artifact scatter (5WL7645), and a partially exposed terra cotta water conveyance pipe (5WL7646).

5WL7644

This IF is an anomalous circular depression of unknown age and origin observed in the middle of a field of mature wheat. The depression contains some cheatgrass. It measures 10 feet in diameter and 1–2 feet (0.3–0.6 m) deep. No artifacts were observed in or around the depression.

5WL7645

This IF is a displaced historic artifact scatter within a plowed field. The artifacts manifest in a north-bending arc-shaped distribution, which is likely the result of displacement from agricultural activities. The scatter is dispersed and consists of five brick fragments, two china ware fragments, a light blue plastic cap or bottle base, one sandstone flagstone fragment, two aqua bottle glass pieces, one clear unknown glass piece, two stoneware jug fragments, and one zinc fastener or machinery part. The artifact scatter measures approximately 115 feet (35 m) north-south by 115 feet (35 m) east-west. No evidence of a structure, dump, or other feature or concentrated area of artifacts could be found although a deep pit filled with sediment, trees, and other vegetal debris is located about 131 feet (40 m) southeast of the IF.

5WL7646

This IF is a section of collapsed terra cotta irrigation pipe exposed in an open hole within a field containing young alfalfa. The pipe is 12 inches (30.5 cm) in diameter, runs east-west, and is buried about 1 foot (0.3 m) below the ground surface. The open hole exposing the pipe measures about 3 × 4 feet (0.9 × 1.2 m) and may have been an access point for the pipe or a sink hole that formed when the pipe collapsed.

SITE EVALUATIONS AND RECOMMENDATIONS

Segments **5WL1423.40 and 5WL1423.**41 of the Burlington and Missouri River Railroad are recommended *not supporting* of the railroad's overall eligibility for the National Register of Historic Places (NRHP), which the SHPO determined in 1993. These two segments of the railroad have been heavily impacted by erosion, plowing, leveling, and modern sewer line installation. What remains are only discontinuous segments of the original railroad grade. No artifacts or features are present and further investigation of these segments is unlikely to yield additional information about the construction and use of the railroad.

Segment **5WL1526.4** of the South Platte Supply Canal/Coal Ridge Ditch is recommended supporting of the overall resource's eligibility/contribution to a C-BT historic district. This represents a change in eligibility; the SHPO officially determined at least 5WL1526.1 and 5WL1526.2 officially not eligible for the NRHP in 1990 and 2013 based on mid-century modifications to the Coal Ridge Ditch. However, given that the South Platte Supply Canal is now itself more than 50 years old, 5WL1526 should be evaluated in the context of the C-BT.

Segment **5WL2248.14** of the Cottonwood Extension Ditch is recommended *supporting* of the eligibility of the site as a whole. Per SHPO guidance, the ditch is assumed to be eligible for the NRHP for purposes of Section 106 of the NHPA because its entirety has not been inventoried. The ditch has been recommended eligible for the NRHP under Criterion A for its association with late-19th and early-20th century agriculture and settlement of the area. This segment of the ditch

minimally retains integrity of location, design, setting, materials, feeling, and association. It also contains multiple historic water control features. The project proponent currently has no plans to modify or impact 5WL2248.14, aside from building multiple bridges over it. The construction of the bridges and the surrounding residential development will have some adverse visual impact on the setting, feeling, and association of the ditch segment but will not affect its integrity of location, design, and materials. The open, rural setting which characterized the ditch historically will be converted to a modern residential setting with homes, streets, etc. This adverse visual impact will be effectively mitigated by preserving this ditch, as well as the other 2 ditches recorded during this survey, within an undeveloped, grassy corridor at least 100 ft. wide.

Segment **5WL5461.3** of the Boulder-Weld County Ditch is recommended supporting of the ditch's overall eligibility for the NRHP. Although several previously recorded segments in Boulder County have been determined officially not eligible, at least two others in Weld County have more recently been determined eligible or recommended supporting of the ditch's overall eligibility. The segment of the ditch recorded during the current project is in good physical condition, exemplifies late 18th and early 19th century irrigation and agricultural systems in the region, and continues to fill this role.

IFs 5WL7644–5WL7646 are recommended *not eligible* for the NRHP, with no further evaluative or protective measures needed.

EVALUATION OF RESEARCH

The stated objective of this survey—that of recording all cultural resources within the project area and evaluating them for the NRHP—was met. Resources recorded during this survey represent types for which potential in this area had been anticipated, thus confirming the expectations presented in the Statement of Objectives section of this report. Some of the newly recorded resources do not contribute significant information about the history of the area. However, the segments of the Cottonwood Extension Ditch, the South Platte Supply Canal, and the Boulder-Weld County Ditch do contribute information relevant to the historically significant theme of turn-of-the-century era irrigation and agricultural development.

SUMMARY AND CONCLUSIONS

Currently the only project-related impacts planned for the Cottonwood Extension Ditch (5WL2248.14) are simple bridges that span the ditch but do not otherwise physically affect it. These would not physically impact the ditch or its integrity of location, design, or materials although they would introduce minor visual changes to its integrity of setting, feeling, and association. The larger cumulative effect of the overall project will be to change the open, rural setting which characterized this area historically to a modern residential setting. This visually compromised setting will adversely affect this ditch's, the South Platte Supply Canal's, and the Boulder-Weld County Ditch's integrity of setting, feeling, and association. Thus the project will have some adverse visual effect on the Cottonwood Extension Ditch, the South Platte Supply Canal, and the Boulder-Weld County Ditch. However, the adverse visual effects to all 3 ditches will be effectively mitigated by preserving them within an undeveloped, grassy corridor at least 100 feet wide, which will visually recall the rural/agricultural uses of this area historically.

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APPENDIX A
RESOURCES PREVIOUSLY RECORDED IN THE PROJECT AREA

FOR OFFICIAL USE ONLY.
DISCLOSURE OF SITE LOCATIONS IS PROHIBITED (36 CFR 296.18)

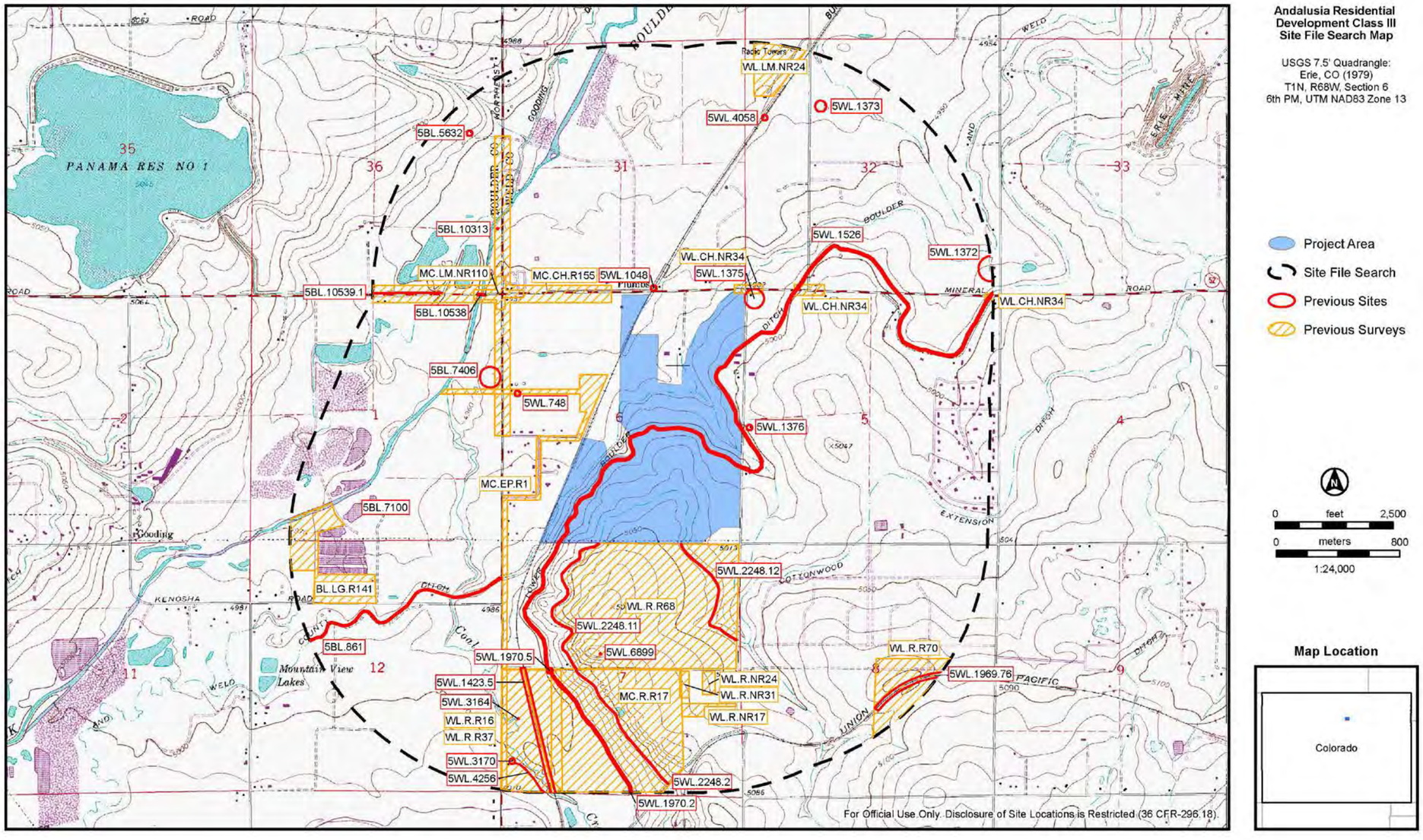

Figure A.1. Previous projects and cultural resources within one mile of the current project area.

Table A.1. Resources Recorded Previously within One Mile of the Project Area

Site Number	Site Name	NRHP Status	Period	Site Type	Consultant or Agency
5BL.10313		Field not eligible	Prehistoric	Isolated Find	CDOT Colorado Department of Transportation
5BL.10538	STATE HIGHWAY 52 BRIDGE (MP 7.2), BOULDER CREEK BRIDGE (D-16-U)	Officially not eligible>Field not eligible	Historic	Bridge	CDOT Colorado Department of Transportation
5BL.10539.1	PANAMA RESERVOIR NO. 1 OUTLET DITCH - SEGMENT	Officially not eligible>Field eligible	Historic	Ditch Segment	CDOT Colorado Department of Transportation
5BL.5632	LUTZ PROPERTY	Field not eligible	Historic	Single Dwelling	Cultural Resource Historians>Tatanka Research, Inc.
5BL.7100	HOWELL-ROBINSON FARM	Field not eligible	Historic	Agricultural Complex	Boulder County Parks & Open Space Department>Native Cultural Services
5BL.7406	NEPHI HOMESTEAD, WHEELER RANCH	106 - Officially eligible>Field eligible>Field not eligible	Historic	Homestead	CDOT Colorado Department of Transportation >Cultural Resource Historians
5BL.861	BOULDER-WELD COUNTY DITCH	Officially not eligible>Field not eligible	Historic	Irrigation Ditch	Colorado Department of Highways
5WL.1048	PLUMBS	Field not eligible	Historic	Railroad Siding	
5WL.1372		Field not eligible	Historic		Western Historical Studies, Inc.
5WL.1373		Field not eligible	Historic	Agricultural Complex	Western Historical Studies, Inc.
5WL.1375		Field not eligible	Historic	Agricultural Complex	Western Historical Studies, Inc.
5WL.1376	KOCH PLACE	Field not eligible	Historic	Farm Compelx	Western Historical Studies, Inc.

5WL.1423.5	BURLINGTON AND MISSOURI RIVER RAILROAD, CHICAGO, BURLINGTON & QUINCY RAILROAD, BURLINGTON NORTHERN RAILROAD - SEGMENT, DENVER, UTAH AND PACIFIC RAILROAD (SEGMENT)	Officially not eligible>Officially not eligible>Field not eligible>Field not eligible>Field not eligible	Historic	Railroad Grade	CDOT Colorado Department of Transportation >Centennial Archaeology, Inc.>Western Cultural Resource Management, Inc. (WCRM)
5WL.1526	SOUTH PLATTE SUPPLY CANAL, COAL RIDGE DITCH	Field not eligible>Officially not eligible	Historic	Water Control System	Bureau of Reclamation - Denver
5WL.1969.76	UNION PACIFIC RAILROAD/DENVER AND BOULDER VALLEY BRANCH	Supports eligibility of entire linear resource>Field eligible	Historic	Railroad	ERO Resources Corporation
5WL.1970.2	LOWER BOULDER DITCH (SEGMENT), SOUTH PLATTE SUPPLY CANAL	106 - Officially eligible>106 - Officially eligible>Field eligible>Field eligible	Historic	Irrigation Ditch	Centennial Archaeology, Inc.>Native Cultural Services
5WL.1970.5	LOWER BOULDER DITCH; SOUTH PLATTE SUPPLY CANAL	106 - Officially eligible>Field eligible	Historic	Irrigation Ditch	Centennial Archaeology, Inc.
5WL.2248.11	COTTONWOOD EXTENSION DITCH - SEGMENT	Supports eligibility of entire linear resource>Field eligible	Historic	Ditch	James Enterprises, Inc. (JEI)
5WL.2248.12	COTTONWOOD EXTENSION DITCH - SEGMENT	Supports eligibility of entire linear resource>Field eligible	Historic	Ditch	James Enterprises, Inc. (JEI)
5WL.2248.2	COTTONWOOD EXTENSION DITCH	Officially not eligible>Field not eligible	Historic	Irrigation Ditch	Native Cultural Services

5WL.3164		Field not eligible	Historic	Isolated Find	Western Cultural Resource Management, Inc. (WCRM)
5WL.3170	SINGLE HAND RANCH HAND'S HOUSE	Field not eligible>Field not eligible	Historic	Single Dwelling	Centennial Archaeology, Inc.>Western Cultural Resource Management, Inc. (WCRM)
5WL.4058		Field not eligible	Historic	Dam	Western Cultural Resource Management, Inc. (WCRM)
5WL.4256		Field not eligible	Historic	Irrigation Ditch	Centennial Archaeology, Inc.
5WL.6899		Field not eligible	Prehistoric	Isolated Find	James Enterprises, Inc. (JEI)
5WL.748	UNION DISTRICT SCHOOL SITE		Historic	Marker	

APPENDIX B
RESOURCES NEWLY RECORDED IN THE PROJECT AREA

FOR OFFICIAL USE ONLY.
DISCLOSURE OF SITE LOCATIONS IS PROHIBITED (36 CFR 296.18)

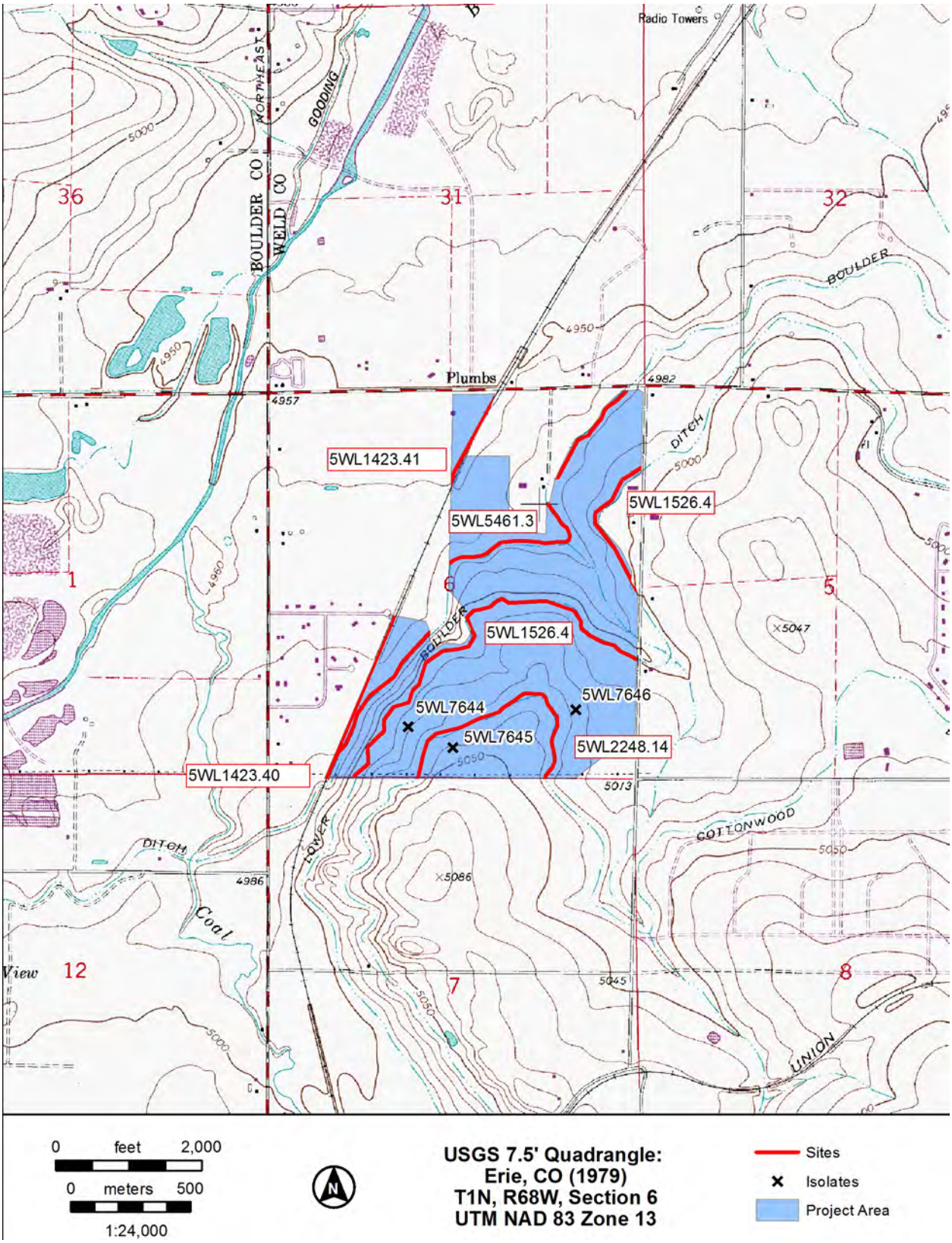

Figure B.1. Resources recorded during the current project.

Management Data Form

A *Management Data Form* should be completed for each cultural resource recorded during an archaeological survey. Isolated finds and revisits are the exception and they do not require a *Management Data Form*. Please attach the appropriate component forms and use continuation pages if necessary. Fields can be expanded or compressed as necessary.

1. **Resource Number**: 5WL1423.40

2. **Temporary Resource Number**: 1423.x

3. **Attachments (check as many as apply)**
- ☐ Prehistoric Archaeological Component
- ☐ Historic Archaeological Component
- ☐ Historic Architectural Component Form
- ☑ Linear Component
- ☑ Sketch/Instrument Map (required)
- ☑ U.S.G.S. Map Photocopy (required)
- ☑ Photograph(s) (required)
- ☐ Other, specify:

4. **Official determination (OAHP use only)**
- ☐ Determined Eligible NR\SR _____
- ☐ Determined Not Eligible NR\SR _____
- ☐ Nominated _____
- ☐ Need Data NR\SR _____
- ☐ Contributing to NR Dist.\SR Dist. _____
- ☐ Not Contributing to NR Dist.\SR Dist. _____
- ☐ Supports overall linear eligibility NR\SR _____
- ☐ Does not support overall linear eligibility NR\SR _____

I. IDENTIFICATION

5. **Resource Name**: Burlington and Missouri River Railroad

6. **Project Name/Number**: Andalusia Residential Development Class III/Project No. 14-65

7. **Government Involvement**: ☑ Local ☐ State ☐ Federal

Agency: N/A

8. **Site Categories (check as many as apply)**:

Prehistoric: ☐ archaeological site ☐ paleontological site ☐ In existing National Register District

National Register District name:

Historic: ☐ archaeology site ☐ building(s) ☑ structure(s) ☐ object(s) ☐ In existing National Register District

National Register District name:

9. **Owner(s) Name and Address**:

I & J Partnership LP, 3733 Florentine Circle, Longmont, CO 80503, ATTN Jerry Bouldin

10. **Boundary Description and Justification**:

The boundary was defined by the extent of the route of the railroad as shown on the Erie, CO (1979) 1:24k topo map within the southwestern portion of the project area.

11. **Site/Property Dimensions** Length: 723 m Width: 15 m Area: 10,845 m^2 Acres (m^2/4047): 2.7

Area was calculated as: ☑ Length x Width (rectangle/square) ☐ Length x Width x 0.785 (Ellipse) ☐ GIS

II. LOCATION

12. **Legal Location**

PM	6th	Township	1N	Range	68W	Section	6	SW	¼	__	¼
PM	__	Township	_____	Range	_____	Section	__	__	¼	__	¼
PM	__	Township	_____	Range	_____	Section	__	__	¼	__	¼
PM	__	Township	_____	Range	_____	Section	__	__	¼	__	¼

If section is irregular, explain alignment method:

Management Data Form

Resource Number: 5WL1423.40 **Temporary Resource Number**: 1423.x

13. **USGS Quad**: Erie, CO (1979) 14. **County**: Weld

15. **UTM Coordinates**: Datum used ☐ NAD 27 ☑ NAD 83 ☐ WGS 84 Other:

A. Zone	13 ;	495517	mE	4435872 mN
B. Zone	13 ;	495803	mE	4436539 mN
C. Zone	;		mE	mN
D. Zone	;		mE	mN

16. **UTM Source**: ☑ Corrected GPS/rectified survey (<5m error) ☐ Uncorrected GPS ☐ Map template

Other (explain):

17. **Site elevation** (feet): 4945

18. **Address**: Lot: Block: Addition:

19. **Location/Access**:
From I-25, take exit 235 west on Highway 52 for 4.1 miles. Turn south onto East County Line Road and proceed for 0.6 miles. Then drive east on Westview Road for approximately 0.3 miles to the north end of this segment.

III. NATURAL ENVIRONMENT/SITE CONDITION

20. **General Description** (should include both on site as well as geographical setting with aspect, landforms, vegetation, soils, depositional environment, water, ground visibility):

The railroad runs across a relatively flat plain, between about 10 and 200 m west of an irrigation ditch, and about 100 m east of a private residence. A 259-foot (79-m) long section in the middle of this segment has been destroyed by erosion from an adjacent wetland and/or by modern leveling and the north intact section terminates at the south edge of a horse pasture, about 341 feet (104 m) south of the north edge of this portion of the project area. A wire fence runs on top of the railroad grade for the length of this segment. Thick young willows grow along the southern half of the segment, while native grasses, wild rose, scattered Russian olives, Canadian thistles, and horsetails are present along the northern half of the segment. Ground visibility ranged between 0 and 70 percent during inventory, depending on vegetation cover; visibility was greater along the north half of the segment than along the south half. The grade is recognizable by the exposure of quartzite and granite ballast.

21. **Soil depth (cm) and description**:

Medium brown sandy loam is present on either side of the railroad grade but the grade itself is constructed of quartzite and granite ballast. Depth of the surrounding soil is unknown.

22. **Condition**

a. Architectural/Structural
- ☐ Excellent
- ☐ Good
- ☐ Fair
- ☑ Deteriorated
- ☐ Ruin

b. Archaeological/Paleontological
- ☐ Undisturbed
- ☐ Light disturbance
- ☐ Moderate disturbance
- ☐ Heavy disturbance
- ☐ Total disturbance

23. **Describe condition**:

It is hard to recognize this segment as a railroad because all that remains is its ballast grade covered by moderately to highly dense vegetation. The grade is discontinuous as a result of erosion and probably modern leveling or construction. A wire fence runs along the top of the grade.

24. **Vandalism**: ☐Yes ☑ No
Describe:

IV. NATIONAL/STATE REGISTER ELIGIBILITY ASSESSMENT

25. **Context or Theme**: Late 19th century transportation

26. **Applicable National Register Criteria**:
- ☑ A. Associated with events that have made a significant contribution to the broad pattern of our history
- ☐ B. Associated with the lives of persons significant in our past
- ☐ C. Embodies the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction
- ☐ D. Has yielded, or may be likely to yield, information important in history or prehistory
- ☐ Does not meet any of the National Register criteria
- ☐ Qualifies under exceptions A through G. List exception(s):

27. **Applicable State Register Criteria**:
- ☑ A. Property is associated with events that have made a significant contribution to history
- ☐ B. Property is connected with persons significant in history
- ☐ C. Property has distinctive characteristics of a type, period, method of construction or artisan
- ☐ D. Property is of geographic importance
- ☐ E. Property contains the possibility of important discoveries related to prehistory or history
- ☐ Does not meet any of the State Register criteria

28. **Area(s) of significance**:

Transportation

29. **Period(s) of significance**:

1889 to early 1900s (date of abandonment of railroad is unknown)

30. **Level of significance**: ☐ National ☑ State ☑ Local

31. **Statement of significance**:

The SHPO determined the Burlington and Missouri River Railroad as a whole officially eligible in 2003.The railroad was significant for providing transportation and aiding in the settlement of the region. The railroad drilled wells, brought goods and services in, and took products (e.g., coal) away, enabling numerous towns to spring up along it. Accordingly, the railroad as a whole is eligible under Criterion A for its role in transportation and settlement of this portion of the Front Range. However, it is not associated with significant people or engineering and does not retain data potential so it is not eligible under Criteria B, C, or D.

This segment of the railroad does not support the overall eligibility of the site because of its deterioration.

32. **Statement of historic integrity related to significance**:

Some portions of the railroad as a whole do retain enough integrity to convey the site's significance.

This segment of the railroad, however, has been heavily impacted by erosion, leveling, installation of a wire fence along its length, and thick vegetation growth. All remnants of this segment of the railroad except its ballast grade have been removed. Furthermore, the middle section of this segment has been destroyed by erosion and/or leveling. The segment generally retains its integrity of location but lacks integrity of design, materials, and workmanship. Its integrity of setting, feeling, and association have also been somewhat diminished by the construction of a modern house to its west and a well pad to its east and the overgrowth of vegetation along its southern half.

33. **National Register Eligibility Field Assessment**: ☑ Eligible ☐ Not eligible ☐ Need data
Linear Segment Evaluation (if applicable): ☐ Supporting ☑ Non Supporting
34. **Status in an Existing National Register Distric**t: ☐ Contributing ☐ Non-contributing
35. **State Register Eligibility Field Assessmen**t: ☑ Eligible ☐ Not eligible ☐ Need data
36. **Status in an Existing State Register District**: ☐ Contributing ☐ Non-contributing
37. **National/State Register District Potential**: ☐ Yes ☑ No Describe:

38. **Cultural Landscape Potential**: ☐ Yes ☑ No Describe:

39. **If Yes to either 37 or 38, is this site**: ☐ Contributing ☐ Non-contributing Explain:

V. MANAGEMENT AND ADMINISTRATIVE DATA

40. **Threats to Resource**: ☑ Water erosion ☐ Wind erosion ☐ Grazing ☑ Neglect ☐ Vandalism ☐ Recreation ☑ Construction ☐ Other (explain):

41. **Existing protection** ☐ None ☐ Marked ☐ Fenced ☐ Patrolled ☑ Access controlled
Other (specify):

Comments: access controlled through private land ownership

42. **Local landmark designation**:

43. **Easement**:

44. **Recorder's Management Recommendations**:
No further work.

VI. DOCUMENTATION

45. **Previous actions accomplished at the site**: ☐ Tested ☐ Partial excavation ☐ Complete excavation

Date(s):

a. Excavations:

b. Stabilization: Date(s):

c. HABS/HAER documentation [date(s) and numbers]:

d. Other:

46. **Known collections/reports/interviews and other references (list)**:

47. **Primary location of additional data**:

48. **State or Federal Permit number**: SHPO 2014-28

49. **Collection**: Artifact collection authorized: ☑ Yes ☐ No Were artifacts collected: ☐ Yes ☑ No
Artifact repository:

Collection method: ☐ Diagnostics ☐ Grab Sample ☐ Random Sample

Management Data Form

Resource Number: 5WL1423.40 **Temporary Resource Number**: 1423.x

Other (specify):

50. **Photograph Numbers**: 14-65_1423.40_1-4

Files or negatives stored at: electronically at James Enterprises, Inc.

51. **Report title**: Class III Cultural Resource Survey of the Proposed Andalusia Residential Development, Weld County, Colorado

52. **Recorder(s)**: R. Schwendler, L. Clark, S. Martin Date: June 25, 2014

53. **Recorder affiliation**: James Enterprises, Inc.

Phone number/Email: 970-484-3335/jbjei@mesanetworks.net

NOTE: Please attach a site map, a photocopy of the USGS 1:24000 map indicating resource location, and photographs.

Colorado Historical Society - Office of Archaeology & Historic Preservation
1560 Broadway, Suite 400 Denver, CO 80202
303-866-3395

Linear Component Form

This form should be completed for each linear resource or linear segment. Use this form in conjunction with the *Management Data Form.* Call OAHP staff (303-866-5216) prior to assigning a resource number.

I. Resource Identification

1. **Resource Number**: 5WL1423.40
2. **Temporary Resource Number**: 1423.x
3. **Site Name**: Burlington and Missouri River Railroad
4. **Record of**: ☐ Entire resource ☒ Segment

II. Resource Description

5. **Resource Type**: ☐ Road ☒ Railroad ☐ Trail ☐ Ditch/Canal

Other (specify):

6. **Component Description**:

5WL1423.40 is a segment of the Burlington and Missouri River Railroad that was constructed in 1889. This segment was previously unrecorded and forms the western boundary of the southwest portion of the current project area. The segment comprises two discontinuous sections of grade separated by a section that appears to have been destroyed by natural erosion from flooding or development or a combination thereof. The southern section is approximately 1,247 feet (380 m) long, while the northern section is approximately 525 feet (160 m) long. The intervening, destroyed section is approximately 259 feet (79 m) long. The northern intact section terminates at the south edge of a horse pasture, about 341 feet (104 m) south of the north edge of this portion of the project area. Despite the destruction of some of the grade, the railroad's route can be seen on the Erie, CO (1979) quad map. The grade is approximately 1 m high and is made of quartzite and granite ballast. The top of the grade is approximately 15 feet (5 m) wide, with slopes of the same dimension on either side. No artifacts, structural materials, or associated features are present along the segment. A barbed wire fence runs along the top of the grade for the length of the segment. Thick young willows grow along the southern half of the segment, while native grasses, wild rose, scattered Russian olives, Canadian thistles, and horsetails are present along the northern half of the segment. This segment is currently being used as an informal equestrian trail.

7. **Original use**: railroad
8. **Current use**: informal horseback riding trail; railroad is abandoned
9. **Modifications (describe and include dates)**:

At some point the tracks, ties, and other structural elements of the railroad were removed, but the date of this is unknown.

10. **Extent of Entire Resource**:

At a minimum the Burlington and Missouri River Railroad continues southwest through or past Erie, Lafayette, and Broomfield, heading to Denver, as well as northeast then northwest to Longmont.

11. **Associated Artifacts**:

None

12. **Associated Features or Resources**:

None

Linear Component Form

Resource Number: 5WL1423.40 **Temporary Resource Number**: 1423.x

III. Research Information

13. **Architect/Engineer**: Unknown

Source(s) of Information:

14. **Builder**: Colorado Northern Railroad

Source(s) of Information: Linear Component Form for 5WL1423.10 by Fariello et al. 2002 (on file at OAHP)

15. **Date of Construction / Date Range**: 1883-1884

Source(s) of Information: Linear Component Form for 5WL1423.10 by Fariello et al. 2002 (on file at OAHP)

16. **Historical / Archival Data**:

This line was originally constructed by the Colorado Northern (CN) Railroad as a narrow-gauge line in 1883-1884 to service coal mines in the area. The Burlington and Missouri River (B&MR) Railroad, which was operated by the Chicago, Burlington, and Quincy (CB&Q) Railroad, acquired the line from the CN in 1889. The BM&R renamed the line the Lyons Branch. The Burlington Northern (BN) Railroad was created on March 2, 1970 through the merger of four railroads, including the CB&Q. The line was in use up to at least 1980.

17. **Cultural Affiliation and Justification**:

Historic Euroamerican based on railroad company owners

IV. Management Recommendations

No further work for segment 5WL1423.40 because of its deterioration.

18. **Eligibility of Entire Resource**

☒ Eligible ☐ Not Eligible ☐ Need Data Is this an official determination? ☒ Yes ☐ No

Remarks / Justification:

SHPO officially determined status of entire resource in 1993.

19. **Evaluation of integrity of the segment of the entire linear resource being recorded** (Complete only if "Segment" under item 4 is checked and the entire resource is marked as Eligible under item 18)

☐ Supporting ☒ Non-supporting ☐ Not applicable

Remarks / Justification:

It is hard to recognize this segment as a railroad because all that remains is its ballast grade covered by moderately to highly dense vegetation. The ties, rails, and other structural elements have been removed and the grade left untended. Furthermore, the grade is discontinuous as a result of erosion and probably modern leveling or construction. A wire fence runs along the top of the grade.

20. **Recorder(s)**: R. Schwendler, L. Clark, S. Martin 21. **Date**: June 25, 2014

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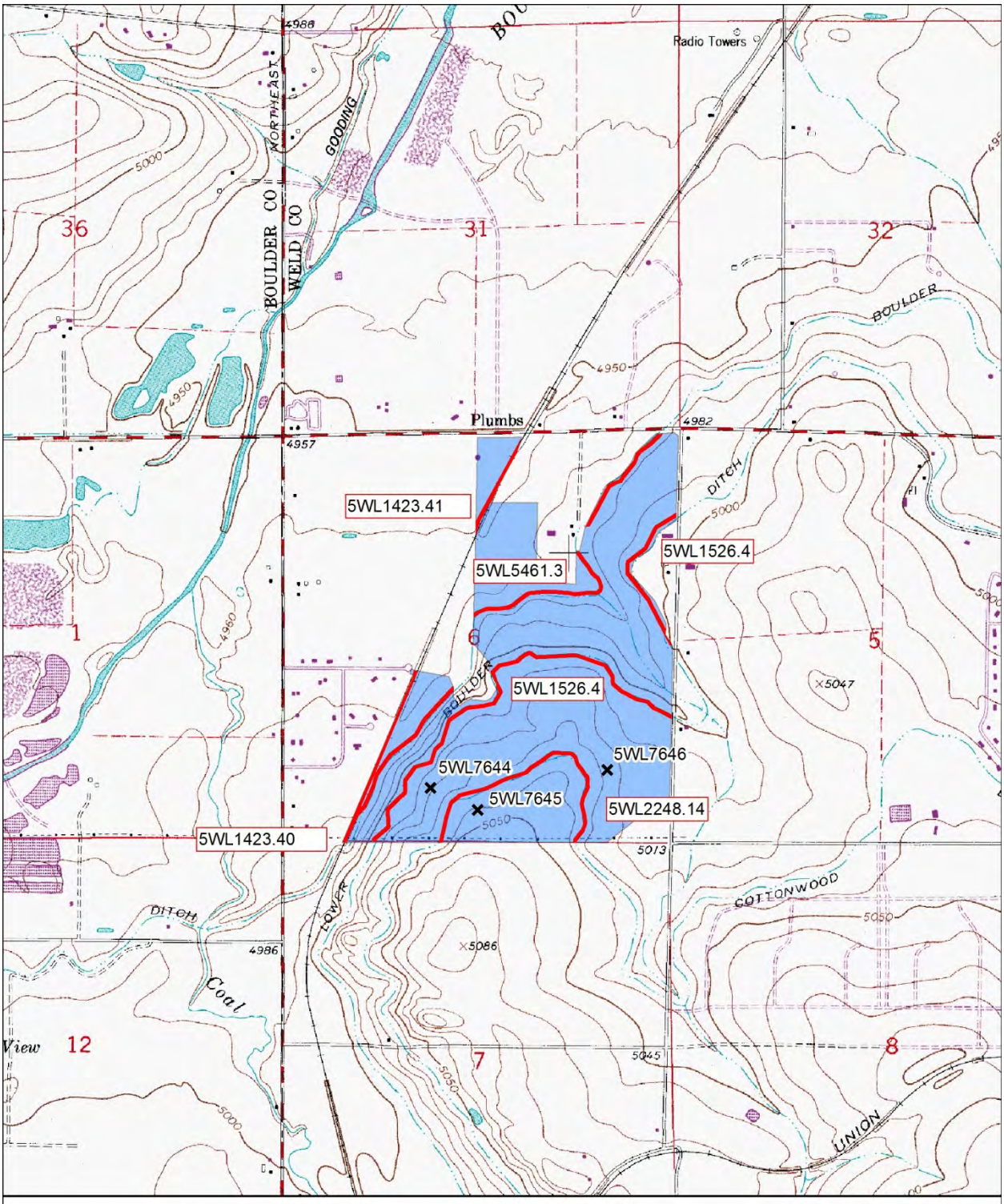


0 feet 2,000

0 meters 500

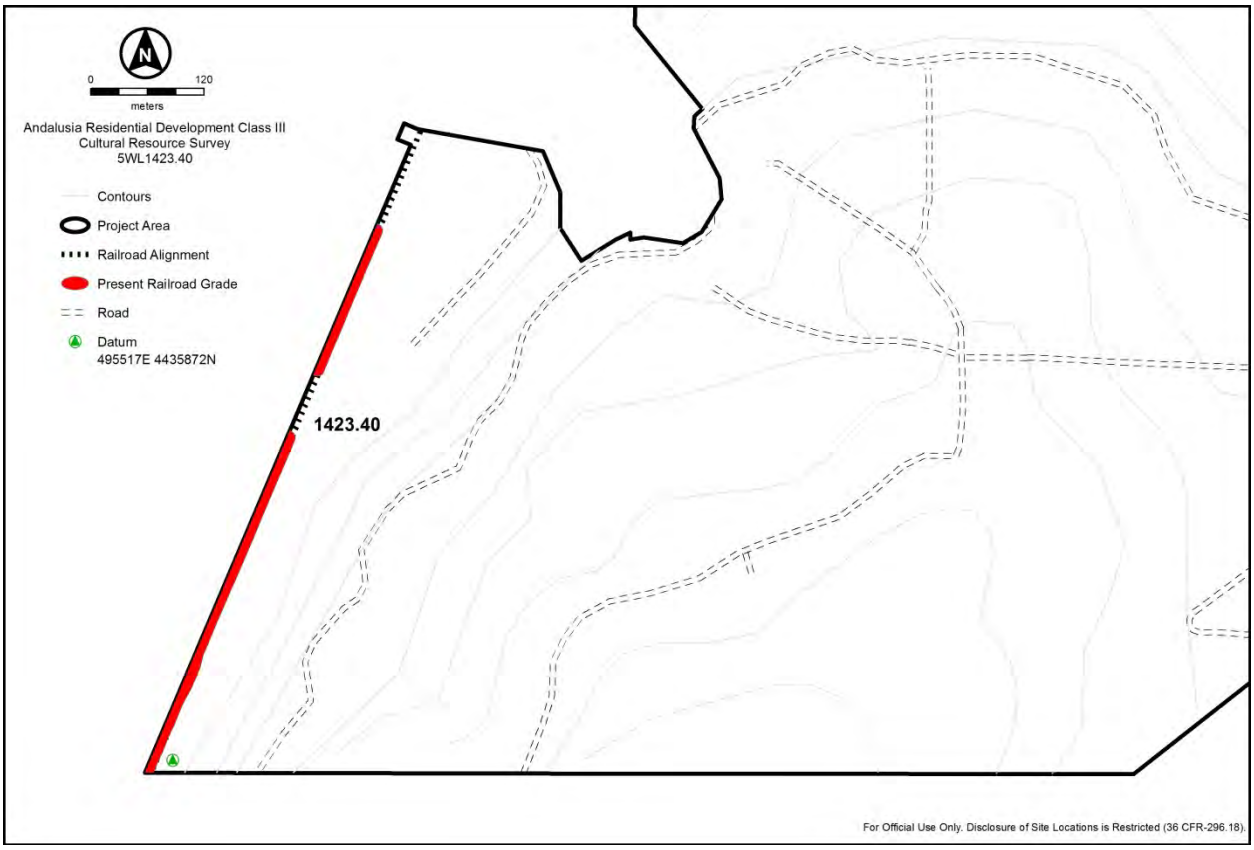
1:24,000

USGS 7.5' Quadrangle:
Erie, CO (1979)
T1N, R68W, Section 6
UTM NAD 83 Zone 13

Sites

Isolates

Project Area


N
0
120
meters
Andalusia Residential Development Class III
Cultural Resource Survey
5WL1423.40
Contours
Project Area
Railroad Alignment
Present Railroad Grade
Road
Datum
495517E 4435872N
1423.40
For Official Use Only. Disclosure of Site Locations is Restricted (36 CFR-296.18).

Overview of southwest end of 5WL1423.40, facing northeast.

Overview of southwest end of 5WL1423.40, facing northeast, with railroad borrow trench.

Overview of central part of 5WL1423.40, facing northeast.

Management Data Form

A *Management Data Form* should be completed for each cultural resource recorded during an archaeological survey. Isolated finds and revisits are the exception and they do not require a *Management Data Form*. Please attach the appropriate component forms and use continuation pages if necessary. Fields can be expanded or compressed as necessary.

1. **Resource Number**: 5WL1423.41

2. **Temporary Resource Number**: 1423.x

3. **Attachments (check as many as apply)**
- ☐ Prehistoric Archaeological Component
- ☐ Historic Archaeological Component
- ☐ Historic Architectural Component Form
- ☑ Linear Component
- ☑ Sketch/Instrument Map (required)
- ☑ U.S.G.S. Map Photocopy (required)
- ☑ Photograph(s) (required)
- ☐ Other, specify:

4. **Official determination (OAHP use only)**
- ☐ Determined Eligible NR\SR _____
- ☐ Determined Not Eligible NR\SR _____
- ☐ Nominated _____
- ☐ Need Data NR\SR _____
- ☐ Contributing to NR Dist.\SR Dist. _____
- ☐ Not Contributing to NR Dist.\SR Dist. _____
- ☐ Supports overall linear eligibility NR\SR _____
- ☐ Does not support overall linear eligibility NR\SR _____

I. IDENTIFICATION

5. **Resource Name**: Burlington and Missouri River Railroad

6. **Project Name/Number**: Andalusia Residential Development Class III/Project No. 14-65

7. **Government Involvement**: ☑ Local ☐ State ☐ Federal

Agency: N/A

8. **Site Categories (check as many as apply)**:

Prehistoric: ☐ archaeological site ☐ paleontological site ☐ In existing National Register District

National Register District name:

Historic: ☐ archaeology site ☐ building(s) ☑ structure(s) ☐ object(s) ☐ In existing National Register District

National Register District name:

9. **Owner(s) Name and Address**:

I & J Partnership LP, 3733 Florentine Circle, Longmont, CO 80503, ATTN Jerry Bouldin

10. **Boundary Description and Justification**:

The boundary was defined by the extent of the route of the railroad as shown on the Erie, CO (1979) 1:24k topo map within the northwestern portion of the project area.

11. **Site/Property Dimensions** Length: 400 m Width: 1 m Area: 400 m^2 Acres (m^2/4047): 0.1

Area was calculated as: ☑ Length x Width (rectangle/square) ☐ Length x Width x 0.785 (Ellipse) ☐ GIS

II. LOCATION

12. **Legal Location**

PM	6th	Township	1N	Range	68W	Section	6	NW ¼		NE ¼
PM		Township		Range		Section		¼		¼
PM		Township		Range		Section		¼		¼
PM		Township		Range		Section		¼		¼

If section is irregular, explain alignment method:

13. **USGS Quad**: Erie, CO (1979) 14. **County**: Weld

15. **UTM Coordinates**: Datum used ☐ NAD 27 ☑ NAD 83 ☐ WGS 84 Other:

A. Zone	13 ;	496038	mE	4437108 mN
B. Zone	13 ;	496209	mE	4437435 mN
C. Zone	;		mE	mN
D. Zone	;		mE	mN

16. **UTM Source**: ☑ Corrected GPS/rectified survey (<5m error) ☐ Uncorrected GPS ☐ Map template

Other (explain):

17. **Site elevation** (feet): 4950

18. **Address**: Lot: Block: Addition:

19. **Location/Access**:
From I-25, take exit 235 west on Highway 52 for 3.5 miles to the north end of this segment.

III. NATURAL ENVIRONMENT/SITE CONDITION

20. **General Description** (should include both on site as well as geographical setting with aspect, landforms, vegetation, soils, depositional environment, water, ground visibility):

The railroad grade runs across a flat plain on private rural land, crossing a dirt road and dirt parking areas near its southern end. Only the southernmost 98-foot (30-m) long section is visible as a railroad grade. Northeast of that, it appears to have been obliterated by leveling, plowing, and recent construction of a sewer line. Vegetation includes thick pasture grass, native grasses, scattered Russian olives and Canadian thistles. Ground visibility ranged between about 0 and 20 percent during inventory, depending on the thickness of the vegetative cover. The grade consists of quartzite and granite ballast but is bordered by medium brown sandy loam soils.

21. **Soil depth (cm) and description**:

Medium brown sandy loam is present on either side of the railroad grade but the grade itself is constructed of quartzite and granite ballast. Depth of the surrounding soil is unknown.

22. **Condition**

a. Architectural/Structural
- ☐ Excellent
- ☐ Good
- ☐ Fair
- ☑ Deteriorated
- ☐ Ruin

b. Archaeological/Paleontological
- ☐ Undisturbed
- ☐ Light disturbance
- ☐ Moderate disturbance
- ☐ Heavy disturbance
- ☐ Total disturbance

23. **Describe condition**:

It is very hard to recognize this segment as a railroad because all that remains is an approximately 1-m wide and 0.5-m high ballast grade covered by relatively dense vegetation. After about 98 feet (30 meters) from its south end the grade has been obliterated by leveling, plowing, and the recent construction of a sewer line.

24. **Vandalism**: ☐Yes ☑ No
Describe:

IV. NATIONAL/STATE REGISTER ELIGIBILITY ASSESSMENT

25. **Context or Theme**: Late 19th century transportation

26. **Applicable National Register Criteria**:
- ☑ A. Associated with events that have made a significant contribution to the broad pattern of our history
- ☐ B. Associated with the lives of persons significant in our past
- ☐ C. Embodies the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction
- ☐ D. Has yielded, or may be likely to yield, information important in history or prehistory
- ☐ Does not meet any of the National Register criteria
- ☐ Qualifies under exceptions A through G. List exception(s):

27. **Applicable State Register Criteria**:
- ☑ A. Property is associated with events that have made a significant contribution to history
- ☐ B. Property is connected with persons significant in history
- ☐ C. Property has distinctive characteristics of a type, period, method of construction or artisan
- ☐ D. Property is of geographic importance
- ☐ E. Property contains the possibility of important discoveries related to prehistory or history
- ☐ Does not meet any of the State Register criteria

28. **Area(s) of significance**:

Transportation

29. **Period(s) of significance**:

1889 to early 1900s (date of abandonment of railroad is unknown)

30. **Level of significance**: ☐ National ☑ State ☑ Local

31. **Statement of significance**:

The SHPO determined the Burlington and Missouri River Railroad as a whole officially eligible in 2003.The railroad was significant for providing transportation and aiding in the settlement of the region. The railroad drilled wells, brought goods and services in, and took products (e.g., coal) away, enabling numerous towns to spring up along it. Accordingly, the railroad as a whole is eligible under Criterion A for its role in transportation and settlement of this portion of the Front Range. However, it is not associated with significant people or engineering and does not retain data potential so it is not eligible under Criteria B, C, or D.

This segment of the railroad does not support the overall eligibility of the site because of its marked deterioration.

32. **Statement of historic integrity related to significance**:

Some portions of the railroad as a whole do retain enough integrity to convey the site's significance.

This segment of the railroad, however, has been heavily impacted by leveling, plowing, and the recent construction of a sewer line. All remnants of this segment of the railroad except its ballast grade have been removed, and only a short southern section of the grade remains. The segment lacks integrity of location, design, materials, and workmanship. Its integrity of setting, feeling, and association have also been diminished by the construction of the dirt road and parking areas and modern storage structures, a house, and a sewer line to its east.

33. **National Register Eligibility Field Assessment**:	☑ Eligible	☐ Not eligible	☐ Need data
Linear Segment Evaluation (if applicable):	☐ Supporting	☑ Non Supporting	
34. **Status in an Existing National Register Distric**t:	☐ Contributing	☐ Non-contributing	
35. **State Register Eligibility Field Assessmen**t:	☑ Eligible	☐ Not eligible	☐ Need data
36. **Status in an Existing State Register District**:	☐ Contributing	☐Non-contributing	

37. **National/State Register District Potential**: ☐ Yes ☑ No Describe:

38. **Cultural Landscape Potential**: ☐ Yes ☑ No Describe:

39. **If Yes to either 37 or 38, is this site**: ☐ Contributing ☐ Non-contributing Explain:

V. MANAGEMENT AND ADMINISTRATIVE DATA

40. **Threats to Resource**: ☐ Water erosion ☐ Wind erosion ☐ Grazing ☑ Neglect ☐ Vandalism ☐ Recreation ☑ Construction ☐ Other (explain):

41. **Existing protection** ☐ None ☐ Marked ☐ Fenced ☐ Patrolled ☑ Access controlled
Other (specify):

Comments: access controlled through private land ownership

42. **Local landmark designation**:

43. **Easement**:

44. **Recorder's Management Recommendations**:
No further work.

VI. DOCUMENTATION

45. **Previous actions accomplished at the site**: ☐ Tested ☐ Partial excavation ☐ Complete excavation

Date(s):

a. Excavations:

b. Stabilization: Date(s):

c. HABS/HAER documentation [date(s) and numbers]:

d. Other:

46. **Known collections/reports/interviews and other references (list)**:

47. **Primary location of additional data**:

48. **State or Federal Permit number**: SHPO 2014-28

49. **Collection**: Artifact collection authorized: ☑ Yes ☐ No Were artifacts collected: ☐ Yes ☑ No
Artifact repository:

Collection method: ☐ Diagnostics ☐ Grab Sample ☐ Random Sample

Management Data Form

Resource Number: 5WL1423.41 **Temporary Resource Number**: 1423.x

Other (specify):

50. **Photograph Numbers**: 14-65_1423.41_1-2

Files or negatives stored at: electronically at James Enterprises, Inc.

51. **Report title**: Class III Cultural Resource Survey of the Proposed Andalusia Residential Development, Weld County, Colorado

52. **Recorder(s)**: R. Schwendler, L. Clark, S. Martin Date: June 25, 2014

53. **Recorder affiliation**: James Enterprises, Inc.

Phone number/Email: 970-484-3335/jbjei@mesanetworks.net

NOTE: Please attach a site map, a photocopy of the USGS 1:24000 map indicating resource location, and photographs.

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303-866-3395

Linear Component Form

This form should be completed for each linear resource or linear segment. Use this form in conjunction with the *Management Data Form.* Call OAHP staff (303-866-5216) prior to assigning a resource number.

I. Resource Identification

1. **Resource Number**: 5WL1423.41
2. **Temporary Resource Number**: 1423.x
3. **Site Name**: Burlington and Missouri River Railroad
4. **Record of**: ☐ Entire resource ■ Segment

II. Resource Description

5. **Resource Type**: ☐ Road ■ Railroad ☐ Trail ☐ Ditch/Canal

Other (specify):

6. **Component Description**:

5WL1423.41 is a segment of the Burlington and Missouri River Railroad that was constructed in 1889. This segment was previously unrecorded. It comprises an approximatel 1,312-foot (400-m) long segment, whose route is identified largely from the Erie, CO (1979) quad map, that runs through the northwestern portion of the current project area. A deteriorated portion of grade is visible for the first approximately 98 feet (30 m), starting at the south end of the segment. At its greatest dimensions it measures about 1 m wide and 0.5 m high. Northeast of that, the segment appears to have been obliterated by leveling, plowing, and recent construction of a sewer line. Vegetation covering the route includes thick pasture grass, native grasses, scattered Russian olives and Canadian thistles. The deteriorated grade consists of quartzite and granite ballast.

7. **Original use**: railroad
8. **Current use**: none (abandoned)
9. **Modifications (describe and include dates)**:

At some point the tracks, ties, and other structural elements of the railroad were removed, but the date of this is unknown.

10. **Extent of Entire Resource**:

At a minimum the Burlington and Missouri River Railroad continues southwest through or past Erie, Lafayette, and Broomfield, heading to Denver, as well as northeast then northwest to Longmont.

11. **Associated Artifacts**:

None

12. **Associated Features or Resources**:

None

Linear Component Form

Resource Number: 5WL1423.41 **Temporary Resource Number**: 1423.x

III. Research Information

13. **Architect/Engineer**: Unknown

Source(s) of Information:

14. **Builder**: Colorado Northern Railroad

Source(s) of Information: Linear Component Form for 5WL1423.10 by Fariello et al. 2002 (on file at OAHP)

15. **Date of Construction / Date Range**: 1883-1884

Source(s) of Information: Linear Component Form for 5WL1423.10 by Fariello et al. 2002 (on file at OAHP)

16. **Historical / Archival Data**:

This line was originally constructed by the Colorado Northern (CN) Railroad as a narrow-gauge line in 1883-1884 to service coal mines in the area. The Burlington and Missouri River (B&MR) Railroad, which was operated by the Chicago, Burlington, and Quincy (CB&Q) Railroad, acquired the line from the CN in 1889. The BM&R renamed the line the Lyons Branch. The Burlington Northern (BN) Railroad was created on March 2, 1970 through the merger of four railroads, including the CB&Q. The line was in use up to at least 1980.

17. **Cultural Affiliation and Justification**:

Historic Euroamerican based on railroad company owners

IV. Management Recommendations No further work for segment 5WL1423.41 because of its deterioration.

18. **Eligibility of Entire Resource**

☒ Eligible ☐ Not Eligible ☐ Need Data Is this an official determination? ☒ Yes ☐ No

Remarks / Justification:

SHPO officially determined status of entire resource in 1993.

19. **Evaluation of integrity of the segment of the entire linear resource being recorded** (Complete only if "Segment" under item 4 is checked and the entire resource is marked as Eligible under item 18)

☐ Supporting ☒ Non-supporting ☐ Not applicable

Remarks / Justification:

It is extremely hard to recognize this segment as a railroad because all that remains is a short section of ballast grade covered by moderately dense vegetation. The ties, rails, and other structural elements have been removed and the grade left untended. Furthermore, most of the segment's grade has been destroyed by plowing, leveling, and/or recent construction of a sewer line.

20. **Recorder(s)**: R. Schwendler, L. Clark, S. Martin 21. **Date**: June 25, 2014

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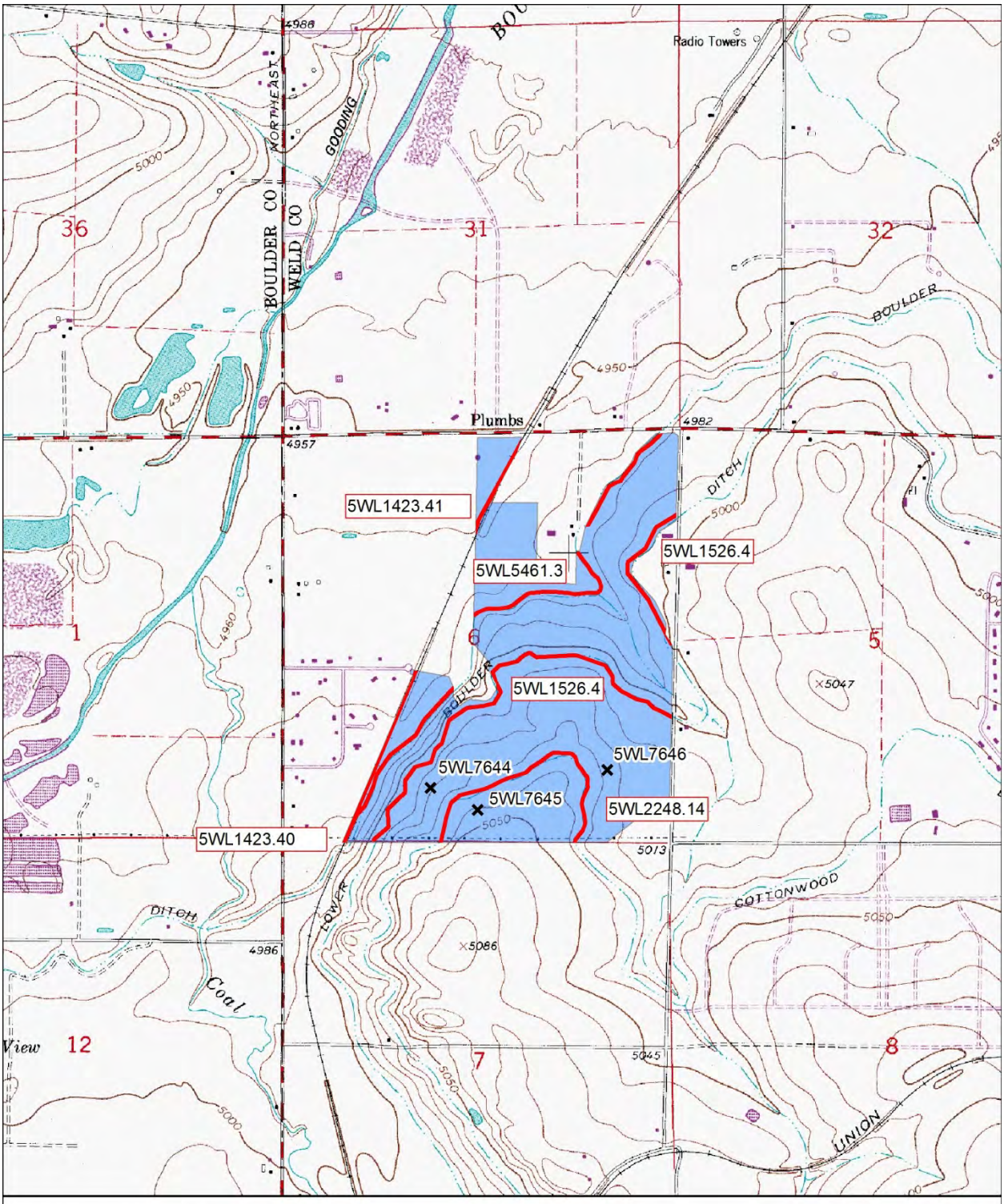
303-866-3395



0 feet 2,000

0 meters 500

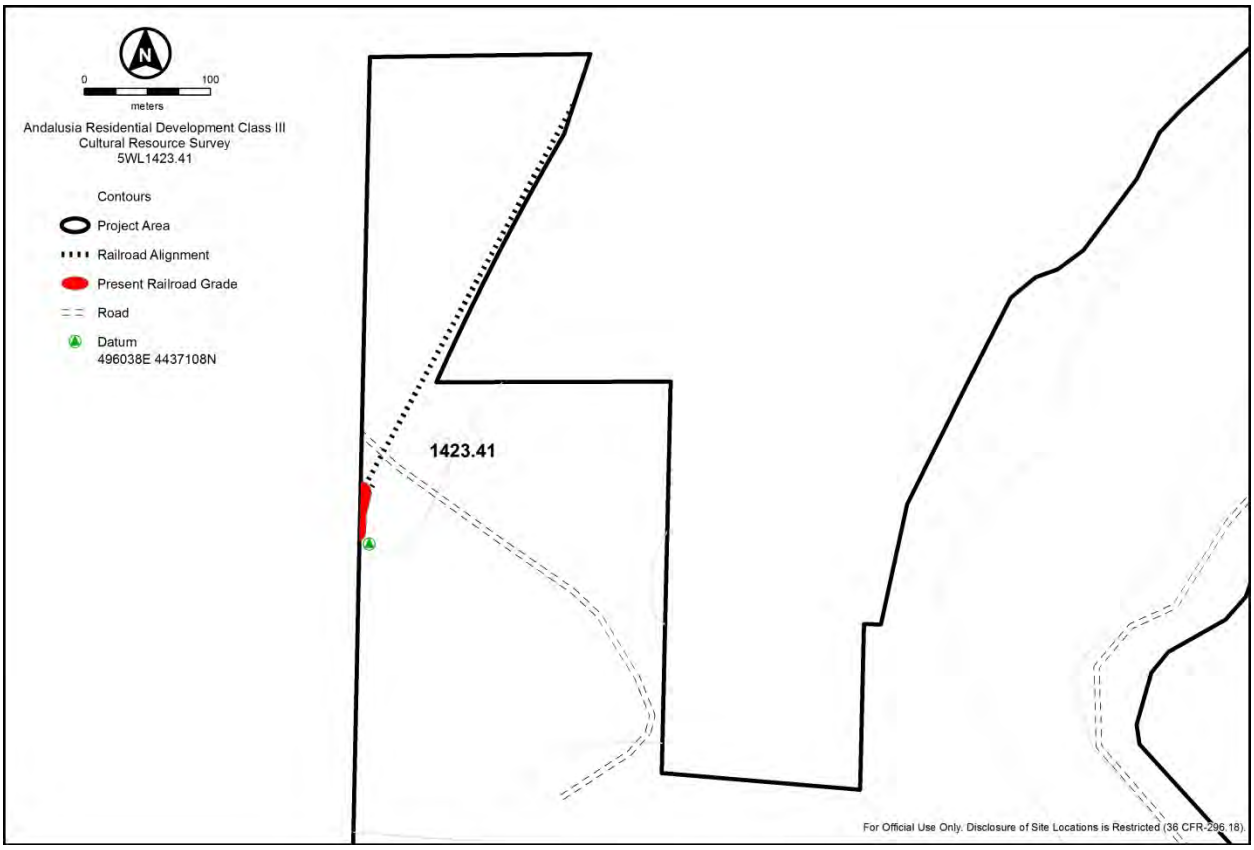
1:24,000

USGS 7.5' Quadrangle:
Erie, CO (1979)
T1N, R68W, Section 6
UTM NAD 83 Zone 13

Sites

Isolates

Project Area


N
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meters
Andalusia Residential Development Class III
Cultural Resource Survey
5WL1423.41
Contours
Project Area
Railroad Alignment
Present Railroad Grade
Road
Datum
496038E 4437108N
1423.41
For Official Use Only. Disclosure of Site Locations is Restricted (36 CFR-296.18).

Overview of south end of 5WL1423.41, facing northeast.

Overview of former location of 5WL1423.41 (destroyed), facing northeast.

Management Data Form

A *Management Data Form* should be completed for each cultural resource recorded during an archaeological survey. Isolated finds and revisits are the exception and they do not require a *Management Data Form*. Please attach the appropriate component forms and use continuation pages if necessary. Fields can be expanded or compressed as necessary.

1. **Resource Number**: 5WL1526.4

2. **Temporary Resource Number**: 1526.x

3. **Attachments (check as many as apply)**
- ☐ Prehistoric Archaeological Component
- ☐ Historic Archaeological Component
- ☐ Historic Architectural Component Form
- ☑ Linear Component
- ☑ Sketch/Instrument Map (required)
- ☑ U.S.G.S. Map Photocopy (required)
- ☑ Photograph(s) (required)
- ☐ Other, specify:

4. **Official determination (OAHP use only)**
- ☐ Determined Eligible NR\SR _____
- ☐ Determined Not Eligible NR\SR _____
- ☐ Nominated _____
- ☐ Need Data NR\SR _____
- ☐ Contributing to NR Dist.\SR Dist. _____
- ☐ Not Contributing to NR Dist.\SR Dist. _____
- ☐ Supports overall linear eligibility NR\SR _____
- ☐ Does not support overall linear eligibility NR\SR _____

I. IDENTIFICATION

5. **Resource Name**: South Platte Supply Canal/Coal Ridge Ditch

6. **Project Name/Number**: Andalusia Residential Development Class III/Project No. 14-65

7. **Government Involvement**: ☑ Local ☐ State ☐ Federal

Agency: N/A

8. **Site Categories (check as many as apply)**:

Prehistoric: ☐ archaeological site ☐ paleontological site ☐ In existing National Register District

National Register District name:

Historic: ☐ archaeology site ☐ building(s) ☑ structure(s) ☐ object(s) ☐ In existing National Register District

National Register District name:

9. **Owner(s) Name and Address**:

I & J Partnership LP, 3733 Florentine Circle, Longmont, CO 80503, ATTN Jerry Bouldin

10. **Boundary Description and Justification**:

The boundary was defined by the extent of the canal, as shown on the Erie, CO (1979) 1:24k topo map, within the project area.

11. **Site/Property Dimensions** Length: 1,784 m Width: 4.9 m Area: 8,742 m^2 Acres (m^2/4047): 2.2

Area was calculated as: ☑ Length x Width (rectangle/square) ☐ Length x Width x 0.785 (Ellipse) ☐ GIS

II. LOCATION

12. **Legal Location**

PM	6th	Township	1N	Range	68W	Section	6	SW	¼	__	¼
PM	6th	Township	1N	Range	68W	Section	6	E2	¼	__	¼
PM	__	Township	_____	Range	_____	Section	__	__	¼	__	¼
PM	__	Township	_____	Range	_____	Section	__	__	¼	__	¼

If section is irregular, explain alignment method:

13. **USGS Quad**: Erie, CO (1979) 14. **County**: Weld

15. **UTM Coordinates**: Datum used ☐ NAD 27 ☑ NAD 83 ☐ WGS 84 Other:

A. Zone	13 ;	495636 mE	4435861 mN
B. Zone	13 ;	496815 mE	4436350 mN
C. Zone	;	mE	mN
D. Zone	;	mE	mN

16. **UTM Source**: ☑ Corrected GPS/rectified survey (<5m error) ☐ Uncorrected GPS ☐ Map template

Other (explain):

17. **Site elevation** (feet): 4090

18. **Address**: Lot: Block: Addition:

19. **Location/Access**:
From I-25, take exit 235 west on Highway 52 for 3.1 miles. Turn south onto County Road 3 and drive 0.2 miles to the northeast end of this segment.

III. NATURAL ENVIRONMENT/SITE CONDITION

20. **General Description** (should include both on site as well as geographical setting with aspect, landforms, vegetation, soils, depositional environment, water, ground visibility):

This segment of the canal traverses the project area from southwest to northeast, running along the gentle northern and western slopes of a low hill whose peak is located south of the project area. The ditch travels through a variety of environmental settings, including—from southwest to northeast—a heavily vegetated natural area, a field with nearly mature wheat, a cow pasture, wetlands, and a field containing young alfalfa. The banks of the canal are heavily vegetated with cheat grass, Canadian thistle, spiny lettuce, other grasses, and scattered Russian olives. Soils are medium brown sandy loam. Ground visibility along the ditch's banks was about 0-20 percent.

21. **Soil depth (cm) and description**:

Medium brown sandy loam is visible on the surrounding ground surface and up to at least 1 m below ground surface in the ditch's banks.

22. **Condition**

a. Architectural/Structural
- ☑ Excellent
- ☐ Good
- ☐ Fair
- ☐ Deteriorated
- ☐ Ruin

b. Archaeological/Paleontological
- ☐ Undisturbed
- ☐ Light disturbance
- ☐ Moderate disturbance
- ☐ Heavy disturbance
- ☐ Total disturbance

23. **Describe condition**:

The ditch's banks are covered by tall vegetation that is leaning into the ditch in some places. It also has a small amount of edge erosion in a few locations, such as on the outsides of bends, but overall the ditch is in very good, maintained condition. It is currently in use and contains at least 12 inches of water.

24. **Vandalism**: ☐ Yes ☑ No
Describe:

IV. NATIONAL/STATE REGISTER ELIGIBILITY ASSESSMENT

25. **Context or Theme**: Water canals and pipelines, mid-20th century engineering

26. **Applicable National Register Criteria**:
- ☑ A. Associated with events that have made a significant contribution to the broad pattern of our history
- ☐ B. Associated with the lives of persons significant in our past
- ☑ C. Embodies the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction
- ☐ D. Has yielded, or may be likely to yield, information important in history or prehistory
- ☐ Does not meet any of the National Register criteria
- ☐ Qualifies under exceptions A through G. List exception(s):

27. **Applicable State Register Criteria**:
- ☑ A. Property is associated with events that have made a significant contribution to history
- ☐ B. Property is connected with persons significant in history
- ☑ C. Property has distinctive characteristics of a type, period, method of construction or artisan
- ☐ D. Property is of geographic importance
- ☐ E. Property contains the possibility of important discoveries related to prehistory or history
- ☐ Does not meet any of the State Register criteria

28. **Area(s) of significance**:

Agriculture, Engineering

29. **Period(s) of significance**:

1954-1976

30. **Level of significance**: ☑ National ☑ State ☐ Local

31. **Statement of significance**:

The South Platte Supply Canal was an integral component of the Bureau of Reclamation's (BOR's) massive Colorado-Big Thompson Project (C-BT). The C-BT is significant on a national level as one of the largest and most complex conservation efforts the Bureau of Reclamation (BOR) has undertaken. It includes more than 100 structures spread over 250 square miles in Colorado. The C-BT stores, regulates, and diverts water from the Colorado River on the west slope of the Continental Divide to the east slope of the Rocky Mountains. It allows Western Slope water to be used on the Eastern Slope and has made significant contributions to the economic development of the Front Range and Eastern Plains. At a minimum, a C-BT National Register District is recognized in Boulder (5BL7953) and Grand (5GA2409) counties. The South Platte Supply Canal was the last element of the C-BT to be constructed, with the purpose of increasing the capacity of the BOR's Eastern Slope facilities. Therefore, it is an important element of the C-BT. Although the canal is not recommended individually eligible for the National Register, it is recommended contributing to a C-BT National Register district under Criterion A. Similarly, although it does not represent a significant feat of engineering by itself, it is a well-preserved example of the type of canal built by the BOR in the 1930s, 1940s, and 1950s. Accordingly, it is also recommended contributing to the C-BT district under Criterion C. The canal is not demonstrably associated with any historically significant people and does not retain data potential so it is not recommended eligible under Criteria B or D.

32. **Statement of historic integrity related to significance**:

This segment of the canal is in excellent condition, albeit with dense vegetation along its banks, and is currently in use. It does not appear to have had any modern changes or additions and it still runs through a largely rural agricultural landscape, reflecting its mid-20th century period of construction, so it retains all aspects of integrity.

33. **National Register Eligibility Field Assessment**: ☑ Eligible ☐ Not eligible ☐ Need data
Linear Segment Evaluation (if applicable): ☑ Supporting ☐ Non Supporting
34. **Status in an Existing National Register Distric**t: ☑ Contributing ☐ Non-contributing
35. **State Register Eligibility Field Assessmen**t: ☑ Eligible ☐ Not eligible ☐ Need data
36. **Status in an Existing State Register District**: ☐ Contributing ☐ Non-contributing
37. **National/State Register District Potential**: ☑ Yes ☐ No Describe:

At a minimum, a C-BT National Register District is recognized in Boulder (5BL7953) and Grand (5GA2409) counties. One should also be recognized in Weld County and this segment of the canal would contribute to the district, although it would probably not be individually eligible for the National Register.

38. **Cultural Landscape Potential**: ☐ Yes ☑ No Describe:

39. **If Yes to either 37 or 38, is this site**: ☐ Contributing ☐ Non-contributing Explain:

V. MANAGEMENT AND ADMINISTRATIVE DATA

40. **Threats to Resource**: ☐ Water erosion ☐ Wind erosion ☐ Grazing ☐ Neglect ☐ Vandalism ☐ Recreation ☑ Construction ☐ Other (explain):

41. **Existing protection** ☐ None ☐ Marked ☐ Fenced ☐ Patrolled ☑ Access controlled
Other (specify):

Comments: access controlled through private land ownership

42. **Local landmark designation**:

43. **Easement**:

44. **Recorder's Management Recommendations**:
Avoid direct adverse effects. Mitigate adverse effects if unavoidable.

VI. DOCUMENTATION

45. **Previous actions accomplished at the site**: ☐ Tested ☐ Partial excavation ☐ Complete excavation

Date(s):

a. Excavations:

b. Stabilization: Date(s):

c. HABS/HAER documentation [date(s) and numbers]:

d. Other:

46. **Known collections/reports/interviews and other references (list)**:

47. **Primary location of additional data**:

48. **State or Federal Permit number**: SHPO 2014-28

49. **Collection**: Artifact collection authorized: ☑ Yes ☐ No Were artifacts collected: ☐ Yes ☑ No
Artifact repository:

Collection method: ☐ Diagnostics ☐ Grab Sample ☐ Random Sample

Management Data Form

Resource Number: 5WL1526.4 **Temporary Resource Number**: 1526.x

Other (specify):

50. **Photograph Numbers**: 14-65_1526_1-6

Files or negatives stored at: electronically at James Enterprises, Inc.

51. **Report title**: Class III Cultural Resource Survey of the Proposed Andalusia Residential Development, Weld County, Colorado

52. **Recorder(s)**: R. Schwendler, L. Clark, S. Martin Date: June 25, 2014

53. **Recorder affiliation**: James Enterprises, Inc.

Phone number/Email: 970-484-3335/jbjei@mesanetworks.net

NOTE: Please attach a site map, a photocopy of the USGS 1:24000 map indicating resource location, and photographs.

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303-866-3395

Linear Component Form

This form should be completed for each linear resource or linear segment. Use this form in conjunction with the *Management Data Form.* Call OAHP staff (303-866-5216) prior to assigning a resource number.

I. Resource Identification

1. **Resource Number**: 5WL1526.4
2. **Temporary Resource Number**: 1526.x
3. **Site Name**: South Platte Supply Canal/Coal Ridge Ditch
4. **Record of**: ☐ Entire resource ■ Segment

II. Resource Description

5. **Resource Type**: ☐ Road ☐ Railroad ☐ Trail ■ Ditch/Canal

Other (specify):

6. **Component Description**:

This unlined segment of the canal is dug into sandy loam with a maximum base width of 16 feet (4.9 m) and an approximate height of up to 6.6 feet (2 m). The canal is still in use and is routinely maintained, although it has thick vegetation along its banks. It runs through a variety of environmental settings, including—from southwest to northeast within the project area—a heavily vegetated natural area, a field with nearly mature wheat, a cow pasture, wetlands, and a field containing young alfalfa. The water appeared to be about 1 foot deep at the time of recording. Four features, described below, were identified in association with this segment of the canal.

7. **Original use**: canal

8. **Current use**: canal

9. **Modifications (describe and include dates)**:

The original Coal Ridge Ditch was enlarged and incorporated into the South Platte Supply Canal by the BOR between 1954 and 1956. Since then, no modifications are known for this segment.

10. **Extent of Entire Resource**:

The South Platte Supply Canal extends approximately 32 miles from Boulder Creek west of Erie to the South Platte River west of Ft. Lupton.

11. **Associated Artifacts**:

None

12. **Associated Features or Resources**:

Feature 1 is a T-shaped concrete diversion structure with a metal Parshall flume to its east. It sends water to an abandoned east-west trending lateral ditch (Feature 4). Located west of Feature 1, Feature 2 is a second, more recently constructed, concrete diversion structure with a metal Parshall flume and attached gauge to its east. Feature 2 diverts water to a second abandoned east-west running lateral ditch (Feature 3) that is younger than Feature 4. Feature 3 is approximately 1.5 feet (0.5 m) deep and approximately 5 feet (1.5 m) wide at ground level. Both features 3 and 4 run on the north side of an access road paralleling the canal. Feature 3 is located about 5 m south of Feature 4, separated from it by an earthen berm. Feature 3 may have been built to replace Feature 4. All four features are likely associated with the original Coal Ridge Ditch, not the canal.

Linear Component Form

Resource Number: 5WL1526.4 **Temporary Resource Number**: 1526.x

III. Research Information

13. **Architect/Engineer**: Bureau of Reclamation (BOR)

Source(s) of Information: U.S. Dept. of the Interior. Water and Power Resources Service Project Data 1981

14. **Builder**: E.S. Ellett; Linneman, Inc., and the Mazzocco Construction Company working for the BOR

Source(s) of Information: Linear Component Form for 5WL1526 by Fraser and Godfrey 2012 (on file at BOR ECAO)

15. **Date of Construction / Date Range**: 1954-1956

Source(s) of Information: U.S. Dept. of the Interior. Water and Power Resources Service Project Data 1981

16. **Historical / Archival Data**:

The South Platte Supply Canal was completed in 1956 by the BOR and was the last irrigation feature to be developed for the C-BT. Its construction involved modification of three existing ditches – the Lower Boulder Ditch, the Sullivan Ditch, and the Coal Ridge Ditch. The Coal Ridge Ditch had been constructed in 1859 by the Lower Boulder Ditch Company, with some of the earliest water rights. The BOR enlarged the three ditches into one continuous canal and added 1.3 miles of new canal from the Coal Ridge Waste Lake to the South Platte River (the South Platte Section). The BOR kept existing structures (e.g., flumes, drops, turnouts, bridges) that were adequate for the increased water flow, but modified, rebuilt, or replaced inadequate structures. Since its initial construction, the canal has had only relatively minors repairs and/or alterations (from Fraser and Godfrey 2012).

17. **Cultural Affiliation and Justification**:

Historic Euroamerican based on ownership by the Bureau of Reclamation

IV. Management Recommendations Avoid both direct and visual impacts. Mitigate adverse effects if avoidance is not possible.

18. **Eligibility of Entire Resource**

☒ Eligible ☐ Not Eligible ☐ Need Data Is this an official determination? ☐ Yes ☒ No

Remarks / Justification:

In 1990 and 2013, the SHPO determined either segments 5WL1526.1 and 5WL1526.2, or the entire resource, officially not eligible for the National Register, looking at the mid-20th century modification of the original Coal Ridge Ditch. However, evaluation of the resource as the South Platte Supply Canal in 2012 resulted in a recommendation of field eligible for the resource as a whole because of its role in the C-BT. The 2012 draft site forms are on file at the BOR, Eastern Colorado Area Office (ECAO), but have not yet been submitted to OAHP.

19. **Evaluation of integrity of the segment of the entire linear resource being recorded** (Complete only if "Segment" under item 4 is checked and the entire resource is marked as Eligible under item 18)

☒ Supporting ☐ Non-supporting ☐ Not applicable

Remarks / Justification:

This segment is in excellent condition, albeit with dense vegetation along its banks, and is currently in use. It does not appear to have had any modern changes or additions and it still runs through a largely rural agricultural landscape, reflecting its mid-20th century period of construction, so it retains all aspects of integrity.

20. **Recorder(s)**: R. Schwendler, L. Clark, S. Martin 21. **Date**: June 25, 2014

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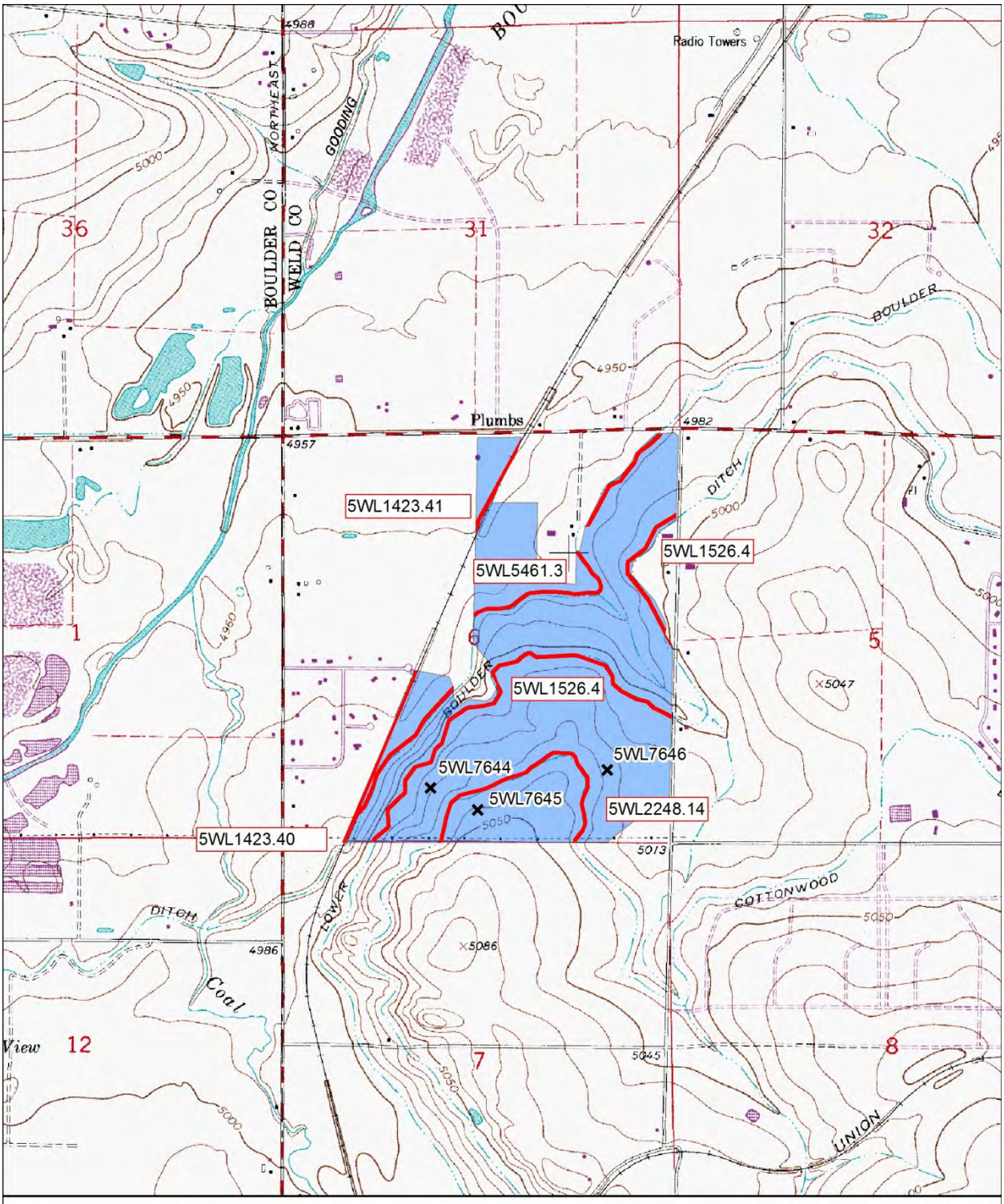


0 feet 2,000

0 meters 500

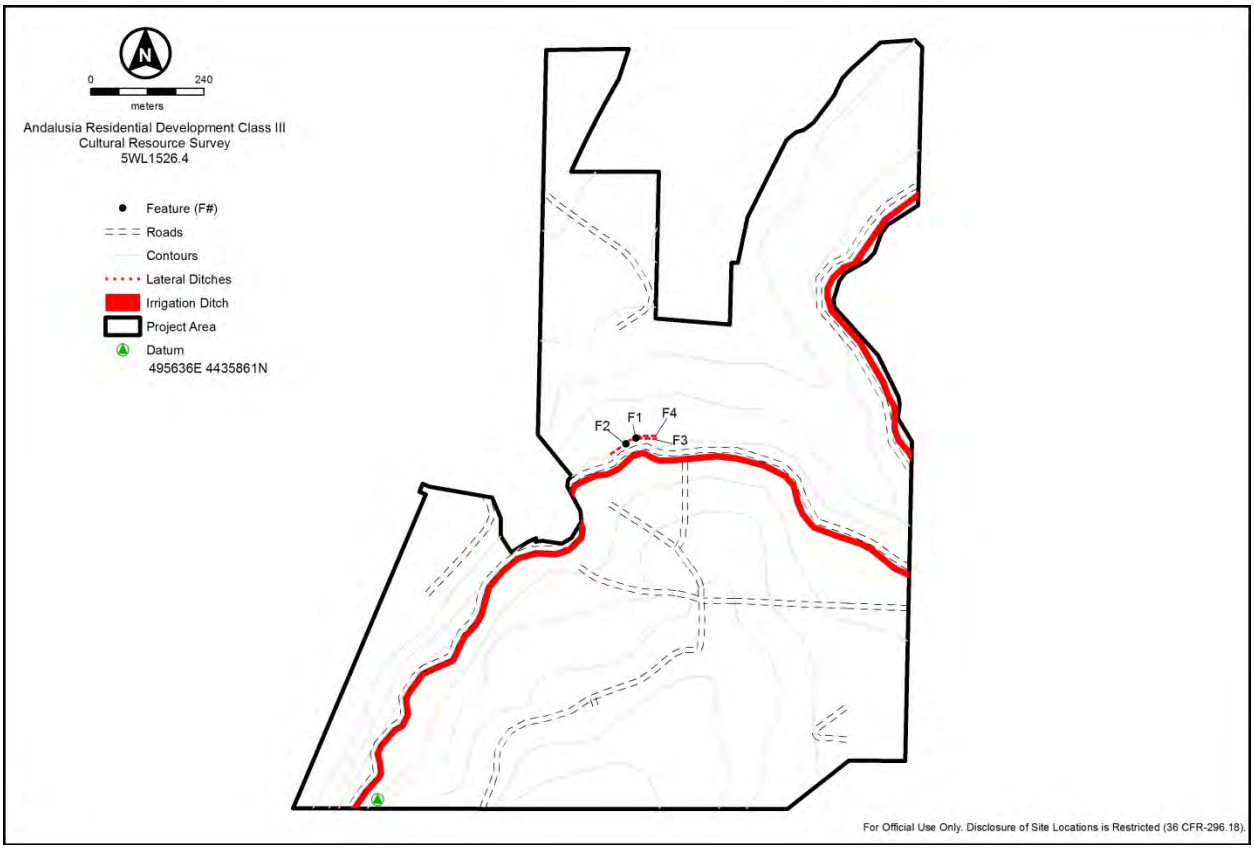
1:24,000

USGS 7.5' Quadrangle:
Erie, CO (1979)
T1N, R68W, Section 6
UTM NAD 83 Zone 13

Sites

Isolates

Project Area


N
0
240
meters
Andalusia Residential Development Class III
Cultural Resource Survey
5WL1526.4
Feature (F#)
Roads
Contours
Lateral Ditches
Irrigation Ditch
Project Area
Datum
495636E 4435861N
F1
F2
F3
F4
For Official Use Only. Disclosure of Site Locations is Restricted (36 CFR-296.18).

Overview of 5WL1526.4, facing southeast.

Overview of 5WL1526.4 in the southwest portion of the project area, facing southwest.

5WL1526.4 Feature 1, facing north.

5WL1526.4 Feature 2, facing east.

5WL1526.4 Feature 3, facing east.

5WL1526.4 Feature 4, facing east.

Management Data Form

A *Management Data Form* should be completed for each cultural resource recorded during an archaeological survey. Isolated finds and revisits are the exception and they do not require a *Management Data Form*. Please attach the appropriate component forms and use continuation pages if necessary. Fields can be expanded or compressed as necessary.

1. **Resource Number**: 5WL2248.14

2. **Temporary Resource Number**: 2248.x

3. **Attachments (check as many as apply)**
- ☐ Prehistoric Archaeological Component
- ☐ Historic Archaeological Component
- ☐ Historic Architectural Component Form
- ☑ Linear Component
- ☑ Sketch/Instrument Map (required)
- ☑ U.S.G.S. Map Photocopy (required)
- ☑ Photograph(s) (required)
- ☐ Other, specify:

4. **Official determination (OAHP use only)**
- ☐ Determined Eligible NR\SR _____
- ☐ Determined Not Eligible NR\SR _____
- ☐ Nominated _____
- ☐ Need Data NR\SR _____
- ☐ Contributing to NR Dist.\SR Dist. _____
- ☐ Not Contributing to NR Dist.\SR Dist. _____
- ☐ Supports overall linear eligibility NR\SR _____
- ☐ Does not support overall linear eligibility NR\SR _____

I. IDENTIFICATION

5. **Resource Name**: Cottonwood Extension Ditch

6. **Project Name/Number**: Andalusia Residential Development Class III/Project No. 14-65

7. **Government Involvement**: ☑ Local ☐ State ☐ Federal

Agency: N/A

8. **Site Categories (check as many as apply)**:

Prehistoric: ☐ archaeological site ☐ paleontological site ☐ In existing National Register District

National Register District name:

Historic: ☐ archaeology site ☐ building(s) ☑ structure(s) ☐ object(s) ☐ In existing National Register District

National Register District name:

9. **Owner(s) Name and Address**:

I & J Partnership LP, 3733 Florentine Circle, Longmont, CO 80503, ATTN Jerry Bouldin

10. **Boundary Description and Justification**:

The boundary was defined by the extent of the ditch, as shown on the Erie, CO (1979) 1:24k topo map, and its laterals, as observed during fieldwork, within the project area.

11. **Site/Property Dimensions** Length: 1,077 m Width: 2.7 m Area: 2,908 m^2 Acres (m^2/4047): 0.7

Area was calculated as: ☑ Length x Width (rectangle/square) ☐ Length x Width x 0.785 (Ellipse) ☐ GIS

II. LOCATION

12. **Legal Location**

PM	6th	Township	1N	Range	68W	Section	6	SE ¼		SW ¼
PM	6th	Township	1N	Range	68W	Section	6	SW ¼		SE ¼
PM		Township		Range		Section		¼		¼
PM		Township		Range		Section		¼		¼

If section is irregular, explain alignment method:

13. **USGS Quad**: Erie, CO (1979) 14. **County**: Weld

15. **UTM Coordinates**: Datum used ☐ NAD 27 ☑ NAD 83 ☐ WGS 84 Other:

A. Zone	13 ;	495899	mE	4435863 mN
B. Zone	13 ;	496426	mE	4435853 mN
C. Zone	;		mE	mN
D. Zone	;		mE	mN

16. **UTM Source**: ☑ Corrected GPS/rectified survey (<5m error) ☐ Uncorrected GPS ☐ Map template

Other (explain):

17. **Site elevation** (feet): 5035

18. **Address**: Lot: Block: Addition:

19. **Location/Access**:
From I-25, take exit 235 west on Highway 52 for 3.1 miles. Turn south onto County Road 3 and drive 0.8 miles. Turn west on a dirt oil and gas road and go about 1,500 feet west then south to the top of the ditch.

III. NATURAL ENVIRONMENT/SITE CONDITION

20. **General Description** (should include both on site as well as geographical setting with aspect, landforms, vegetation, soils, depositional environment, water, ground visibility):

The ditch is located on the north side of a gentle north-facing slope of a low hill. The ditch complex runs alongside cultivated fields (wheat and alfalfa) and is flanked by native grasses, small willows, Canadian thistle, milkweed, and large cottonwoods. The soil is a medium brown sandy loam and ground visibility is approximately 0-10 percent due to vegetation on the banks of the ditch.

21. **Soil depth (cm) and description**:

Medium brown sandy loam is visible on the surrounding ground surface and more than 1 m below ground surface in the ditch's banks.

22. **Condition**

a. Architectural/Structural
- ☑ Excellent
- ☐ Good
- ☐ Fair
- ☐ Deteriorated
- ☐ Ruin

b. Archaeological/Paleontological
- ☐ Undisturbed
- ☐ Light disturbance
- ☐ Moderate disturbance
- ☐ Heavy disturbance
- ☐ Total disturbance

23. **Describe condition**:

The ditch's banks are covered by tall vegetation that is leaning into the ditch in some places and there is some minor bank erosion in spots but overall it is in very good, maintained condition. It is currently in use and contains at least 6 inches of water.

24. **Vandalism**: ☐ Yes ☑ No

Describe:

IV. NATIONAL/STATE REGISTER ELIGIBILITY ASSESSMENT

25. **Context or Theme**: Late 19th and early 20th century agriculture and water control

26. **Applicable National Register Criteria**:
- ☑ A. Associated with events that have made a significant contribution to the broad pattern of our history
- ☐ B. Associated with the lives of persons significant in our past
- ☐ C. Embodies the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction
- ☐ D. Has yielded, or may be likely to yield, information important in history or prehistory
- ☐ Does not meet any of the National Register criteria
- ☐ Qualifies under exceptions A through G. List exception(s):

27. **Applicable State Register Criteria**:
- ☑ A. Property is associated with events that have made a significant contribution to history
- ☐ B. Property is connected with persons significant in history
- ☐ C. Property has distinctive characteristics of a type, period, method of construction or artisan
- ☐ D. Property is of geographic importance
- ☐ E. Property contains the possibility of important discoveries related to prehistory or history
- ☐ Does not meet any of the State Register criteria

28. **Area(s) of significance**:

Agriculture

29. **Period(s) of significance**:

1894 to early 1900s

30. **Level of significance**: ☐ National ☑ State ☑ Local

31. **Statement of significance**:

Irrigation works generally are of major historical significance throughout the Front Range area, as well as the other irrigated portions of Colorado. The development and expansion of irrigated agriculture, beginning along the South Platte River and its tributaries as early as the 1860s, allowed for permanent agrarian settlement in the Front Range counties and extending eastward onto the plains. As a result, it influenced the demographics, economy, and sociopolitical history of this area for several generations. The Cottonwood Extension Ditch and numerous lateral ditches continue to be used today to irrigate agricultural fields in Weld County and surrounding areas. Although segment 5WL2248.14 is relatively short, it is a well-preserved component of a broad system of irrigation ditches that run throughout this region of Colorado.

The resource as a whole has not been recorded and evaluated so per SHPO policy the resource as a whole is considered eligible, presumably under Criterion A.

32. **Statement of historic integrity related to significance**:

This segment of the Cottonwood Extension Ditch retains the essential physical features that enable it to be identified with its historic associations. Most if not all of the seven aspects of integrity of this resource, including location, design, setting, materials, workmanship, and feeling, are intact. This segment of the ditch retains sufficient integrity to be supporting of the resource's overall eligibility.

33. **National Register Eligibility Field Assessment**: ☑ Eligible ☐ Not eligible ☐ Need data
Linear Segment Evaluation (if applicable): ☑ Supporting ☐ Non Supporting
34. **Status in an Existing National Register Distric**t: ☐ Contributing ☐ Non-contributing
35. **State Register Eligibility Field Assessmen**t: ☑ Eligible ☐ Not eligible ☐ Need data
36. **Status in an Existing State Register District**: ☐ Contributing ☐ Non-contributing
37. **National/State Register District Potential**: ☐ Yes ☑ No Describe:

38. **Cultural Landscape Potential**: ☐ Yes ☑ No Describe:

39. **If Yes to either 37 or 38, is this site**: ☐ Contributing ☐ Non-contributing Explain:

V. MANAGEMENT AND ADMINISTRATIVE DATA

40. **Threats to Resource**: ☑ Water erosion ☐ Wind erosion ☐ Grazing ☐ Neglect ☐ Vandalism ☐ Recreation ☑ Construction ☐ Other (explain):

41. **Existing protection** ☐ None ☐ Marked ☐ Fenced ☐ Patrolled ☑ Access controlled
Other (specify):

Comments: access controlled through private land ownership

42. **Local landmark designation**:

43. **Easement**:

44. **Recorder's Management Recommendations**:
Avoid direct and visual adverse effects. Mitigate adverse effects if unavoidable.

VI. DOCUMENTATION

45. **Previous actions accomplished at the site**: ☐ Tested ☐ Partial excavation ☐ Complete excavation

Date(s):

a. Excavations:

b. Stabilization: Date(s):

c. HABS/HAER documentation [date(s) and numbers]:

d. Other:

46. **Known collections/reports/interviews and other references (list)**:

47. **Primary location of additional data**:

48. **State or Federal Permit number**: SHPO 2014-28

49. **Collection**: Artifact collection authorized: ☑ Yes ☐ No Were artifacts collected: ☐ Yes ☑ No
Artifact repository:

Collection method: ☐ Diagnostics ☐ Grab Sample ☐ Random Sample

Other (specify):

50. **Photograph Numbers**: 14-65_2248.14_1-12

Files or negatives stored at: electronically at James Enterprises, Inc.

51. **Report title**: Class III Cultural Resource Survey of the Proposed Andalusia Residential Development, Weld County, Colorado

52. **Recorder(s)**: R. Schwendler, L. Clark, S. Martin Date: June 25, 2014

53. **Recorder affiliation**: James Enterprises, Inc.

Phone number/Email: 970-484-3335/jbjei@mesanetworks.net

NOTE: Please attach a site map, a photocopy of the USGS 1:24000 map indicating resource location, and photographs.

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Linear Component Form

This form should be completed for each linear resource or linear segment. Use this form in conjunction with the *Management Data Form.* Call OAHP staff (303-866-5216) prior to assigning a resource number.

I. Resource Identification

1. **Resource Number**: 5WL2248.14
2. **Temporary Resource Number**: 2248.x
3. **Site Name**: Cottonwood Extension Ditch
4. **Record of**: ☐ Entire resource ■ Segment

II. Resource Description

5. **Resource Type**: ☐ Road ☐ Railroad ☐ Trail ■ Ditch/Canal

Other (specify):

6. **Component Description**:

The segment of the Cottonwood Extension Ditch recorded as Site 5WL2248.14 is 3,534 feet (1,077 m) long. The width of this segment of the ditch averages about 9 feet (2.7 m) at the top and 4 feet (1.2 m) near its bottom. It had a water depth of about 6 inches (15 cm) at the time of recording. The ditch is earthen, currently in use, and actively maintained although its banks are covered by thick vegetation. An access road runs along the ditch and crosses the ditch in the form of a cement bridge near the center of the segment within the project area. The ditch appears to have had no major changes since its construction and is still a hand-dug earthen canal.

7. **Original use**: irrigation ditch
8. **Current use**: irrigation ditch
9. **Modifications (describe and include dates)**:

No known modifications have been made to this ditch segment.

10. **Extent of Entire Resource**:

The Cottonwood Extension (aka Erie and Coal Creek Ditch) is about seven miles in length, with its headgate being on Coal Creek, about 3.5 miles south of this segment.

11. **Associated Artifacts**:

None

12. **Associated Features or Resources**:

Eight features are associated with this ditch segment. Feature 1 is a currently unused headgate located on the west side of 5WL2248.14. A typical headgate, it comprises a concrete wall paralleling the western wall of 5WL2248.14, with a metal screw stem and handwheel rising from the concrete. The headgate allows water to flow into a small parallel lateral irrigation ditch (Feature 2) that is approximately 3 feet (0.9 m) wide and 1.5 feet (0.5 m) deep. Feature 2 parallels the west side of 5WL2248.14 approximately 33 feet (10 m) from the ditch's western edge. Feature 2 flows north from Feature 1 until it bends slightly northeast then turns due north at a fence line, and south from Feature 1 until it disappears near the southern project boundary. It parallels 5WL2248.14 for only a short way. The gradual disappearance of the feature's southern end may be intentional, as it is likely used for flood irrigation. (Continued on Page 3)

Resource Number: 5WL2248.14 **Temporary Resource Number**: 2248.x

III. Research Information

13. **Architect/Engineer**: Unknown

Source(s) of Information:

14. **Builder**: Erie and Coal Creek Ditch and Reservation Company

Source(s) of Information: Gabriel 2013

15. **Date of Construction / Date Range**: ca. 1894

Source(s) of Information: Gabriel 2013

16. **Historical / Archival Data**:

Very little information can be found at the Cottonwood Extension Ditch, except that it was also called the Erie and Coal Creek Ditch, which was appropriated in 1894 and adjudicated in 1905. The Erie and Coal Creek Ditch and Reservation Company owned the Erie and Coal Creek Ditch, which diverts water from Coal Creek, and operated it in association with the Leyner Cottonwood Ditch #1, which diverted water from the New Dry Creek Carrier off South Boulder Creek. Some users of the Erie and Coal Creek Ditch also held shares in the Leyner Cottonwood Ditch #1. The Erie and Coal Creek Ditch appeared to be the first ditch to source from Coal Creek in Weld County (Gabriel 2013).

Gabriel, Jessica. 2013. Level II Historic Resource Documentation, Cottonwood Extension Ditch (5WL.2248.11), Weld County, Colorado. Prepared for the Bureau of Reclamation, Eastern Colorado Area Office. ERO Resources, Denver.

17. **Cultural Affiliation and Justification**:

Presumably Euroamerican because that has been the dominant culture in the area

IV. Management Recommendations

Avoid both direct and visual impacts. Mitigate adverse effects if avoidance is not possible.

18. **Eligibility of Entire Resource**

☒ Eligible ☐ Not Eligible ☐ Need Data Is this an official determination? ☐ Yes ☒ No

Remarks / Justification:

Irrigation works generally are of major historical significance throughout the Front Range area, as well as the other irrigated portions of Colorado. The development and expansion of irrigated agriculture, beginning along the South Platte River and its tributaries as early as the 1860s, allowed for permanent agrarian settlement in the Front Range counties and extending eastward onto the plains. As a result, it influenced the demographics, economy, and sociopolitical history of this area for several generations. The Cottonwood Extension Ditch and numerous lateral ditches continue to be used today to irrigate agricultural fields in Weld County and surrounding areas. Although segment 5WL2248.14 is relatively short, it is a well-preserved component of a broad system of irrigation ditches that run throughout this region of Colorado.

19. **Evaluation of integrity of the segment of the entire linear resource being recorded** (Complete only if "Segment" under item 4 is checked and the entire resource is marked as Eligible under item 18)

☒ Supporting ☐ Non-supporting ☐ Not applicable

Remarks / Justification:

This segment is in excellent condition and is currently in use. It does not appear to have had any significant modern changes or additions and it still runs through a largely rural agricultural landscape, reflecting its period of construction, so it retains all aspects of integrity.

20. **Recorder(s)**: R. Schwendler, L. Clark, S. Martin 21. **Date**: June 25, 2014

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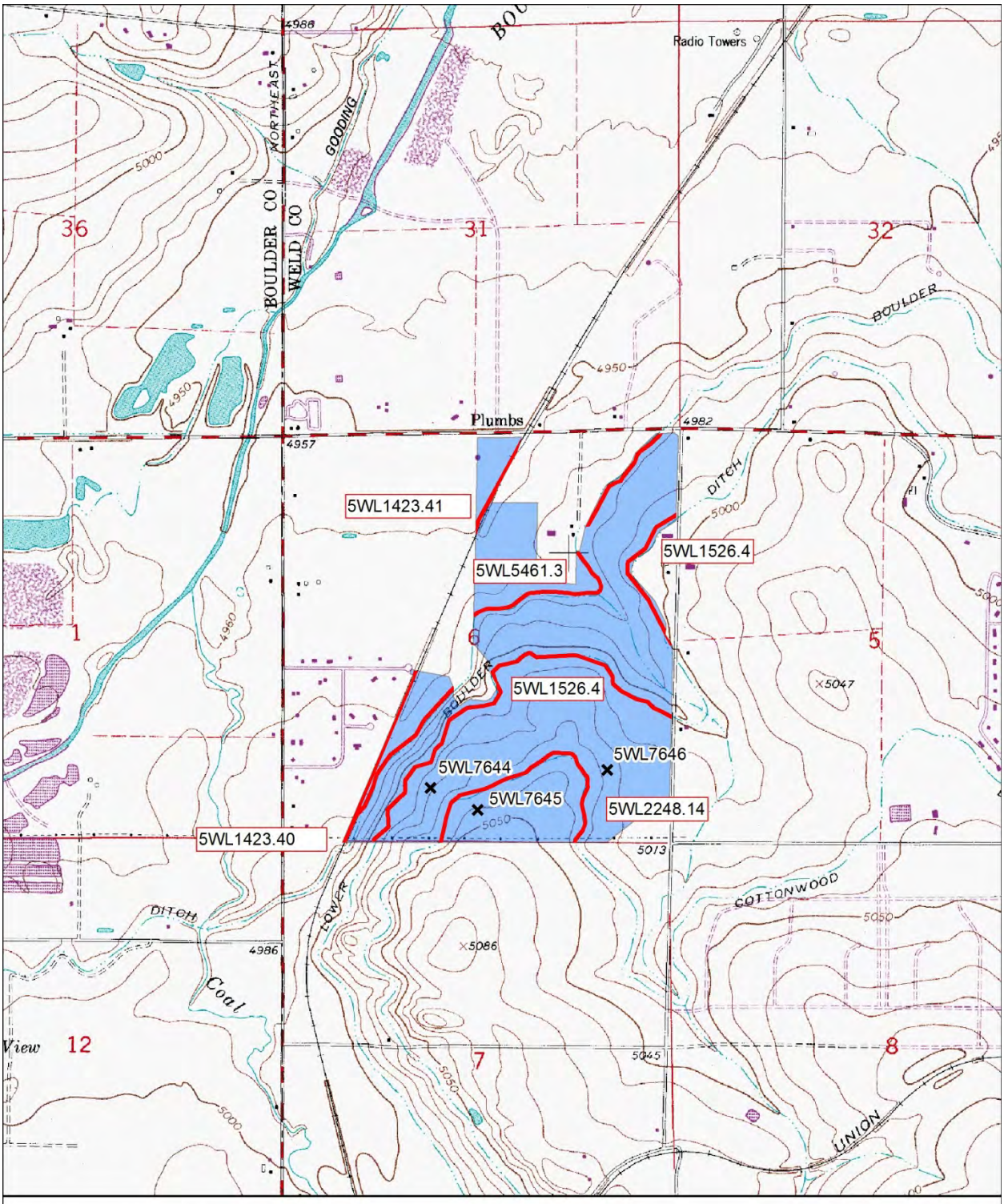
Continued from Page 1

No. 12 Associated Features or Resources

Feature 3 is an in-use headgate that was open at the time of recording. It is located on the north wall of 5WL2248.14 and allows water to flow from 5WL2248.14 through a PVC pipe into a lateral irrigation ditch (Feature 8) that borders an agricultural field located north of the headgate. Feature 4 is an in-use headgate and drop complex located on the east side of a dirt access road, north of 5WL2248.14. This headgate allows water to flow from 5WL2248.14 into a lateral ditch (Feature 7) that borders the western edge of an agricultural field, immediately east of an access road. A drop complex constructed of concrete, wood, and steel sheet metal is located near the south end of this portion of Feature 7. Feature 5 is an in-use headgate on the north side of 5WL2248.14. It appears to be modern and feeds a lateral irrigation ditch (also called Feature 7) paralleling the north bank of 5WL2248.14. Associated with the headgate in an adjacent agricultural field to the northeast is a 3-foot (0.9-m) wide square box built of cinder blocks that may act as a diversion structure. Feature 6 is the location of a possible former headgate or erosion control feature. It is currently a partially deteriorated concrete wall along the east bank of 5WL2248.14. Feature 7 is a 3-foot (0.9-m) wide parallel ditch that begins at Feature 4 and flows north for a short ways, as well as east then south along the east side of 5WL2248.14. It is located approximately 10 m from the eastern edge of 2248.14. The parallel ditch ends before the southern project area boundary and appears to feather out for flood irrigation. Feature 8 is a 3-foot (0.9-m) wide ditch paralleling the north side of 5WL2248.14 approximately 10 m from its northern edge. The lateral's east end is a north-south oriented dirt road that crosses the ditch. It flows west until it bends north at a fence line, parallelling Feature 2 on the opposite side of the fence. Water is diverted into this Feature 8 lateral from Feature 3.



0 feet 2,000

0 meters 500

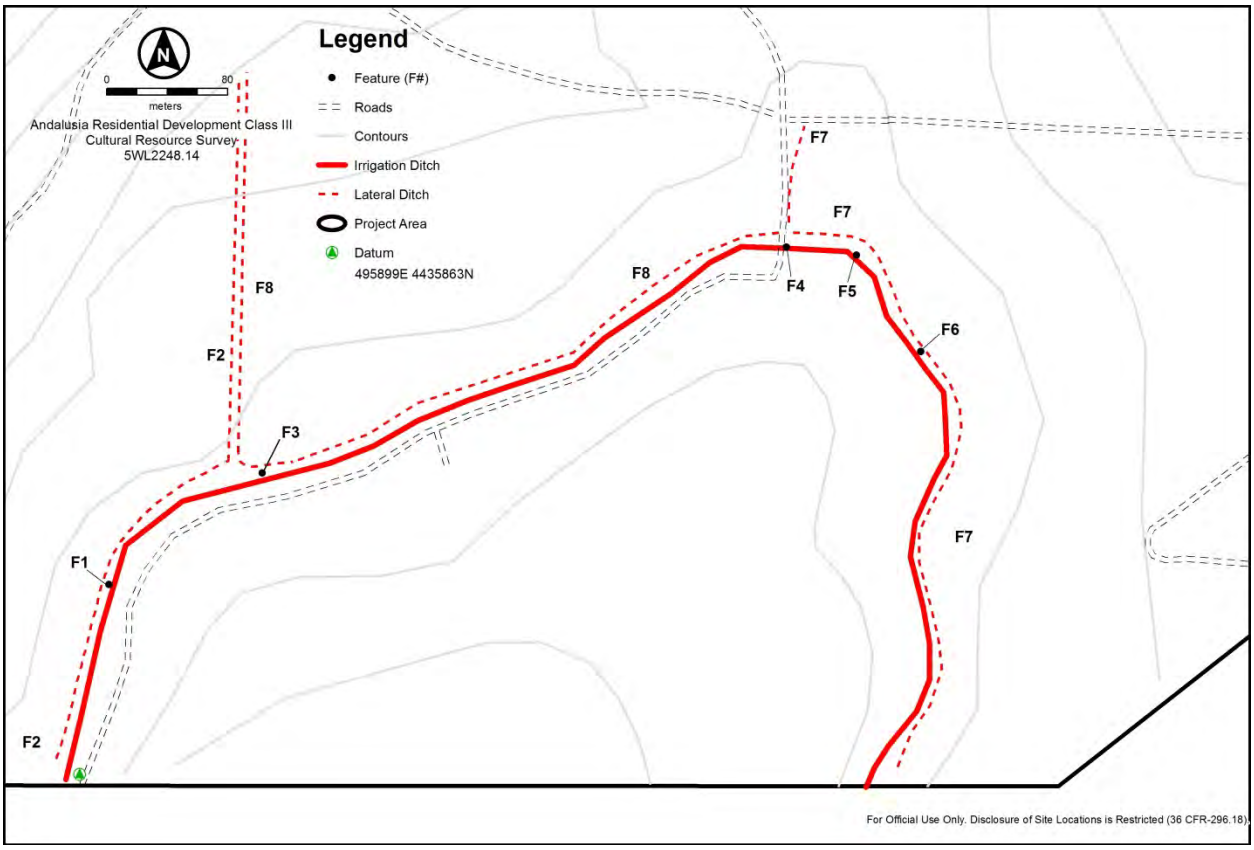
1:24,000

USGS 7.5' Quadrangle:
Erie, CO (1979)
T1N, R68W, Section 6
UTM NAD 83 Zone 13

Sites

Isolates

Project Area


Legend
Feature (F#)
Roads
Contours
Irrigation Ditch
Lateral Ditch
Project Area
Datum
495899E 4435863N
0
80
meters
Andalusia Residential Development Class III
Cultural Resource Survey
5WL2248.14
F1
F2
F3
F4
F5
F6
F7
F8
For Official Use Only. Disclosure of Site Locations is Restricted (36 CFR-296.18)

Overview of 5WL2248.14, facing north.

Overview of 5WL2248.14, facing south.

Modern gate across 5WL2248.14 at a fence line, facing north.

Cement bridge across 5WL2248.14 for dirt access road, facing east.

Modern headgate in use at 5WL2248.14, facing northeast.

Overview of 5WL2248.14 Feature 1 facing west.

Overview of5WL2248.14 Feature 2 depression, facing east.

Overview of5WL2248.14 Feature 2, facing north.

Overview of 5WL2248.14 Feature 3, facing west.

Overview of 5WL2248.14 Feature 4 headgate, facing north.

Overview of 5WL2248.14 Feature 4 drop complex, facing north.

Overview of 5WL2248.14 Feature 6, facing northeast.

COLORADO CULTURAL RESOURCE SURVEY OAHP1400

Management Data Form

Rev. 11/10

A *Management Data Form* should be completed for each cultural resource recorded during an archaeological survey. Isolated finds and revisits are the exception and they do not require a *Management Data Form*. Please attach the appropriate component forms and use continuation pages if necessary. Fields can be expanded or compressed as necessary.

1. **Resource Number**: 5WL5461.3

2. **Temporary Resource Number**: 5461.x

3. **Attachments (check as many as apply)**
- ☐ Prehistoric Archaeological Component
- ☐ Historic Archaeological Component
- ☐ Historic Architectural Component Form
- ☑ Linear Component
- ☑ Sketch/Instrument Map (required)
- ☑ U.S.G.S. Map Photocopy (required)
- ☑ Photograph(s) (required)
- ☐ Other, specify:

4. **Official determination (OAHP use only)**
- ☐ Determined Eligible NR\SR _____
- ☐ Determined Not Eligible NR\SR _____
- ☐ Nominated _____
- ☐ Need Data NR\SR _____
- ☐ Contributing to NR Dist.\SR Dist. _____
- ☐ Not Contributing to NR Dist.\SR Dist. _____
- ☐ Supports overall linear eligibility NR\SR _____
- ☐ Does not support overall linear eligibility NR\SR _____

I. IDENTIFICATION

5. **Resource Name**: Boulder-Weld County Ditch

6. **Project Name/Number**: Andalusia Residential Development Class III/Project No. 14-65

7. **Government Involvement**: ☑ Local ☐ State ☐ Federal

Agency: N/A

8. **Site Categories (check as many as apply)**:

Prehistoric: ☐ archaeological site ☐ paleontological site ☐ In existing National Register District

National Register District name:

Historic: ☐ archaeology site ☐ building(s) ☑ structure(s) ☐ object(s) ☐ In existing National Register District

National Register District name:

9. **Owner(s) Name and Address**:

I & J Partnership LP, 3733 Florentine Circle, Longmont, CO 80503, ATTN Jerry Bouldin

10. **Boundary Description and Justification**:

The boundary was defined by the extent of the ditch, as shown on the Erie, CO (1979) 1:24k topo map, within the project area.

11. **Site/Property Dimensions** Length: 2,244 m Width: 7.6 m Area: 17,054 m^2 Acres (m^2/4047): 4.2

Area was calculated as: ☑ Length x Width (rectangle/square) ☐ Length x Width x 0.785 (Ellipse) ☐ GIS

II. LOCATION

12. **Legal Location**

PM	6th	Township	1N	Range	68W	Section	6	SW	¼	__	¼
PM	6th	Township	1N	Range	68W	Section	6	E2	¼	__	¼
PM	__	Township	_____	Range	_____	Section	__	__	¼	__	¼
PM	__	Township	_____	Range	_____	Section	__	__	¼	__	¼

If section is irregular, explain alignment method:

13. **USGS Quad**: Erie, CO (1979) 14. **County**: Weld

15. **UTM Coordinates**: Datum used ☐ NAD 27 ☑ NAD 83 ☐ WGS 84 Other:

A. Zone	13 ;	495579	mE	4435971 mN
B. Zone	13 ;	496775	mE	4437483 mN
C. Zone	;		mE	mN
D. Zone	;		mE	mN

16. **UTM Source**: ☑ Corrected GPS/rectified survey (<5m error) ☐ Uncorrected GPS ☐ Map template

Other (explain):

17. **Site elevation** (feet): 4995

18. **Address**: Lot: Block: Addition:

19. **Location/Access**:
From I-25, take exit 235 west on Highway 52 for 3.1 miles to the northeast end of the ditch.

III. NATURAL ENVIRONMENT/SITE CONDITION

20. **General Description** (should include both on site as well as geographical setting with aspect, landforms, vegetation, soils, depositional environment, water, ground visibility):

This ditch segment runs along the gentle northern and western slopes of a low hill whose peak is located south of the project area. The ditch runs alongside cultivated fields (wheat and alfalfa) and a horse boarding facility. Vegetation present along the banks of the ditch include cheatgrass, Canadian thistle, spiny lettuce, willows, other grasses, scattered Russian olive, lambs quarters, goosefoot, and a few cattails. Scattered cottonwoods were present nearby. Ground visibility during inventory was 0-30 percent depending on the density of vegetation along the ditch's edge. Soil is medium brown sandy loam.

21. **Soil depth (cm) and description**:

Medium brown sandy loam is visible on the surrounding ground surface and up to at least 1 m below ground surface in the ditch's banks.

22. **Condition**

a. Architectural/Structural
- ☑ Excellent
- ☐ Good
- ☐ Fair
- ☐ Deteriorated
- ☐ Ruin

b. Archaeological/Paleontological
- ☐ Undisturbed
- ☐ Light disturbance
- ☐ Moderate disturbance
- ☐ Heavy disturbance
- ☐ Total disturbance

23. **Describe condition**:

The ditch's banks are covered by tall vegetation that is leaning into the ditch in some places. It also has some minor erosion in a few locations where livestock have crossed it. However, overall the ditch is in good, maintained condition. It is currently in use, with water about 21 inches deep.

24. **Vandalism**: ☐ Yes ☑ No

Describe:

IV. NATIONAL/STATE REGISTER ELIGIBILITY ASSESSMENT

25. **Context or Theme**: Late 19th and early 20th century agriculture and water control

26. **Applicable National Register Criteria**:
- ☑ A. Associated with events that have made a significant contribution to the broad pattern of our history
- ☐ B. Associated with the lives of persons significant in our past
- ☐ C. Embodies the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction
- ☐ D. Has yielded, or may be likely to yield, information important in history or prehistory
- ☐ Does not meet any of the National Register criteria
- ☐ Qualifies under exceptions A through G. List exception(s):

27. **Applicable State Register Criteria**:
- ☑ A. Property is associated with events that have made a significant contribution to history
- ☐ B. Property is connected with persons significant in history
- ☐ C. Property has distinctive characteristics of a type, period, method of construction or artisan
- ☐ D. Property is of geographic importance
- ☐ E. Property contains the possibility of important discoveries related to prehistory or history
- ☐ Does not meet any of the State Register criteria

28. **Area(s) of significance**:

Agriculture

29. **Period(s) of significance**:

1871 to early 1900s

30. **Level of significance**: ☐ National ☑ State ☑ Local

31. **Statement of significance**:

Irrigation works generally are of major historical significance throughout the Front Range area, as well as the other irrigated portions of Colorado. The development and expansion of irrigated agriculture, beginning along the South Platte River and its tributaries as early as the 1860s, allowed for permanent agrarian settlement in the Front Range counties and extending eastward onto the plains. As a result, it influenced the demographics, economy, and sociopolitical history of this area for several generations. The Boulder-Weld County Ditch continues to be used today to irrigate agricultural fields in Weld County and surrounding areas. Although segment 5WL5461.3 is relatively short, it is a well-preserved component of a broad system of irrigation ditches that run throughout this region of Colorado.

The resource as a whole does not appear to have been recorded and evaluated so per SHPO policy the resource as a whole is considered eligible, presumably under Criterion A. However, the ditch does not appear to be directly associated with any historically significant people; its simple earthen structure is not exemplary of a particular type of architecture or engineering; and it lacks data potential so it is not recommended eligible under Criteria B, C, or D.

This segment of the ditch is in good, working condition and continues to be used to irrigate agricultural land in western Weld County so it is recommended supporting of the ditch's overall eligibility.

32. **Statement of historic integrity related to significance**:

This segment of the ditch is in excellent condition, albeit with dense vegetation along its banks, and is currently in use. It retains the essential physical features that enable it to be identified with its historic associations and most if not all of the seven aspects of integrity, including location, design, setting, materials, workmanship, and feeling.

This segment of the ditch retains sufficient integrity to support the resource's overall eligibility.

33. **National Register Eligibility Field Assessment**: ☑ Eligible ☐ Not eligible ☐ Need data
Linear Segment Evaluation (if applicable): ☑ Supporting ☐ Non Supporting
34. **Status in an Existing National Register Distric**t: ☐ Contributing ☐ Non-contributing
35. **State Register Eligibility Field Assessmen**t: ☑ Eligible ☐ Not eligible ☐ Need data
36. **Status in an Existing State Register District**: ☐ Contributing ☐ Non-contributing
37. **National/State Register District Potential**: ☑ Yes ☐ No Describe:

38. **Cultural Landscape Potential**: ☐ Yes ☑ No Describe:

39. **If Yes to either 37 or 38, is this site**: ☐ Contributing ☐ Non-contributing Explain:

V. MANAGEMENT AND ADMINISTRATIVE DATA

40. **Threats to Resource**: ☑ Water erosion ☐ Wind erosion ☑ Grazing ☐ Neglect ☐ Vandalism ☐ Recreation ☑ Construction ☐ Other (explain):

41. **Existing protection** ☐ None ☐ Marked ☐ Fenced ☐ Patrolled ☑ Access controlled
Other (specify):

Comments: access controlled through private land ownership

42. **Local landmark designation**:

43. **Easement**:

44. **Recorder's Management Recommendations**:

VI. DOCUMENTATION

45. **Previous actions accomplished at the site**: ☐ Tested ☐ Partial excavation ☐ Complete excavation

Date(s):

a. Excavations:

b. Stabilization: Date(s):

c. HABS/HAER documentation [date(s) and numbers]:

d. Other:

46. **Known collections/reports/interviews and other references (list)**:

47. **Primary location of additional data**:

48. **State or Federal Permit number**: SHPO 2014-28

49. **Collection**: Artifact collection authorized: ☑ Yes ☐ No Were artifacts collected: ☐ Yes ☑ No
Artifact repository:

Collection method: ☐ Diagnostics ☐ Grab Sample ☐ Random Sample

Management Data Form

Resource Number: 5WL5461.3 **Temporary Resource Number**: 5461.x

Other (specify):

50. **Photograph Numbers**: 14-65_5461.3_1-7

Files or negatives stored at: electronically at James Enterprises, Inc.

51. **Report title**: Class III Cultural Resource Survey of the Proposed Andalusia Residential Development, Weld County, Colorado

52. **Recorder(s)**: R. Schwendler, L. Clark, S. Martin Date: June 25, 2014

53. **Recorder affiliation**: James Enterprises, Inc.

Phone number/Email: 970-484-3335/jbjei@mesanetworks.net

NOTE: Please attach a site map, a photocopy of the USGS 1:24000 map indicating resource location, and photographs.

Colorado Historical Society - Office of Archaeology & Historic Preservation
1560 Broadway, Suite 400 Denver, CO 80202
303-866-3395

Linear Component Form

This form should be completed for each linear resource or linear segment. Use this form in conjunction with the *Management Data Form.* Call OAHP staff (303-866-5216) prior to assigning a resource number.

I. Resource Identification

1. **Resource Number**: 5WL5461.3
2. **Temporary Resource Number**: 5461.x
3. **Site Name**: Boulder-Weld County Ditch
4. **Record of**: ☐ Entire resource ■ Segment

II. Resource Description

5. **Resource Type**: ☐ Road ☐ Railroad ☐ Trail ■ Ditch/Canal

Other (specify):

6. **Component Description**:

This is a 7,362-foot (2,244-m) long segment of the Boulder-Weld County Ditch. The width of this segment of the ditch is approximately 25 feet (7.6 m) at the top and 6 feet (1.6 m) at the water surface with a water depth of about 21 inches (53 cm) at the time of recording. The ditch is earthen, currently in use, and actively maintained. Two features were recorded along this segment of the ditch.

7. **Original use**: irrigation ditch
8. **Current use**: irrigation ditch
9. **Modifications (describe and include dates)**:

According to Boulder and Weld County Ditch president Jon File, the ditch remains in its same location as when it was originally constructed, with the possible exception of some corners that may have been straightened after episodes of erosion. None of these are specifically known or confirmed for this segment, however.

10. **Extent of Entire Resource**:

The Boulder and Weld County Ditch comes off Boulder Creek about 3 miles southwest (as the crow flies) from the southwest corner of the project area and heads northeast out of the project area for several miles.

11. **Associated Artifacts**:

None

12. **Associated Features or Resources**:

Two features are associated with 5WL5461.3. Feature 1 is a headgate on the western bank of 5WL5461.3 that does not appear historic although it is no longer in use. Feature 2 comprises a concrete diversion structure and concrete flume located west of Feature 1. The diversion structure and flume are separated by about 19.7 feet (6 m). No lateral ditches were observed extending from this feature so its degree and timing of use is unclear.

Linear Component Form

Resource Number: 5WL5461.3 **Temporary Resource Number**: 5461.x

III. Research Information

13. **Architect/Engineer**: Unknown

Source(s) of Information:

14. **Builder**: Unknown

Source(s) of Information:

15. **Date of Construction / Date Range**: 1871

Source(s) of Information: site forms for 5BL.861

16. **Historical / Archival Data**:

Almost no information could be found for the Boulder-Weld County Ditch except that it was appropriated in 1871. Although at least some segments in Boulder County have reportedly been moved since that time, based on information provided to other archaeological contractors by landowners, current Boulder and Weld County Ditch Company president Jon File believes that the only modifications to the ditch have been potentially some straightening of bends that have experienced erosion.

17. **Cultural Affiliation and Justification**:

Presumably Euroamerican because that has been the dominant culture in the area

IV. Management Recommendations

18. **Eligibility of Entire Resource**

☒ Eligible ☐ Not Eligible ☐ Need Data Is this an official determination? ☐ Yes ☒ No

Remarks / Justification:

The Boulder-Weld County Ditch was one of the early ditches created in this region to irrigate agricultural fields. Thus it was important in the early settlement and economy of the area. The ditch continues to play this role today.

19. **Evaluation of integrity of the segment of the entire linear resource being recorded** (Complete only if "Segment" under item 4 is checked and the entire resource is marked as Eligible under item 18)

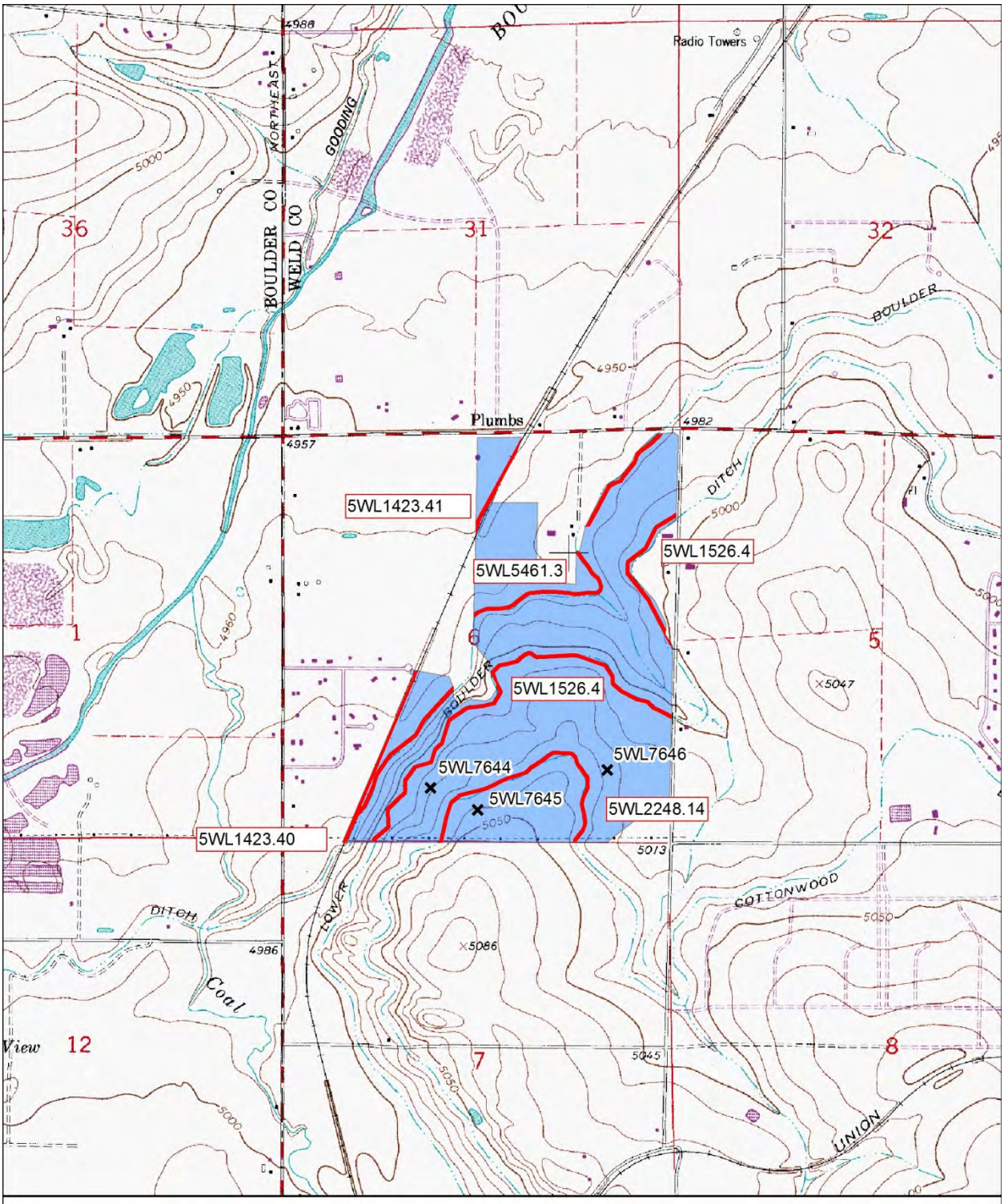
☒ Supporting ☐ Non-supporting ☐ Not applicable

Remarks / Justification:

This segment of the ditch is in good, in-use condition and continues to transport water. It retains sufficient integrity to support the assumed overall eligibility of the ditch.

20. **Recorder(s)**: R. Schwendler, L. Clark, S. Martin 21. **Date**: June 25, 2014

Colorado Historical Society - Office of Archaeology & Historic Preservation
1560 Broadway, Suite 400 Denver, CO 80202
303-866-3395



0 feet 2,000

0 meters 500

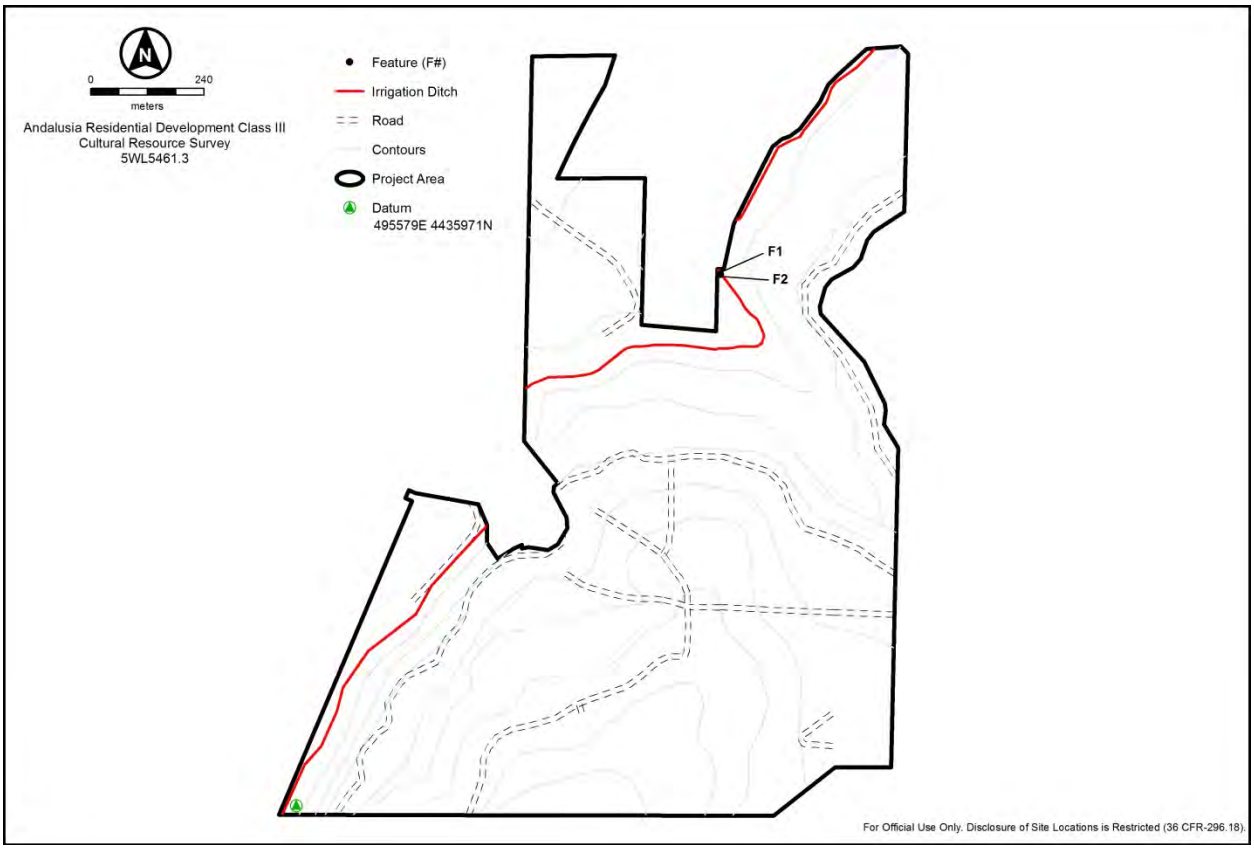
1:24,000

USGS 7.5' Quadrangle:
Erie, CO (1979)
T1N, R68W, Section 6
UTM NAD 83 Zone 13

Sites

Isolates

Project Area


N
0
240
meters
Andalusia Residential Development Class III
Cultural Resource Survey
5WL5461.3
Feature (F#)
Irrigation Ditch
Road
Contours
Project Area
Datum
495579E 4435971N
F1
F2
For Official Use Only. Disclosure of Site Locations is Restricted (36 CFR-296.18).

Overview of 5WL5461.3 (on left) and possible former ditch (on right), facing southwest.

Overview of 5WL5461.3 in southwestern portion of the project area, facing northeast.

Overview of 5WL5461.3 showing large modern concrete culvert, facing east.

Overview of 5WL5461.3 northwest of wetlands showing metal culvert in background, facing southeast.

Overview of 5WL5461.3 in northeast corner of the project area, facing southwest.

Overview of 5WL5461.3 Feature 1, facing west.

Overview of 5WL5461.3 Feature 2, facing north.

COLORADO CULTURAL RESOURCE SURVEY

Archaeological Isolated Find/Feature Form

OAHP 1408
Rev. 11/10

This form is not to be used for phenomena that are eligible for the National Register or are part of the built environment. To be ***only*** used for phenomena that meet the requirements of the recorder's definition as provided below. A map at 1:24,000 scale with IF clearly plotted must be attached.

1. **Site Number**: 5WL7644
2. **Temporary Resource Number**: RS1
3. **County**: Weld
4. **Recorder's Definition of Isolated Find**: One or very few artifacts not representing patterned behavior or multiple artifacts that lack context and integrity of location (continued #18 below)
5. **PM** 6th **Township** 1N **Range** 68W **Section** 6 SE ¼ SW ¼
   If section is irregular, explain alignment method: alignment based on southwest section corner
6. **USGS Quad**: Erie, CO (1979)
7. **Elevation**: 5049 ft.
8. **UTM Coordinates**: Datum used ☐ NAD 27 ☑ NAD 83 ☐ WGS 84 Other:
   Zone: 13; 495860 mE 4436078 mN
9. **UTM Source**: ☑ Corrected GPS/rectified survey (<5m error) ☐ Uncorrected GPS ☐ Map template
   Other (explain):
10. **Landowner**: Private
11. **Describe Artifact(s) and their distribution**:

    ☑ No artifacts
12. **Describe Feature (include dimensions)**:

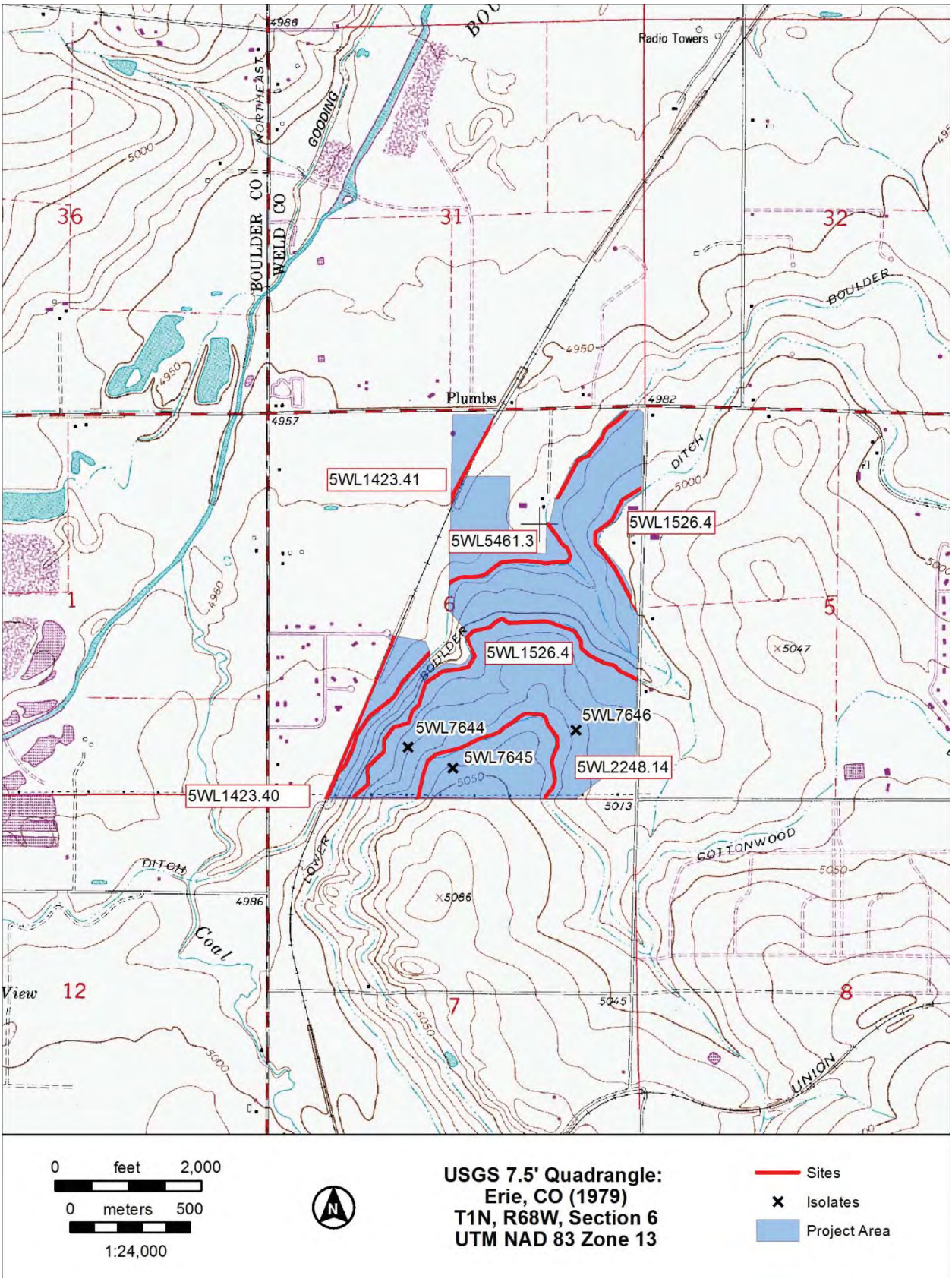
    This is an anomalous circular depression of unknown age and origin observed in the middle of a field of mature wheat. The depression contains some cheatgrass. It measures 10 feet in diameter and 1–2 feet deep.

    ☐ No features
13. **Cultural Affiliation and Justification**: Unknown
14. **Time Period and Justification**: Unknown
15. **Relevant environmental information (e.g., elevation, topography, soils, vegetation, nearby water source)**:

    The depression is located in a field with mature wheat, on a gentle northwestern slope, between two historic irrigation ditches. The soil is a medium brown sandy loam.
16. **Is this isolate located in a cultural landscape?** ☐ Yes ☑ No
    If yes, describe:
17. **Why is this isolated find not eligible for the National Register?**

    The depression is of unknown age and origin and contains no artifacts. This feature possesses no further information potential.
18. **Additional Information (e.g., narrative, drawings, photographs, sketch map; attach extra pages if desired)**:

    continued from #4 above
    and do not represent a locus of interpretable patterned human behavior.
19. **Artifacts Collected?** ☐ Yes ☑ No
    If yes, provide repository information:
20. **Report Title and Project Number**: Class III Cultural Resource Survey of the Proposed Andalusia Residential Development, Weld County, Colorado
21. **Recorder and Affiliation**: R. Schwendler, James Enterprises, Inc.
    Date: 06/24/2014


5WL1423.41
5WL1526.4
5WL5461.3
5WL1526.4
5WL7644
5WL7646
5WL7645
5WL2248.14
5WL1423.40
Plumbs
Radio Towers
BOULDER CO
WELD CO
NORTHEAST
GOODING
DITCH
BOULDER
LOWER
COTTONWOOD
UNION
Coal
View
36
31
32
1
6
5
12
7
8
0 feet 2,000
0 meters 500
1:24,000
USGS 7.5' Quadrangle:
Erie, CO (1979)
T1N, R68W, Section 6
UTM NAD 83 Zone 13
Sites
Isolates
Project Area

COLORADO CULTURAL RESOURCE SURVEY

Archaeological Isolated Find/Feature Form

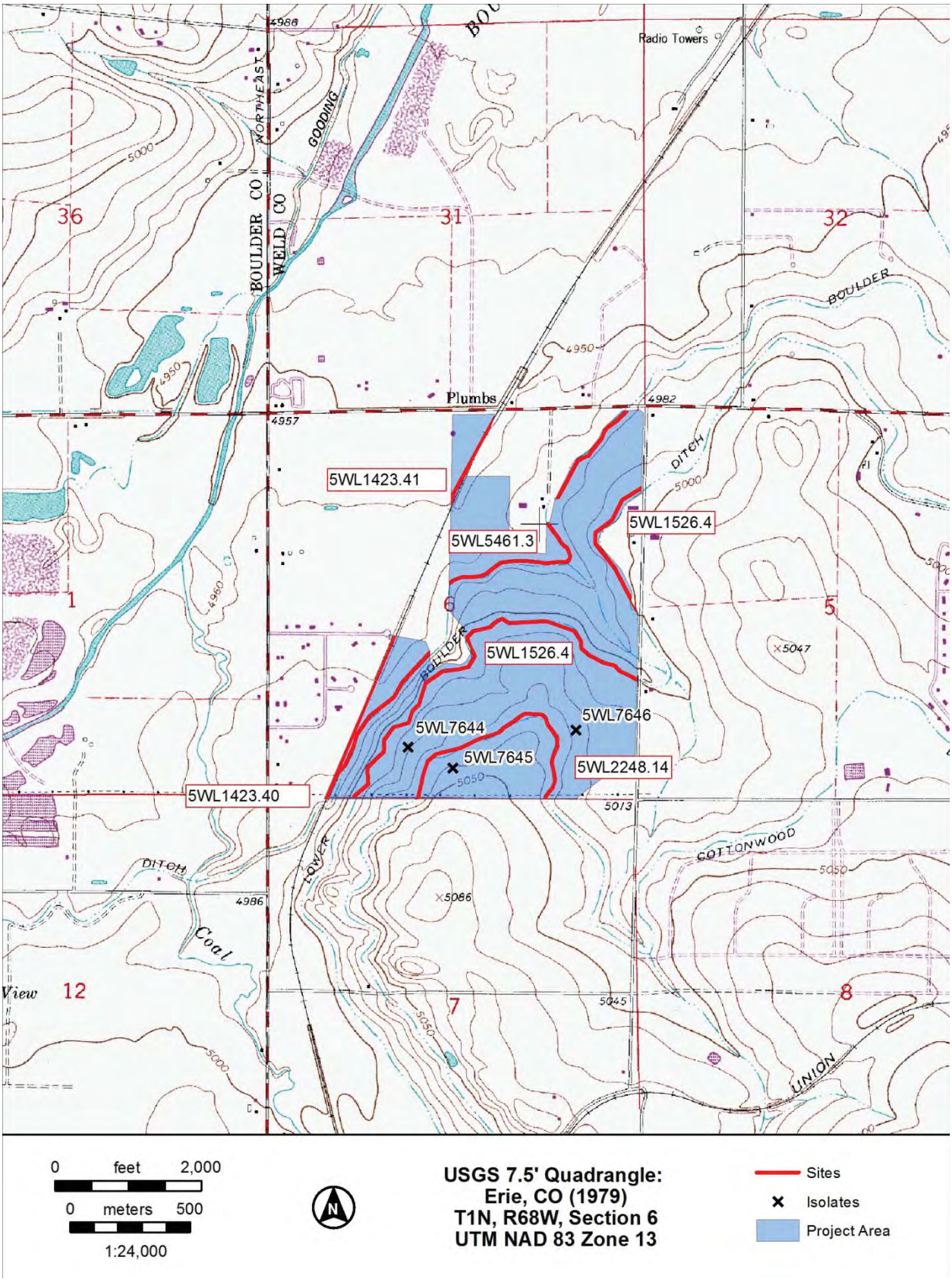
OAHP 1408
Rev. 11/10

This form is not to be used for phenomena that are eligible for the National Register or are part of the built environment. To be ***only*** used for phenomena that meet the requirements of the recorder's definition as provided below. A map at 1:24,000 scale with IF clearly plotted must be attached.

1. **Site Number**: 5WL7645
2. **Temporary Resource Number**: RS2
3. **County**: Weld
4. **Recorder's Definition of Isolated Find**: One or very few artifacts not representing patterned behavior or multiple artifacts that lack context and integrity of location (continued #18 below)
5. **PM** 6th **Township** 1N **Range** 68W **Section** 6 SE ¼ SW ¼
   If section is irregular, explain alignment method: alignment based on southwest section corner
6. **USGS Quad**: Erie, CO (1979)
7. **Elevation**: 5085 ft.
8. **UTM Coordinates**: Datum used ☐ NAD 27 ☑ NAD 83 ☐ WGS 84 Other:
   Zone: 13; 496048 mE 4435991 mN
9. **UTM Source**: ☑ Corrected GPS/rectified survey (<5m error) ☐ Uncorrected GPS ☐ Map template
   Other (explain):
10. **Landowner**: Private
11. **Describe Artifact(s) and their distribution**:
    This IF is a displaced historic artifact scatter within a plowed field. The artifacts manifest in a north-bending arc-shaped distribution, which is likely the result of displacement from agricultural activities. (continued on pg 2)
    ☐ No artifacts
12. **Describe Feature (include dimensions)**:
    ☑ No features
13. **Cultural Affiliation and Justification**: Presumably Euroamerican as this has been the dominant culture in this location.
14. **Time Period and Justification**: 1860-1960 based on artifact types (aqua glass and plastic) and historic occupation of the area.
15. **Relevant environmental information (e.g., elevation, topography, soils, vegetation, nearby water source)**:
    The artifact scatter is located in a young wheat field on a gentle hill slope with a northern aspect, south of a historic irrigation ditch. The soil is a medium brown sandy loam.
16. **Is this isolate located in a cultural landscape?** ☐ Yes ☑ No
    If yes, describe:
17. **Why is this isolated find not eligible for the National Register?**
    This artifact scatter is located in an active agricultural field and has been displaced as a result; therefore, this isolated find lacks integrity, especially location. The artifacts recorded are not diagnostic and the information potential has been exhausted.
18. **Additional Information (e.g., narrative, drawings, photographs, sketch map; attach extra pages if desired)**:
    continued from #4 above
    and do not represent a locus of interpretable patterned human behavior.
19. **Artifacts Collected?** ☐ Yes ☑ No
    If yes, provide repository information:
20. **Report Title and Project Number**: Class III Cultural Resource Survey of the Proposed Andalusia Residential Development, Weld County, Colorado
21. **Recorder and Affiliation**: R. Schwendler, James Enterprises, Inc.
    Date: 06/24/2014

11 continued from page 1

The scatter is dispersed and consists of five brick fragments, two china ware fragments, a light blue plastic cap or bottle base, one sandstone flagstone fragment, two aqua bottle glass pieces, one clear unknown glass piece, two stoneware jug fragments, and one zinc fastener or machinery part. The artifact scatter measures approximately 115 feet (35 m) north-south by 115 feet (35 m) east-west. No evidence of a structure, dump, or other feature or concentrated area of artifacts could be found although a deep pit filled with sediment, trees, and other vegetal debris is located about 131 feet (40 m) southeast of the IF.


5WL1423.41
5WL1526.4
5WL5461.3
5WL1526.4
5WL7644
5WL7646
5WL7645
5WL2248.14
5WL1423.40
Plumbs
Radio Towers
BOULDER CO
WELD CO
NORTHEAST
GOODING
DITCH
BOULDER
LOWER
COTTONWOOD
UNION
Coal
View
36
31
32
1
6
5
12
7
8
0 feet 2,000
0 meters 500
1:24,000
USGS 7.5' Quadrangle:
Erie, CO (1979)
T1N, R68W, Section 6
UTM NAD 83 Zone 13
Sites
Isolates
Project Area

COLORADO CULTURAL RESOURCE SURVEY

Archaeological Isolated Find/Feature Form

OAHP 1408
Rev. 11/10

This form is not to be used for phenomena that are eligible for the National Register or are part of the built environment. To be ***only*** used for phenomena that meet the requirements of the recorder's definition as provided below. A map at 1:24,000 scale with IF clearly plotted must be attached.

1. **Site Number**: 5WL7646
2. **Temporary Resource Number**: RS3
3. **County**: Weld
4. **Recorder's Definition of Isolated Find**: One or very few artifacts not representing patterned behavior or multiple artifacts that lack context and integrity of location (continued #18 below)
5. **PM** 6th **Township** 1N **Range** 68W **Section** 6 SE ¼ SE ¼
   If section is irregular, explain alignment method: alignment based on southwest section corner
6. **USGS Quad**: Erie, CO (1979)
7. **Elevation**: 5040 ft.
8. **UTM Coordinates**: Datum used ☐ NAD 27 ☑ NAD 83 ☐ WGS 84 Other:
   Zone: 13; 496562 mE 4436149 mN
9. **UTM Source**: ☑ Corrected GPS/rectified survey (<5m error) ☐ Uncorrected GPS ☐ Map template
   Other (explain):
10. **Landowner**: Private
11. **Describe Artifact(s) and their distribution**:

    This IF is a section of collapsed terra cotta irrigation pipe exposed in an open hole within a field containing young alfalfa. The pipe is 12 inches (30.5 cm) in diameter, runs east-west, (Continued on page 2)

    ☐ No artifacts
12. **Describe Feature (include dimensions)**:

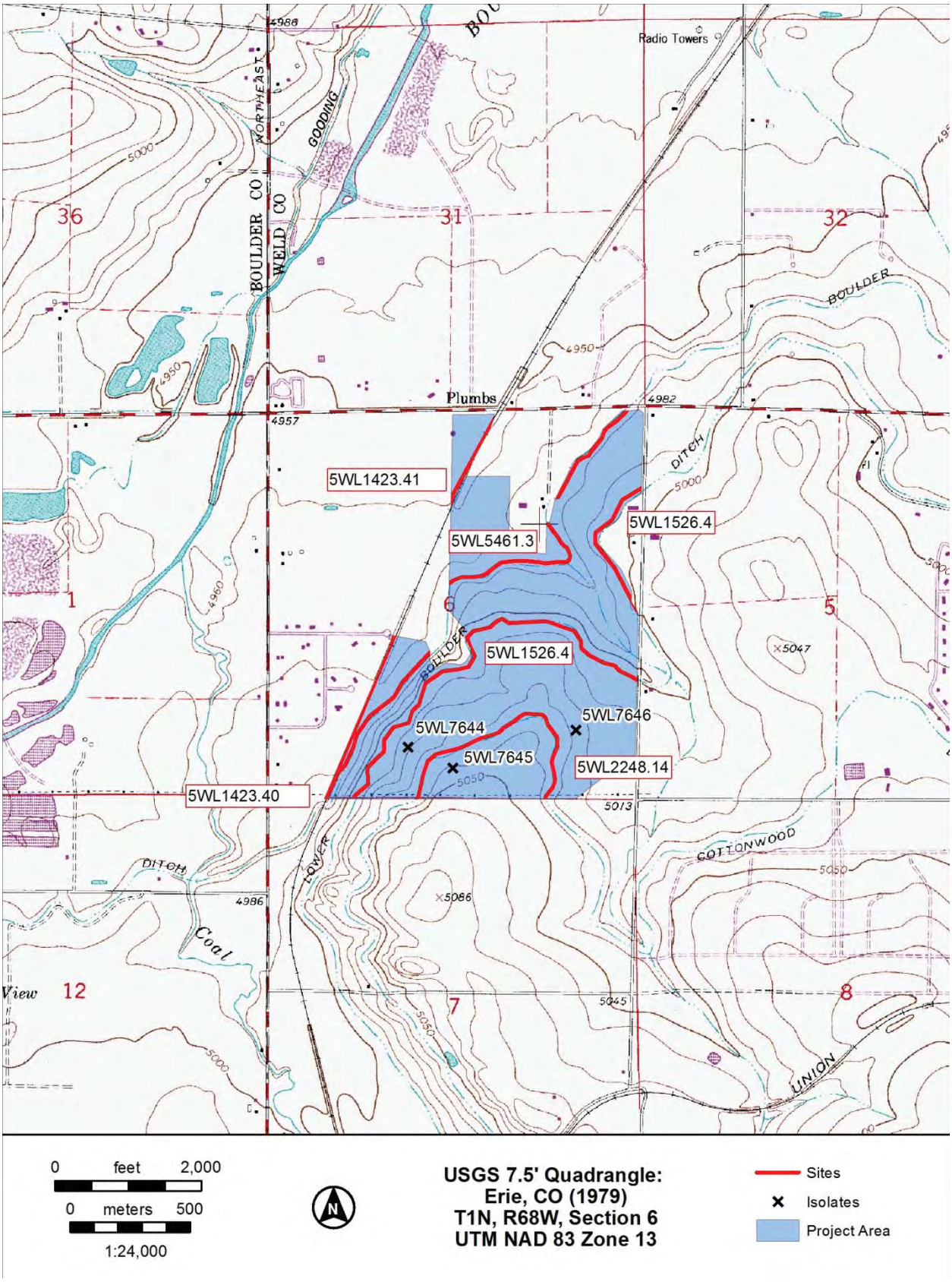
    ☑ No features
13. **Cultural Affiliation and Justification**: Presumably Euroamerican as this has been the dominant culture in this location.
14. **Time Period and Justification**: 1860-1960, based on settlement of the area
15. **Relevant environmental information (e.g., elevation, topography, soils, vegetation, nearby water source)**:

    The exposed pipe is located in a young alfalfa field with a gentle east slope, east of a historic irrigation ditch. The soil is a medium brown sandy loam.
16. **Is this isolate located in a cultural landscape?** ☐ Yes ☑ No
    If yes, describe:
17. **Why is this isolated find not eligible for the National Register?**

    This isolated find does not meet any of the NRHP criteria. Further investigation of this isolated find is unlikely to yield additional or important information about the history of the area.
18. **Additional Information (e.g., narrative, drawings, photographs, sketch map; attach extra pages if desired)**:

    continued from #4 above
    and do not represent a locus of interpretable patterned human behavior.
19. **Artifacts Collected?** ☐ Yes ☑ No
    If yes, provide repository information:
20. **Report Title and Project Number**: Class III Cultural Resource Survey of the Proposed Andalusia Residential Development, Weld County, Colorado
21. **Recorder and Affiliation**: R. Schwendler, James Enterprises, Inc.
    Date: 06/24/2014

11 continued from page 1
and is buried about 1 foot (0.3 m) below the ground surface. The open hole exposing the pipe measures about 3 × 4 feet (0.9 × 1.2 m) and may have been an access point for the pipe or a sink hole that formed when the pipe collapsed.


5WL1423.41
5WL1526.4
5WL5461.3
5WL1526.4
5WL7644
5WL7646
5WL7645
5WL2248.14
5WL1423.40
Plumbs
Radio Towers
BOULDER CO
WELD CO
NORTHEAST
GOODING
DITCH
BOULDER
LOWER
COTTONWOOD
UNION
Coal
View
36
31
32
1
6
5
12
7
8
0 feet 2,000
0 meters 500
1:24,000
USGS 7.5' Quadrangle:
Erie, CO (1979)
T1N, R68W, Section 6
UTM NAD 83 Zone 13
Sites
Isolates
Project Area

Ecological Resource Consultants, Inc.
2820 Wilderness Place Suite A Boulder CO 80301

March 26, 2021

Care of:
Corey Elliot
ME Erie, LLC
7353 S. Alton Way Ste. A-100
Centennial, CO 80112
coreye@e5xmanagement.com, 303 770-9111

RE: Tree Inventory – Andalusia Project – Tree Inventory, Erie, Colorado

Ecological Resource Consultants, Inc. (ERC) conducted an inventory of existing trees on the Site, located on the southwest of the intersection of Highway 52 and County Road 3 in Erie, Colorado (ERC Project Number 1000-2102). The purpose of the inventory was to locate and identify the species of trees present, measure the trunk diameter at breast height (dbh), measure the drip line, and evaluate the general health of the trees identified on and near the subject Site in accordance with Chapter 6 Section 10.6.2 of the Town of Erie Development Code.

General Site Description
The Site is approximately 313 acres in size and presently comprises agricultural fields, ditches, and open space. The north side of the Site is bound by Highway 52, the west side is bound by open space and residential development, the south by agricultural fields, and the east County Road 3.

Method
ERC performed the tree inventory on March 15, 16, 19, and 24, 2021. Weather was cold with clear skies and the trees had reproductive structures present. ERC inventoried each tree with a diameter of 6 inches and over by identifying the species, measuring the trunk diameter at breast height (dbh) (at approximately 54 inches above the ground) using a 20-foot diameter tape, measuring the drip line (measured as a radius from the trunk to the end of the outermost branch on the tree crown), and evaluating the general condition of each tree. Trees and shrubs with a dbh less than 6 inches were not included in the survey.

All trees inventoried were categorized into one of five groups: excellent, good, fair, poor, or very poor. The tree condition categories are defined as follows:

<u>Excellent</u>
- Healthy, vigorous tree.
- No apparent signs of insect, disease or mechanical injury.
- No corrective work required.
- Form representative of the species.

Good
- Better than average vigor.
- Little corrective work needed.
- Not quite perfect form.

Fair
- Average condition and vigor for the area.
- May be in need of some corrective pruning or repair.
- May lack desirable form characteristics of the species.
- May show minor insect injury, disease, or physiological problem.

Poor
- General state of decline.
- May show severe mechanical, insect or disease damage.
- Death not imminent.
- May require major repair or renovation.

Very Poor
- Includes "poor" above but is more extreme in that no amount of repair or renovation will lead to a desirable and sustainable tree. Costs would exceed any benefit.

Specific tree information is provided in the enclosed table titled **Table 1.- Existing On-Site Tree Inventory.** A Tree Inventory Map was prepared by ERC on base mapping provided by the client and is enclosed as **Figure 1.-Tree Inventory.** The mapping depicts the location of each tree and provides an identification number that corresponds to the tree described in the *Existing On-Site Tree Inventory* table. Tree species and health were verified by a licensed Certified Arborist on March 24, 2021.

Summary of Results

In total, 452 individual trees, composed of 8 separate species, were identified within the Site. The species include Siberian elm (*Ulmus pumila*), silver maple (*Acer saccharinum*), boxelder maple (*Acer negundo*), crack willow (*Salix fragilis*), plains cottonwood (*Populus deltoides*), Russian olive (*Elaeagnus angustifolia*), honey locust (*Gleditsia triacanthos*), and black locust (*Robinia pseudoacacia*). Trees on the Site are generally located within low lying depressions and adjacent to drainages. Generally, trees located within the landscape areas show no signs of regular maintenance. The condition of 445 of the trees was determined to be good. One (1) tree located on the Site was categorized as fair (i.e., undesirable form, minor insect injury or disease). Three (3) trees were considered to be in poor condition and three (3) trees were considered to be very poor. It is recommended that these trees be removed. Location of these trees can be seen in **Figure 1.- Tree Inventory**.

Native species (as listed by the US Department of Agriculture (USDA) PLANTS Database for Boulder County and Colorado) present on the Site include plains cottonwood, boxelder maple, black locust, and honey locust. Non-native species present on the site include Siberian elm, silver maple, Russian olive, and crack willow. During any future land use changes, landscape plans should utilize native, Boulder County approved tree species and remove or manage undesirable tree species.

Report completed by:

Ecological Resource Consultants, Inc.

Matthew Boyer, Ecologist

David J. Blauch, V.P., Senior Ecologist

Chris Becker, Certified Arborist (Contractor License # RM-0753A)
Schulhoff Tree and Lawn Care, Inc.
14200 W. 32nd Av
Golden, CO 80401
(303) 279-1910

Table 1. Andalusia Tree Inventory

ID#	Common Name	Scientific Name	DBH (in)	Drip Line (ft)	Condition	Comments or Recommendations
1	Box elder	*Acer negundo*	10.5	10.5	Good	Native to Colorado
2	Russian olive	*Elaeagnus angustifolia*	4.5	5	Good	Non-native to Colorado
3	Russian olive	*Elaeagnus angustifolia*	8	8	Good	Non-native to Colorado
4	Russian olive	*Elaeagnus angustifolia*	4	5	Good	Non-native to Colorado
5	Russian olive	*Elaeagnus angustifolia*	13	20	Good	Non-native to Colorado
6	Russian olive	*Elaeagnus angustifolia*	7.5	8	Good	Non-native to Colorado
7	Russian olive	*Elaeagnus angustifolia*	6	10	Good	Non-native to Colorado
8	Russian olive	*Elaeagnus angustifolia*	20	15	Good	Non-native to Colorado
9	Russian olive	*Elaeagnus angustifolia*	17.5	10	Good	Non-native to Colorado
10	Russian olive	*Elaeagnus angustifolia*	11	15	Good	Non-native to Colorado
11	Russian olive	*Elaeagnus angustifolia*	11	15	Good	Non-native to Colorado
12	Russian olive	*Elaeagnus angustifolia*	16	20	Good	Non-native to Colorado
13	Russian olive	*Elaeagnus angustifolia*	5	5	Good	Non-native to Colorado
14	Russian olive	*Elaeagnus angustifolia*	8.5	6	Good	Non-native to Colorado
15	Russian olive	*Elaeagnus angustifolia*	24	20	Good	Non-native to Colorado
16	Russian olive	*Elaeagnus angustifolia*	11	8	Good	Non-native to Colorado
17	Russian olive	*Elaeagnus angustifolia*	14	15	Good	Non-native to Colorado
18	Russian olive	*Elaeagnus angustifolia*	6.5	5	Good	Non-native to Colorado
19	Russian olive	*Elaeagnus angustifolia*	20.5	20	Good	Non-native to Colorado
20	Russian olive	*Elaeagnus angustifolia*	21	20	Good	Non-native to Colorado
21	Russian olive	*Elaeagnus angustifolia*	10.5	10	Good	Non-native to Colorado
22	Russian olive	*Elaeagnus angustifolia*	18	15	Good	Non-native to Colorado
23	Russian olive	*Elaeagnus angustifolia*	7.5	5	Good	Non-native to Colorado
24	Russian olive	*Elaeagnus angustifolia*	19	20	Good	Non-native to Colorado
25	Russian olive	*Elaeagnus angustifolia*	14.5	15	Good	Non-native to Colorado
26	Russian olive	*Elaeagnus angustifolia*	19	25	Good	Non-native to Colorado
27	Russian olive	*Elaeagnus angustifolia*	6	8	Good	Non-native to Colorado
28	Russian olive	*Elaeagnus angustifolia*	30.5	25	Good	Non-native to Colorado
29	Black locust	*Robinia pseudoacaia*	5.5	5	Good	Native to Colorado
30	Russian olive	*Elaeagnus angustifolia*	5	5	Good	Non-native to Colorado
31	Russian olive	*Elaeagnus angustifolia*	9	12	Good	Non-native to Colorado
32	Russian olive	*Elaeagnus angustifolia*	14	8	Good	Non-native to Colorado
33	Russian olive	*Elaeagnus angustifolia*	10.5	12	Good	Non-native to Colorado
34	Russian olive	*Elaeagnus angustifolia*	10	10	Good	Non-native to Colorado
35	Russian olive	*Elaeagnus angustifolia*	8.5	8	Good	Non-native to Colorado

36	Russian olive	*Elaeagnus angustifolia*	7	7	Good	Non-native to Colorado
37	Russian olive	*Elaeagnus angustifolia*	8	10	Good	Non-native to Colorado
38	Russian olive	*Elaeagnus angustifolia*	6.5	7	Good	Non-native to Colorado
39	Russian olive	*Elaeagnus angustifolia*	9	8	Good	Non-native to Colorado
40	Russian olive	*Elaeagnus angustifolia*	5.5	5	Good	Non-native to Colorado
41	Russian olive	*Elaeagnus angustifolia*	7.5	8	Good	Non-native to Colorado
42	Russian olive	*Elaeagnus angustifolia*	11.5	12	Good	Non-native to Colorado
43	Russian olive	*Elaeagnus angustifolia*	18	20	Good	Non-native to Colorado
44	Russian olive	*Elaeagnus angustifolia*	18.5	20	Good	Non-native to Colorado
45	Russian olive	*Elaeagnus angustifolia*	10	15	Good	Non-native to Colorado
46	Russian olive	*Elaeagnus angustifolia*	34.5	40	Good	Non-native to Colorado
47	Russian olive	*Elaeagnus angustifolia*	10.5	7	Good	Non-native to Colorado
48	Russian olive	*Elaeagnus angustifolia*	12	12	Good	Non-native to Colorado
49	Russian olive	*Elaeagnus angustifolia*	12.5	8	Good	Non-native to Colorado
50	Russian olive	*Elaeagnus angustifolia*	18.5	12	Good	Non-native to Colorado
51	Russian olive	*Elaeagnus angustifolia*	16	25	Good	Non-native to Colorado
52	Russian olive	*Elaeagnus angustifolia*	15.5	10	Good	Non-native to Colorado
53	Russian olive	*Elaeagnus angustifolia*	10	8	Good	Non-native to Colorado
54	Russian olive	*Elaeagnus angustifolia*	8	10	Good	Non-native to Colorado
55	Russian olive	*Elaeagnus angustifolia*	12	10	Good	Non-native to Colorado
56	Russian olive	*Elaeagnus angustifolia*	10.5	8	Good	Non-native to Colorado
57	Russian olive	*Elaeagnus angustifolia*	14	15	Good	Non-native to Colorado
58	Russian olive	*Elaeagnus angustifolia*	6.5	5	Good	Non-native to Colorado
59	Russian olive	*Elaeagnus angustifolia*	27.5	15	Good	Non-native to Colorado
60	Russian olive	*Elaeagnus angustifolia*	10	8	Good	Non-native to Colorado
61	Russian olive	*Elaeagnus angustifolia*	15	14	Good	Non-native to Colorado
62	Russian olive	*Elaeagnus angustifolia*	10.5	10	Good	Non-native to Colorado
63	Russian olive	*Elaeagnus angustifolia*	8.5	12	Good	Non-native to Colorado
64	Russian olive	*Elaeagnus angustifolia*	9.5	10	Good	Non-native to Colorado
65	Russian olive	*Elaeagnus angustifolia*	9	10	Good	Non-native to Colorado
66	Russian olive	*Elaeagnus angustifolia*	12.5	15	Good	Non-native to Colorado
67	Russian olive	*Elaeagnus angustifolia*	9	10	Good	Non-native to Colorado
68	Russian olive	*Elaeagnus angustifolia*	9.5	8	Good	Non-native to Colorado
69	Russian olive	*Elaeagnus angustifolia*	8	8	Good	Non-native to Colorado
70	Russian olive	*Elaeagnus angustifolia*	8.5	7	Good	Non-native to Colorado
71	Russian olive	*Elaeagnus angustifolia*	17.5	25	Good	Non-native to Colorado
72	Russian olive	*Elaeagnus angustifolia*	21	15	Good	Non-native to Colorado
73	Russian olive	*Elaeagnus angustifolia*	7.5	10	Good	Non-native to Colorado

74	Russian olive	*Elaeagnus angustifolia*	19.5	20	Good	Non-native to Colorado
75	Russian olive	*Elaeagnus angustifolia*	10	10	Good	Non-native to Colorado
76	Russian olive	*Elaeagnus angustifolia*	7	8	Good	Non-native to Colorado
77	Russian olive	*Elaeagnus angustifolia*	21.5	25	Good	Non-native to Colorado
78	Russian olive	*Elaeagnus angustifolia*	9	8	Good	Non-native to Colorado
79	Russian olive	*Elaeagnus angustifolia*	20.5	20	Good	Non-native to Colorado
80	Crack Willow	*Salix fragilis*	23.5	20	Good	Non-native to Colorado
81	Russian olive	*Elaeagnus angustifolia*	7.5	12	Good	Non-native to Colorado
82	Plains cottonwood	*Populus deltoides*	32.5	15	Good	Native to Colorado
83	Plains cottonwood	*Populus deltoides*	33.5	10	Good	Native to Colorado
84	Russian olive	*Elaeagnus angustifolia*	9.5	20	Good	Non-native to Colorado
85	Russian olive	*Elaeagnus angustifolia*	14.5	15	Good	Non-native to Colorado
86	Russian olive	*Elaeagnus angustifolia*	18	15	Good	Non-native to Colorado
87	Russian olive	*Elaeagnus angustifolia*	8.5	8.5	Good	Non-native to Colorado
88	Russian olive	*Elaeagnus angustifolia*	15.5	12	Good	Non-native to Colorado
89	Plains cottonwood	*Populus deltoides*	27.5	30	Good	Native to Colorado
90	Russian olive	*Elaeagnus angustifolia*	13.5	10	Good	Non-native to Colorado
91	Plains cottonwood	*Populus deltoides*	15	18	Good	Native to Colorado
92	Russian olive	*Elaeagnus angustifolia*	8	8	Good	Non-native to Colorado
93	Russian olive	*Elaeagnus angustifolia*	16.5	20	Good	Non-native to Colorado
94	Russian olive	*Elaeagnus angustifolia*	8	12	Good	Non-native to Colorado
95	Russian olive	*Elaeagnus angustifolia*	8.5	12	Good	Non-native to Colorado
96	Plains cottonwood	*Populus deltoides*	14.5	14	Good	Native to Colorado
97	Russian olive	*Elaeagnus angustifolia*	7.5	10	Good	Non-native to Colorado
98	Russian olive	*Elaeagnus angustifolia*	4.5	5	Good	Non-native to Colorado
99	Russian olive	*Elaeagnus angustifolia*	5.5	5	Good	Non-native to Colorado
100	Russian olive	*Elaeagnus angustifolia*	10	10	Good	Non-native to Colorado
101	Russian olive	*Elaeagnus angustifolia*	5	5	Good	Non-native to Colorado
102	Russian olive	*Elaeagnus angustifolia*	6.5	5	Good	Non-native to Colorado
103	Russian olive	*Elaeagnus angustifolia*	5	5	Good	Non-native to Colorado
104	Russian olive	*Elaeagnus angustifolia*	7.5	8	Good	Non-native to Colorado
105	Russian olive	*Elaeagnus angustifolia*	6	5	Good	Non-native to Colorado
106	Russian olive	*Elaeagnus angustifolia*	4	5	Good	Non-native to Colorado
107	Russian olive	*Elaeagnus angustifolia*	9	5	Good	Non-native to Colorado
108	Russian olive	*Elaeagnus angustifolia*	25	25	Good	Non-native to Colorado
109	Russian olive	*Elaeagnus angustifolia*	18	20	Good	Non-native to Colorado

110	Russian olive	*Elaeagnus angustifolia*	12.5	10	Good	Non-native to Colorado
111	Russian olive	*Elaeagnus angustifolia*	7.5	10	Good	Non-native to Colorado
112	Russian olive	*Elaeagnus angustifolia*	6	12	Good	Non-native to Colorado
113	Russian olive	*Elaeagnus angustifolia*	34	35	Dead	Non-native to Colorado
114	Russian olive	*Elaeagnus angustifolia*	16	12	Good	Non-native to Colorado
115	Russian olive	*Elaeagnus angustifolia*	15.5	10	Good	Non-native to Colorado
116	Russian olive	*Elaeagnus angustifolia*	4	10	Good	Non-native to Colorado
117	Russian olive	*Elaeagnus angustifolia*	36	27	Good	Non-native to Colorado
118	Russian olive	*Elaeagnus angustifolia*	31.5	30	Good	Non-native to Colorado
119	Russian olive	*Elaeagnus angustifolia*	32	35	Good	Non-native to Colorado
120	Russian olive	*Elaeagnus angustifolia*	9	15	Good	Non-native to Colorado
121	Russian olive	*Elaeagnus angustifolia*	11	18	Good	Non-native to Colorado
122	Russian olive	*Elaeagnus angustifolia*	29	15	Good	Non-native to Colorado
123	Russian olive	*Elaeagnus angustifolia*	12	15	Good	Non-native to Colorado
124	Russian olive	*Elaeagnus angustifolia*	15.5	15	Good	Non-native to Colorado
125	Russian olive	*Elaeagnus angustifolia*	11	20	Good	Non-native to Colorado
126	Russian olive	*Elaeagnus angustifolia*	19.5	15	Good	Non-native to Colorado
127	Russian olive	*Elaeagnus angustifolia*	13	12	Good	Non-native to Colorado
128	Russian olive	*Elaeagnus angustifolia*	12.5	10	Good	Non-native to Colorado
129	Russian olive	*Elaeagnus angustifolia*	22	25	Good	Non-native to Colorado
130	Russian olive	*Elaeagnus angustifolia*	5.5	5	Good	Non-native to Colorado
131	Russian olive	*Elaeagnus angustifolia*	14.5	18	Good	Non-native to Colorado
132	Russian olive	*Elaeagnus angustifolia*	7.5	8	Good	Non-native to Colorado
133	Russian olive	*Elaeagnus angustifolia*	9.5	10	Good	Non-native to Colorado
134	Russian olive	*Elaeagnus angustifolia*	18.5	15	Good	Non-native to Colorado
135	Russian olive	*Elaeagnus angustifolia*	10.5	12	Good	Non-native to Colorado
136	Russian olive	*Elaeagnus angustifolia*	22.5	15	Good	Non-native to Colorado
137	Russian olive	*Elaeagnus angustifolia*	10	10	Good	Non-native to Colorado
138	Russian olive	*Elaeagnus angustifolia*	12	17	Good	Non-native to Colorado
139	Russian olive	*Elaeagnus angustifolia*	23.5	25	Good	Non-native to Colorado
140	Russian olive	*Elaeagnus angustifolia*	20.5	30	Good	Non-native to Colorado
141	Russian olive	*Elaeagnus angustifolia*	22.5	30	Good	Non-native to Colorado
142	Russian olive	*Elaeagnus angustifolia*	12.5	15	Good	Non-native to Colorado
143	Russian olive	*Elaeagnus angustifolia*	25	20	Good	Non-native to Colorado
144	Russian olive	*Elaeagnus angustifolia*	11.5	10	Good	Non-native to Colorado
145	Russian olive	*Elaeagnus angustifolia*	41.5	30	Good	Non-native to Colorado
146	Russian olive	*Elaeagnus angustifolia*	24.5	30	Good	Non-native to Colorado
147	Plains cottonwood	*Populus deltoides*	66.5	60	Good	Native to Colorado

148	Russian olive	*Elaeagnus angustifolia*	6.5	15	Good	Non-native to Colorado
149	Russian olive	*Elaeagnus angustifolia*	18.5	30	Good	Non-native to Colorado
150	Russian olive	*Elaeagnus angustifolia*	23	35	Good	Non-native to Colorado
151	Honey locust	*Gleditsia triacanthos*	17.5	10	Good	Native to Colorado
152	Plains cottonwood	*Populus deltoides*	36	40	Good	Native to Colorado
153	Plains cottonwood	*Populus deltoides*	35.5	40	Good	Native to Colorado
154	Russian olive	*Elaeagnus angustifolia*	7.5	10	Good	Non-native to Colorado
155	Russian olive	*Elaeagnus angustifolia*	7.5	15	Good	Non-native to Colorado
156	Russian olive	*Elaeagnus angustifolia*	4.5	5	Good	Non-native to Colorado
157	Plains cottonwood	*Populus deltoides*	6	5	Good	Native to Colorado
158	Russian olive	*Elaeagnus angustifolia*	13	5	Poor	Non-native to Colorado
159	Plains cottonwood	*Populus deltoides*	44	45	Good	Native to Colorado
160	Plains cottonwood	*Populus deltoides*	26	0	Poor	Native to Colorado
161	Russian olive	*Elaeagnus angustifolia*	6.5	8	Dead	Non-native to Colorado
162	Russian olive	*Elaeagnus angustifolia*	7.5	8	Good	Non-native to Colorado
163	Plains cottonwood	*Populus deltoides*	6.5	7	Good	Native to Colorado
164	Russian olive	*Elaeagnus angustifolia*	7	8	Good	Non-native to Colorado
165	Russian olive	*Elaeagnus angustifolia*	5	8	Good	Non-native to Colorado
166	Russian olive	*Elaeagnus angustifolia*	8	7	Good	Non-native to Colorado
167	Plains cottonwood	*Populus deltoides*	5	5	Good	Native to Colorado
168	Russian olive	*Elaeagnus angustifolia*	4.5	5	Good	Non-native to Colorado
169	Russian olive	*Elaeagnus angustifolia*	7.5	15	Good	Non-native to Colorado
170	Russian olive	*Elaeagnus angustifolia*	17	20	Good	Non-native to Colorado
171	Russian olive	*Elaeagnus angustifolia*	15.5	15	Good	Non-native to Colorado
172	Russian olive	*Elaeagnus angustifolia*	9.5	12	Good	Non-native to Colorado
173	Russian olive	*Elaeagnus angustifolia*	13	15	Good	Non-native to Colorado
174	Russian olive	*Elaeagnus angustifolia*	11.5	15	Good	Non-native to Colorado
175	Russian olive	*Elaeagnus angustifolia*	12	10	Good	Non-native to Colorado
176	Russian olive	*Elaeagnus angustifolia*	6.5	12	Good	Non-native to Colorado
177	Russian olive	*Elaeagnus angustifolia*	7	12	Good	Non-native to Colorado
178	Russian olive	*Elaeagnus angustifolia*	4.5	7	Good	Non-native to Colorado
179	Russian olive	*Elaeagnus angustifolia*	4	7	Good	Non-native to Colorado
180	Russian olive	*Elaeagnus angustifolia*	6.5	8	Good	Non-native to Colorado
181	Russian olive	*Elaeagnus angustifolia*	10.5	15	Good	Non-native to Colorado
182	Russian olive	*Elaeagnus angustifolia*	15.5	12	Good	Non-native to Colorado

183	Russian olive	*Elaeagnus angustifolia*	8	10	Good	Non-native to Colorado
184	Russian olive	*Elaeagnus angustifolia*	6.5	8	Good	Non-native to Colorado
185	Russian olive	*Elaeagnus angustifolia*	10	12	Good	Non-native to Colorado
186	Russian olive	*Elaeagnus angustifolia*	11.5	14	Good	Non-native to Colorado
187	Russian olive	*Elaeagnus angustifolia*	7	8	Good	Non-native to Colorado
188	Russian olive	*Elaeagnus angustifolia*	5	8	Good	Non-native to Colorado
189	Russian olive	*Elaeagnus angustifolia*	8	10	Good	Non-native to Colorado
190	Russian olive	*Elaeagnus angustifolia*	4.5	5	Good	Non-native to Colorado
191	Russian olive	*Elaeagnus angustifolia*	8	6	Good	Non-native to Colorado
192	Russian olive	*Elaeagnus angustifolia*	10	6	Good	Non-native to Colorado
193	Russian olive	*Elaeagnus angustifolia*	8.5	10	Good	Non-native to Colorado
194	Russian olive	*Elaeagnus angustifolia*	5	4	Dead	Non-native to Colorado
195	Russian olive	*Elaeagnus angustifolia*	17	15	Good	Non-native to Colorado
196	Russian olive	*Elaeagnus angustifolia*	6.5	10	Good	Non-native to Colorado
197	Russian olive	*Elaeagnus angustifolia*	9	14	Good	Non-native to Colorado
198	Russian olive	*Elaeagnus angustifolia*	16.5	15	Good	Non-native to Colorado
199	Russian olive	*Elaeagnus angustifolia*	14.5	15	Good	Non-native to Colorado
200	Russian olive	*Elaeagnus angustifolia*	9	17	Good	Non-native to Colorado
201	Russian olive	*Elaeagnus angustifolia*	6.5	10	Good	Non-native to Colorado
202	Russian olive	*Elaeagnus angustifolia*	24	28	Good	Non-native to Colorado
203	Russian olive	*Elaeagnus angustifolia*	21.5	25	Good	Non-native to Colorado
204	Russian olive	*Elaeagnus angustifolia*	11.5	10	Good	Non-native to Colorado
205	Russian olive	*Elaeagnus angustifolia*	7.5	8	Good	Non-native to Colorado
206	Russian olive	*Elaeagnus angustifolia*	12	14	Good	Non-native to Colorado
207	Russian olive	*Elaeagnus angustifolia*	13	12	Good	Non-native to Colorado
208	Russian olive	*Elaeagnus angustifolia*	7.5	8	Good	Non-native to Colorado
209	Russian olive	*Elaeagnus angustifolia*	28.5	20	Good	Non-native to Colorado
210	Russian olive	*Elaeagnus angustifolia*	5.5	7	Good	Non-native to Colorado
211	Russian olive	*Elaeagnus angustifolia*	16	12	Good	Non-native to Colorado
212	Russian olive	*Elaeagnus angustifolia*	17	25	Good	Non-native to Colorado
213	Russian olive	*Elaeagnus angustifolia*	14.5	12	Good	Non-native to Colorado
214	Russian olive	*Elaeagnus angustifolia*	17	17	Good	Non-native to Colorado
215	Russian olive	*Elaeagnus angustifolia*	4.5	5	Good	Non-native to Colorado
216	Russian olive	*Elaeagnus angustifolia*	6.5	7	Good	Non-native to Colorado
217	Russian olive	*Elaeagnus angustifolia*	8	8	Good	Non-native to Colorado
218	Russian olive	*Elaeagnus angustifolia*	9	10	Good	Non-native to Colorado
219	Russian olive	*Elaeagnus angustifolia*	9	8	Good	Non-native to Colorado
220	Russian olive	*Elaeagnus angustifolia*	5	6	Good	Non-native to Colorado

221	Russian olive	*Elaeagnus angustifolia*	8.5	10	Good	Non-native to Colorado
222	Russian olive	*Elaeagnus angustifolia*	40.5	25	Good	Non-native to Colorado
223	Russian olive	*Elaeagnus angustifolia*	6.5	8	Good	Non-native to Colorado
224	Russian olive	*Elaeagnus angustifolia*	8	8	Good	Non-native to Colorado
225	Russian olive	*Elaeagnus angustifolia*	4.5	5	Good	Non-native to Colorado
226	Russian olive	*Elaeagnus angustifolia*	11	10	Good	Non-native to Colorado
227	Russian olive	*Elaeagnus angustifolia*	5.5	5	Good	Non-native to Colorado
228	Russian olive	*Elaeagnus angustifolia*	15.5	14	Good	Non-native to Colorado
229	Russian olive	*Elaeagnus angustifolia*	6	5	Good	Non-native to Colorado
230	Russian olive	*Elaeagnus angustifolia*	16.5	12	Good	Non-native to Colorado
231	Russian olive	*Elaeagnus angustifolia*	5.5	5	Good	Non-native to Colorado
232	Russian olive	*Elaeagnus angustifolia*	15	12	Good	Non-native to Colorado
233	Russian olive	*Elaeagnus angustifolia*	11.5	15	Good	Non-native to Colorado
234	Russian olive	*Elaeagnus angustifolia*	4.5	5	Good	Non-native to Colorado
235	Russian olive	*Elaeagnus angustifolia*	14.5	12	Good	Non-native to Colorado
236	Russian olive	*Elaeagnus angustifolia*	4	5	Poor	Non-native to Colorado
237	Russian olive	*Elaeagnus angustifolia*	12	10	Good	Non-native to Colorado
238	Russian olive	*Elaeagnus angustifolia*	8.5	8	Good	Non-native to Colorado
239	Russian olive	*Elaeagnus angustifolia*	9.5	12	Good	Non-native to Colorado
240	Russian olive	*Elaeagnus angustifolia*	7.5	8	Good	Non-native to Colorado
241	Russian olive	*Elaeagnus angustifolia*	6	7	Good	Non-native to Colorado
242	Russian olive	*Elaeagnus angustifolia*	10.5	9	Good	Non-native to Colorado
243	Russian olive	*Elaeagnus angustifolia*	5	5	Good	Non-native to Colorado
244	Russian olive	*Elaeagnus angustifolia*	9.5	8	Good	Non-native to Colorado
245	Russian olive	*Elaeagnus angustifolia*	10	12	Good	Non-native to Colorado
246	Russian olive	*Elaeagnus angustifolia*	6	8	Good	Non-native to Colorado
247	Russian olive	*Elaeagnus angustifolia*	5	6	Good	Non-native to Colorado
248	Russian olive	*Elaeagnus angustifolia*	6.5	5	Good	Non-native to Colorado
249	Russian olive	*Elaeagnus angustifolia*	7	8	Good	Non-native to Colorado
250	Russian olive	*Elaeagnus angustifolia*	14.5	12	Good	Non-native to Colorado
251	Russian olive	*Elaeagnus angustifolia*	20	18	Good	Non-native to Colorado
252	Russian olive	*Elaeagnus angustifolia*	7.5	7	Good	Non-native to Colorado
253	Russian olive	*Elaeagnus angustifolia*	50.5	7	Good	Non-native to Colorado
254	Russian olive	*Elaeagnus angustifolia*	5	5	Good	Non-native to Colorado
255	Russian olive	*Elaeagnus angustifolia*	6	6	Good	Non-native to Colorado
256	Russian olive	*Elaeagnus angustifolia*	6.5	7	Good	Non-native to Colorado
257	Russian olive	*Elaeagnus angustifolia*	6	6	Good	Non-native to Colorado
258	Plains cottonwood	*Populus deltoides*	7	10	Good	Native to Colorado

259	Plains cottonwood	*Populus deltoides*	6.5	5	Good	Native to Colorado
260	Plains cottonwood	*Populus deltoides*	17	5	Good	Native to Colorado
261	Russian olive	*Elaeagnus angustifolia*	4.5	10	Good	Non-native to Colorado
262	Russian olive	*Elaeagnus angustifolia*	6	15	Good	Non-native to Colorado
263	Russian olive	*Elaeagnus angustifolia*	11.5	8	Good	Non-native to Colorado
264	Russian olive	*Elaeagnus angustifolia*	10	8	Good	Non-native to Colorado
265	Russian olive	*Elaeagnus angustifolia*	6	10	Good	Non-native to Colorado
266	Russian olive	*Elaeagnus angustifolia*	9.5	10	Good	Non-native to Colorado
267	Russian olive	*Elaeagnus angustifolia*	11	10	Good	Non-native to Colorado
268	Russian olive	*Elaeagnus angustifolia*	7	7	Good	Non-native to Colorado
269	Russian olive	*Elaeagnus angustifolia*	8	9	Good	Non-native to Colorado
270	Russian olive	*Elaeagnus angustifolia*	10	12	Good	Non-native to Colorado
271	Russian olive	*Elaeagnus angustifolia*	15.5	15	Good	Non-native to Colorado
272	Russian olive	*Elaeagnus angustifolia*	16.5	15	Good	Non-native to Colorado
273	Russian olive	*Elaeagnus angustifolia*	6.5	8	Good	Non-native to Colorado
274	Russian olive	*Elaeagnus angustifolia*	8.5	8	Good	Non-native to Colorado
275	Russian olive	*Elaeagnus angustifolia*	7	9	Good	Non-native to Colorado
276	Russian olive	*Elaeagnus angustifolia*	13	18	Good	Non-native to Colorado
277	Russian olive	*Elaeagnus angustifolia*	8.5	12	Good	Non-native to Colorado
278	Russian olive	*Elaeagnus angustifolia*	4	5	Good	Non-native to Colorado
279	Russian olive	*Elaeagnus angustifolia*	6.5	10	Good	Non-native to Colorado
280	Russian olive	*Elaeagnus angustifolia*	5	8	Good	Non-native to Colorado
281	Russian olive	*Elaeagnus angustifolia*	8	10	Good	Non-native to Colorado
282	Russian olive	*Elaeagnus angustifolia*	10.5	12	Good	Non-native to Colorado
283	Russian olive	*Elaeagnus angustifolia*	6	7	Good	Non-native to Colorado
284	Russian olive	*Elaeagnus angustifolia*	11.5	10	Good	Non-native to Colorado
285	Russian olive	*Elaeagnus angustifolia*	8	5	Good	Non-native to Colorado
286	Russian olive	*Elaeagnus angustifolia*	10	5	Good	Non-native to Colorado
287	Russian olive	*Elaeagnus angustifolia*	5.5	5	Good	Non-native to Colorado
288	Plains cottonwood	*Populus deltoides*	8	8	Fair	Native to Colorado
289	Russian olive	*Elaeagnus angustifolia*	8.5	10	Good	Non-native to Colorado
290	Plains cottonwood	*Populus deltoides*	4	5	Good	Native to Colorado
291	Plains cottonwood	*Populus deltoides*	8	10	Good	Native to Colorado
292	Plains cottonwood	*Populus deltoides*	7	10	Good	Native to Colorado
293	Plains cottonwood	*Populus deltoides*	10	15	Good	Native to Colorado

294	Plains cottonwood	*Populus deltoides*	15	14	Good	Native to Colorado
295	Plains cottonwood	*Populus deltoides*	4	8	Good	Native to Colorado
296	Plains cottonwood	*Populus deltoides*	6	8	Good	Native to Colorado
297	Plains cottonwood	*Populus deltoides*	7	6	Good	Native to Colorado
298	Plains cottonwood	*Populus deltoides*	44	65	Good	Native to Colorado
299	Russian olive	*Elaeagnus angustifolia*	35	45	Good	Non-native to Colorado
300	Russian olive	*Elaeagnus angustifolia*	26	30	Good	Non-native to Colorado
301	Russian olive	*Elaeagnus angustifolia*	38.5	28	Good	Non-native to Colorado
302	Russian olive	*Elaeagnus angustifolia*	24.5	30	Good	Non-native to Colorado
303	Russian olive	*Elaeagnus angustifolia*	29	30	Good	Non-native to Colorado
304	Russian olive	*Elaeagnus angustifolia*	28	25	Good	Non-native to Colorado
305	Russian olive	*Elaeagnus angustifolia*	16.5	18	Good	Non-native to Colorado
306	Russian olive	*Elaeagnus angustifolia*	8	15	Good	Non-native to Colorado
307	Russian olive	*Elaeagnus angustifolia*	18	20	Good	Non-native to Colorado
308	Russian olive	*Elaeagnus angustifolia*	7.5	10	Good	Non-native to Colorado
309	Russian olive	*Elaeagnus angustifolia*	9	12	Good	Non-native to Colorado
310	Russian olive	*Elaeagnus angustifolia*	9.5	12	Good	Non-native to Colorado
311	Russian olive	*Elaeagnus angustifolia*	11.5	15	Good	Non-native to Colorado
312	Russian olive	*Elaeagnus angustifolia*	25.5	20	Good	Non-native to Colorado
313	Russian olive	*Elaeagnus angustifolia*	8	10	Good	Non-native to Colorado
314	Russian olive	*Elaeagnus angustifolia*	9	10	Good	Non-native to Colorado
315	Russian olive	*Elaeagnus angustifolia*	4	5	Good	Non-native to Colorado
316	Russian olive	*Elaeagnus angustifolia*	14.5	15	Good	Non-native to Colorado
317	Russian olive	*Elaeagnus angustifolia*	12.5	15	Good	Non-native to Colorado
318	Russian olive	*Elaeagnus angustifolia*	11.5	10	Good	Non-native to Colorado
319	Russian olive	*Elaeagnus angustifolia*	15	24	Good	Non-native to Colorado
320	Russian olive	*Elaeagnus angustifolia*	9.5	8	Good	Non-native to Colorado
321	Russian olive	*Elaeagnus angustifolia*	9.5	12	Good	Non-native to Colorado
322	Russian olive	*Elaeagnus angustifolia*	6.5	8	Good	Non-native to Colorado
323	Russian olive	*Elaeagnus angustifolia*	4	5	Good	Non-native to Colorado
324	Russian olive	*Elaeagnus angustifolia*	4.5	5	Good	Non-native to Colorado
325	Russian olive	*Elaeagnus angustifolia*	8.5	12	Good	Non-native to Colorado
326	Russian olive	*Elaeagnus angustifolia*	5	5	Good	Non-native to Colorado
327	Russian olive	*Elaeagnus angustifolia*	5.5	8	Good	Non-native to Colorado
328	Russian olive	*Elaeagnus angustifolia*	10.5	10	Good	Non-native to Colorado
329	Silver maple	*Acer saccharinum*	15.5	18	Good	Non-native to Colorado

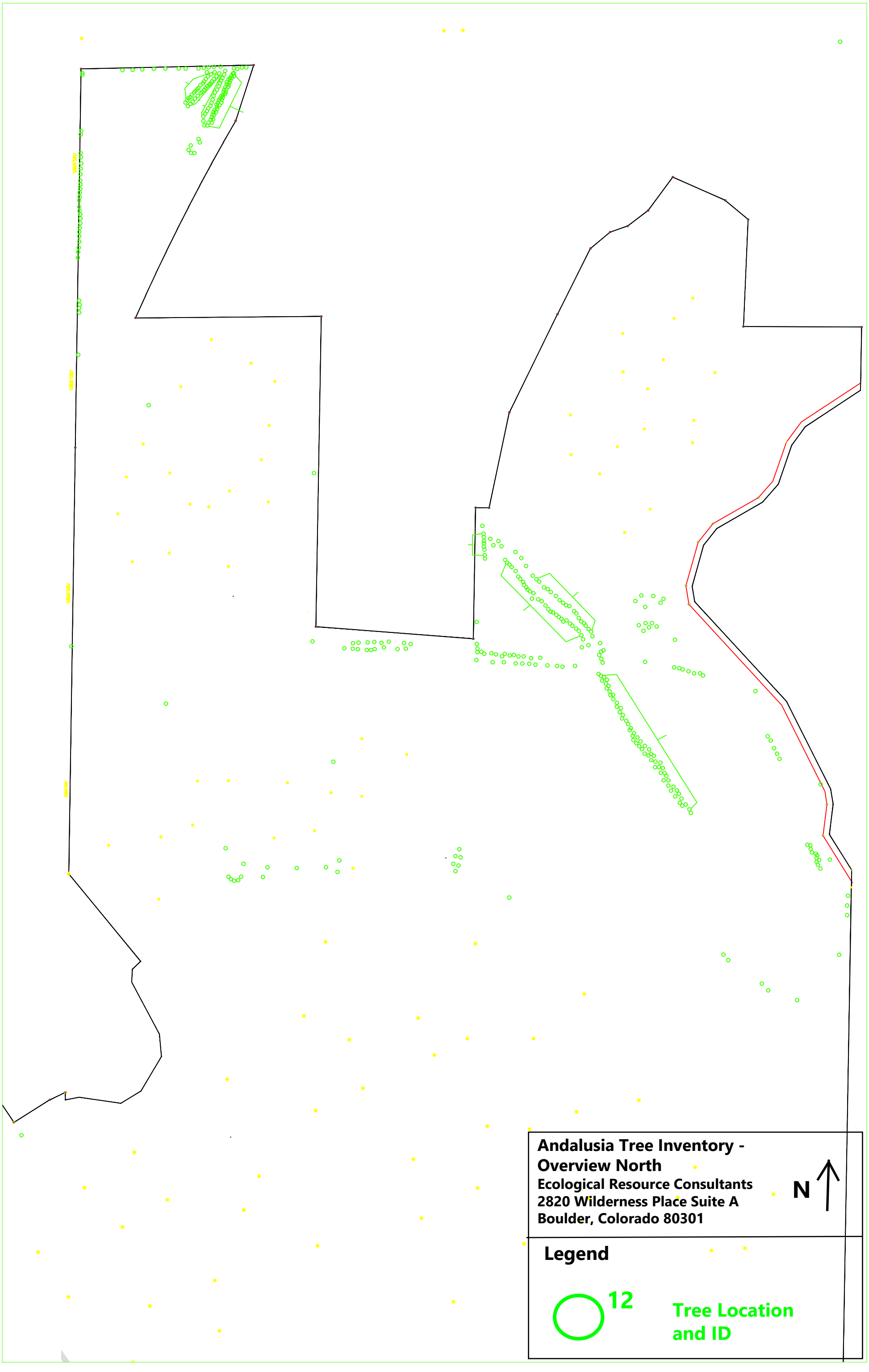
330	Russian olive	*Elaeagnus angustifolia*	5.5	5	Good	Non-native to Colorado
331	Russian olive	*Elaeagnus angustifolia*	24.5	25	Good	Non-native to Colorado
332	Plains cottonwood	*Populus deltoides*	42	40	Good	Native to Colorado
333	Plains cottonwood	*Populus deltoides*	10	15	Good	Native to Colorado
334	Plains cottonwood	*Populus deltoides*	8	15	Good	Native to Colorado
335	Plains cottonwood	*Populus deltoides*	13	15	Good	Native to Colorado
336	Plains cottonwood	*Populus deltoides*	81	85	Good	Native to Colorado
337	Plains cottonwood	*Populus deltoides*	15	18	Good	Native to Colorado
338	Plains cottonwood	*Populus deltoides*	12	15	Good	Native to Colorado
339	Plains cottonwood	*Populus deltoides*	11	15	Good	Native to Colorado
340	Plains cottonwood	*Populus deltoides*	4.5	5	Good	Native to Colorado
341	Russian olive	*Elaeagnus angustifolia*	8	8	Good	Non-native to Colorado
342	Plains cottonwood	*Populus deltoides*	5	5	Good	Native to Colorado
343	Plains cottonwood	*Populus deltoides*	9	12	Good	Native to Colorado
344	Plains cottonwood	*Populus deltoides*	4.5	7	Good	Native to Colorado
345	Plains cottonwood	*Populus deltoides*	65	48	Good	Native to Colorado
346	Russian olive	*Elaeagnus angustifolia*	12	12	Good	Non-native to Colorado
347	Russian olive	*Elaeagnus angustifolia*	29.5	20	Good	Non-native to Colorado
348	Russian olive	*Elaeagnus angustifolia*	31	20	Good	Non-native to Colorado
349	Russian olive	*Elaeagnus angustifolia*	30.5	31	Good	Non-native to Colorado
350	Russian olive	*Elaeagnus angustifolia*	8	9	Good	Non-native to Colorado
351	Russian olive	*Elaeagnus angustifolia*	16.5	15	Good	Non-native to Colorado
352	Russian olive	*Elaeagnus angustifolia*	7.5	12	Good	Non-native to Colorado
353	Russian olive	*Elaeagnus angustifolia*	11	10	Good	Non-native to Colorado
354	Russian olive	*Elaeagnus angustifolia*	17.5	20	Good	Non-native to Colorado
355	Russian olive	*Elaeagnus angustifolia*	6	8	Good	Non-native to Colorado
356	Russian olive	*Elaeagnus angustifolia*	21	25	Good	Non-native to Colorado
357	Russian olive	*Elaeagnus angustifolia*	8	9	Good	Non-native to Colorado
358	Russian olive	*Elaeagnus angustifolia*	13.5	18	Good	Non-native to Colorado
359	Russian olive	*Elaeagnus angustifolia*	18	20	Good	Non-native to Colorado
360	Russian olive	*Elaeagnus angustifolia*	16.5	15	Good	Non-native to Colorado

361	Russian olive	*Elaeagnus angustifolia*	9	12	Good	Non-native to Colorado
362	Russian olive	*Elaeagnus angustifolia*	38	34	Good	Non-native to Colorado
363	Russian olive	*Elaeagnus angustifolia*	13	14	Good	Non-native to Colorado
364	Russian olive	*Elaeagnus angustifolia*	12.5	15	Good	Non-native to Colorado
365	Russian olive	*Elaeagnus angustifolia*	8.5	9	Good	Non-native to Colorado
366	Russian olive	*Elaeagnus angustifolia*	20	28	Good	Non-native to Colorado
367	Russian olive	*Elaeagnus angustifolia*	7.5	15	Good	Non-native to Colorado
368	Russian olive	*Elaeagnus angustifolia*	5	7	Good	Non-native to Colorado
369	Russian olive	*Elaeagnus angustifolia*	13.5	12	Good	Non-native to Colorado
370	Russian olive	*Elaeagnus angustifolia*	15	15	Good	Non-native to Colorado
371	Russian olive	*Elaeagnus angustifolia*	12	15	Good	Non-native to Colorado
372	Russian olive	*Elaeagnus angustifolia*	10.5	10	Good	Non-native to Colorado
373	Russian olive	*Elaeagnus angustifolia*	14.5	18	Good	Non-native to Colorado
374	Russian olive	*Elaeagnus angustifolia*	9.5	10	Good	Non-native to Colorado
375	Russian olive	*Elaeagnus angustifolia*	8	10	Good	Non-native to Colorado
376	Russian olive	*Elaeagnus angustifolia*	11.5	12	Good	Non-native to Colorado
377	Siberian elm	*Ulmus pumila*	18	20	Good	Non-native to Colorado
378	Russian olive	*Elaeagnus angustifolia*	9	10	Good	Non-native to Colorado
379	Russian olive	*Elaeagnus angustifolia*	19	25	Good	Non-native to Colorado
380	Russian olive	*Elaeagnus angustifolia*	18	18	Good	Non-native to Colorado
381	Russian olive	*Elaeagnus angustifolia*	28.5	28	Good	Non-native to Colorado
382	Russian olive	*Elaeagnus angustifolia*	20	20	Good	Non-native to Colorado
383	Russian olive	*Elaeagnus angustifolia*	29	25	Good	Non-native to Colorado
384	Russian olive	*Elaeagnus angustifolia*	26.5	28	Good	Non-native to Colorado
385	Russian olive	*Elaeagnus angustifolia*	32.5	35	Good	Non-native to Colorado
386	Russian olive	*Elaeagnus angustifolia*	9	10	Good	Non-native to Colorado
387	Russian olive	*Elaeagnus angustifolia*	32	25	Good	Non-native to Colorado
388	Russian olive	*Elaeagnus angustifolia*	6.5	8	Good	Non-native to Colorado
389	Russian olive	*Elaeagnus angustifolia*	43.5	35	Good	Non-native to Colorado
390	Russian olive	*Elaeagnus angustifolia*	48	30	Good	Non-native to Colorado
391	Russian olive	*Elaeagnus angustifolia*	52.5	35	Good	Non-native to Colorado
392	Russian olive	*Elaeagnus angustifolia*	58	25	Good	Non-native to Colorado
393	Russian olive	*Elaeagnus angustifolia*	38	20	Good	Non-native to Colorado
394	Russian olive	*Elaeagnus angustifolia*	42	20	Good	Non-native to Colorado
395	Russian olive	*Elaeagnus angustifolia*	40.5	30	Good	Non-native to Colorado
396	Russian olive	*Elaeagnus angustifolia*	20.5	18	Good	Non-native to Colorado
397	Russian olive	*Elaeagnus angustifolia*	8	6	Good	Non-native to Colorado
398	Russian olive	*Elaeagnus angustifolia*	17.5	15	Good	Non-native to Colorado

399	Plains cottonwood	*Populus deltoides*	52	35	Good	Native to Colorado
400	Plains cottonwood	*Populus deltoides*	29	25	Good	Native to Colorado
401	Plains cottonwood	*Populus deltoides*	39	30	Good	Native to Colorado
402	Russian olive	*Elaeagnus angustifolia*	6.5	8	Good	Non-native to Colorado
403	Russian olive	*Elaeagnus angustifolia*	5	6	Good	Non-native to Colorado
404	Russian olive	*Elaeagnus angustifolia*	7.5	10	Good	Non-native to Colorado
405	Russian olive	*Elaeagnus angustifolia*	14.5	15	Good	Non-native to Colorado
406	Russian olive	*Elaeagnus angustifolia*	22	25	Good	Non-native to Colorado
407	Plains cottonwood	*Populus deltoides*	65	25	Good	Native to Colorado
408	Plains cottonwood	*Populus deltoides*	36	25	Good	Native to Colorado
409	Plains cottonwood	*Populus deltoides*	72.5	25	Good	Native to Colorado
410	Russian olive	*Elaeagnus angustifolia*	33	30	Good	Non-native to Colorado
411	Russian olive	*Elaeagnus angustifolia*	28	20	Good	Non-native to Colorado
412	Russian olive	*Elaeagnus angustifolia*	13.5	25	Good	Non-native to Colorado
413	Plains cottonwood	*Populus deltoides*	63	45	Good	Native to Colorado
414	Plains cottonwood	*Populus deltoides*	53.5	50	Good	Non-native to Colorado
415	Russian olive	*Elaeagnus angustifolia*	15.5	15	Good	Non-native to Colorado
416	Russian olive	*Elaeagnus angustifolia*	12.5	12	Good	Non-native to Colorado
417	Russian olive	*Elaeagnus angustifolia*	13.5	12	Good	Non-native to Colorado
418	Russian olive	*Elaeagnus angustifolia*	45.5	40	Good	Non-native to Colorado
419	Russian olive	*Elaeagnus angustifolia*	13.5	20	Good	Non-native to Colorado
420	Russian olive	*Elaeagnus angustifolia*	33	40	Good	Non-native to Colorado
421	Russian olive	*Elaeagnus angustifolia*	16.5	15	Good	Non-native to Colorado
422	Russian olive	*Elaeagnus angustifolia*	11.5	12	Good	Non-native to Colorado
423	Russian olive	*Elaeagnus angustifolia*	22.5	25	Good	Non-native to Colorado
424	Russian olive	*Elaeagnus angustifolia*	37.5	35	Good	Non-native to Colorado
425	Russian olive	*Elaeagnus angustifolia*	25	24	Good	Non-native to Colorado
426	Russian olive	*Elaeagnus angustifolia*	18	24	Good	Non-native to Colorado
427	Russian olive	*Elaeagnus angustifolia*	23.5	24	Good	Non-native to Colorado
428	Russian olive	*Elaeagnus angustifolia*	35.5	35	Good	Non-native to Colorado
429	Russian olive	*Elaeagnus angustifolia*	27.5	25	Good	Non-native to Colorado
430	Russian olive	*Elaeagnus angustifolia*	19.5	12	Good	Non-native to Colorado
431	Russian olive	*Elaeagnus angustifolia*	34.5	38	Good	Non-native to Colorado
432	Russian olive	*Elaeagnus angustifolia*	12.5	15	Good	Non-native to Colorado

433	Russian olive	*Elaeagnus angustifolia*	18.5	24	Good	Non-native to Colorado
434	Russian olive	*Elaeagnus angustifolia*	9.5	10	Good	Non-native to Colorado
435	Russian olive	*Elaeagnus angustifolia*	8	12	Good	Non-native to Colorado
436	Russian olive	*Elaeagnus angustifolia*	24.5	25	Good	Non-native to Colorado
437	Russian olive	*Elaeagnus angustifolia*	22	25	Good	Non-native to Colorado
438	Russian olive	*Elaeagnus angustifolia*	28.5	28	Good	Non-native to Colorado
439	Plains cottonwood	*Populus deltoides*	45	40	Good	Native to Colorado
440	Russian olive	*Elaeagnus angustifolia*	24	25	Good	Non-native to Colorado
441	Russian olive	*Elaeagnus angustifolia*	22.5	25	Good	Non-native to Colorado
442	Russian olive	*Elaeagnus angustifolia*	19.5	25	Good	Non-native to Colorado
443	Russian olive	*Elaeagnus angustifolia*	25	20	Good	Non-native to Colorado
444	Plains cottonwood	*Populus deltoides*	83.5	70	Good	Native to Colorado
445	Russian olive	*Elaeagnus angustifolia*	41.5	50	Good	Non-native to Colorado
446	Russian olive	*Elaeagnus angustifolia*	29.5	35	Good	Non-native to Colorado
447	Plains cottonwood	*Populus deltoides*	102.5	80	Good	Native to Colorado
448	Plains cottonwood	*Populus deltoides*	78	65	Good	Native to Colorado
449	Plains cottonwood	*Populus deltoides*	94.5	75	Good	Native to Colorado
450	Plains cottonwood	*Populus deltoides*	25	20	Good	Native to Colorado
451	Plains cottonwood	*Populus deltoides*	68	60	Good	Native to Colorado
452	Plains cottonwood	*Populus deltoides*	64.5	60	Good	Native to Colorado

-ID# refers to tree identification and location information provided in Figure 1.
-Drip line is measured as a radius from the trunk to the end of the outermost branch of the tree crown
-DBH refers to diameter at breast height measured at 54 inches above ground


Andalusia Tree Inventory -
Overview North
Ecological Resource Consultants
2820 Wilderness Place Suite A
Boulder, Colorado 80301
N
Legend
12
Tree Location
and ID


Andalusia Tree Inventory -
Overview South
Ecological Resource Consultants
2820 Wilderness Place Suite A
Boulder, Colorado 80301
N
Legend
12
Tree Location
and ID

EX. PERMANENT EASEMENT
BK. 1643 PG. 428

NT OF BEGINNING

26' EX. RIGHT OF WAY
REC. NO.

108 106 104 102 100 99 98 97 4 3 2 1

109 107 105 103 101 96 95 64 5

110

82-94

81 65-79

80 49-63

6-46

EX. NON-EXCLUSIVE ACCESS
& PIPELINE EASEMENT
REC. NO. 3615408

48

47

(TURAL)

117

118

111

116 112

115

113

114

119

120

121

EX. 50' PIPELINE EASEMENT
PANHANDLE EASTERN PIPELINE
REC. NO. 1835053

W. LINE, NE 1/4 SEC. 6
S00°52'52"W 2744.67'

122

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125

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NE 1/4
SEC. 6

UNPLATTE

(D

(TURAL)

IING:
GRICULTURAL)

146

NW 1/4
SEC. 6

EX. NON-EXCLUSIVE ACCESS
& PIPELINE EASEMENT
REC. NO. 3615408

W. LINE, NE 1/4 SEC. 6
S00°52'52"W 2744.67'

NPLATTED

147

① ② ③

Andalusia Tree Inventory - Northwest Section
Ecological Resource Consultants
2820 Wilderness Place Suite A
Boulder, Colorado 80301

N

Legend

12 Tree Location and ID

CEN 1/4 COR. SEC. 6
FOUND NO. 6 REBAR WITH
2" ALUMINUM CAP
ILLEGIBLE

UNPLATTED

ZONING:
A (AGRICULTURAL)

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EX. EASEMENT FOR LOWER
BOULDER IRRIGATION CANAL
BK 1443, PG. 175

SE 1/4
SEC. 6

SE 1/4
SEC. 6

EX. EASEMENT FOR LOWER
BOULDER IRRIGATION CANAL
BK 1443, PG. 175

ZONING:
A (AGRICULTURAL)

UNPLATTED

EX. 60' INGRESS, EGRESS
& UTILITY
EASEMENT
REC. NO. 3220110

Andalusia Tree Inventory -
West Northwest Section
Ecological Resource Consultants
2820 Wilderness Place Suite A
Boulder, Colorado 80301

N

Legend

12 Tree Location and ID

Andalusia Tree Inventory -
West Central Section
Ecological Resource Consultants
2820 Wilderness Place Suite A
Boulder, Colorado 80301

N

Legend

12 Tree Location and ID

EX. NON-EXCLUSIVE ACCESS & UTILITIES EASEMENT REC. NO. 4379300

EX. NON-EX UTILITI REC. N

(ULTURAL)

W 1/4
EC. 6

W. LINE, NE 1/4 SEC. 6
S00°32'52"W 2744.67'

EX. NON-EXCLUSIVE AC UTILITIES EASEMEN REC. NO. 437930

LATTED

EX. NON-EXCLUSIVE ACCESS & PIPELINE EASEMENT REC. NO. 3615408

150

EX. GAS EASEMENT WIDTH VARIES REC. NO. 3548911

(TURAL)

151

(TURAL)

1/4
. 6

W. LINE, NE 1/4 SEC. 6
S00°32'52"W 2744.67'

EX. NON-EXCLUSIVE ACCESS & PIPELINE EASEMENT REC. NO. 3615408

NE 1/4
SEC. 6

412

399

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404

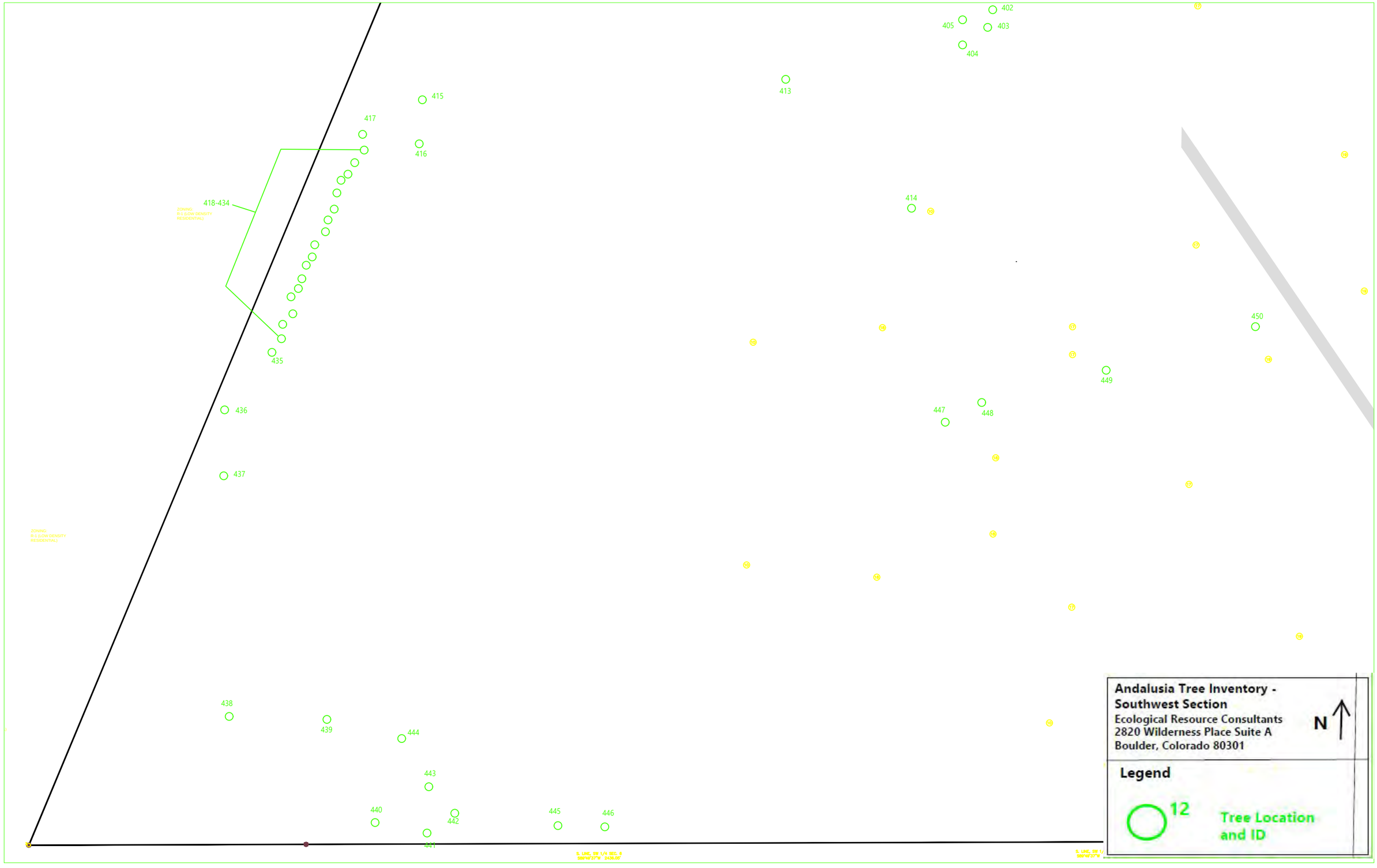
413

Andalusia Tree Inventory -
West Southwest Section
Ecological Resource Consultants
2820 Wilderness Place Suite A
Boulder, Colorado 80301

N

Legend

12 Tree Location and ID


402
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418-434
ZONING:
R-1 (LOW DENSITY
RESIDENTIAL)
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446
441
S. LINE, SW 1/4 SEC. 6
S89°49'37"W 2436.05'
Andalusia Tree Inventory -
Southwest Section
Ecological Resource Consultants
2820 Wilderness Place Suite A
Boulder, Colorado 80301
N
Legend
12
Tree Location
and ID

Andalusia Tree Inventory -
South Central Section
Ecological Resource Consultants
2820 Wilderness Place Suite A
Boulder, Colorado 80301

N

Legend

12 Tree Location and ID

450
451
452

S. LINE, SE 1/4 SEC. 8
S89°42'29"W 2627.43'

SE 1/4
SEC. 6

SE 1/4
SEC. 6

25

Andalusia Tree Inventory - Southeast Section

Ecological Resource Consultants
2820 Wilderness Place Suite A
Boulder, Colorado 80301

N

Legend

12 Tree Location and ID

Andalusia Tree Inventory -
East Southeast Section
Ecological Resource Consultants
2820 Wilderness Place Suite A
Boulder, Colorado 80301

N

Legend

12 Tree Location and ID

SPRING HILL MINOR SUBDIVISION
REC. NO. 4610088

254
255
256
257
258
259

SE 1/4
SEC. 6

11
13

EX. 10' RIGHT OF WAY EASEMENT
UNION RURAL ELECTRIC
RE. NO. 1718924

VARYING WIDTH R.O.W.
REC. NO. 3493478
DEDICATED TO
WELD COUNTY

11
13

EX. 10' RIGHT OF WAY EASEMENT
UNION RURAL ELECTRIC
RE. NO. 1718924

13
11

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265-274
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254

EX. EASEMENT FOR LOWER BOULDER IRRIGATION CANAL BK 1443, PG. 175

EX. GAS EASEMENT WIDTH VARIES REC. NO. 3548911

EX. EASEMENT FOR LOWER BOULDER IRRIGATION CANAL BK 1443, PG. 175

NE 1/4
SEC. 6

SE 1/4
SEC. 6

30' RIGHT OF WAY EASEMENT REC. NO. 3091469

EX. GAS EASEMENT WIDTH VARIES REC. NO. 3548911

EX. R.O.W. SPRING HILL MINOR SUBDIVISION REC. NO. 4610088

Andalusia Tree Inventory - East Central Section

Ecological Resource Consultants
2820 Wilderness Place Suite A
Boulder, Colorado 80301

N

Legend

12 Tree Location and ID

Andalusia Tree Inventory -
East Northeast Section
Ecological Resource Consultants
2820 Wilderness Place Suite A
Boulder, Colorado 80301

N

Legend

12 Tree Location and ID

EX. 40' R.O.W. RESERVATION FOR WELD COUNTY RD 3 REC. NO. 3286322

TRACT A
SPRING HILL MINOR SUBDIVISION
REC. NO. 4610088
(NOT A PART)

NE 1/4
SEC. 6

EX. EASEMENT FOR LOWER BOULDER IRRIGATION CANAL BK. 1443 PG. 175

UNPLATTED

NOT A PART OF THIS SUBDIVISION

301 300 299 303 298 302 294 296 293 297 295

377

NW 1/4
SEC. 5

UNPLATTED

ZONING:
A (AGRICULTURAL)

NW 1/4
SEC. 5

UNPLATTED

ZONING:
A (AGRICULTURAL)

20' R.O.W.
REC. NO. 3493478
DEDICATED TO
WELD COUNTY

EX. 40' R.O.W. RESERVATION
FOR WELD COUNTY RD 3
REC. NO. 3286322

TRACT A
SPRING HILL MINOR
SUBDIVISION
REC. NO. 4610088
(NOT A PART)

Andalusia Tree Inventory - Northeast Section

Ecological Resource Consultants
2820 Wilderness Place Suite A
Boulder, Colorado 80301

N

Legend

12 Tree Location and ID

Andalusia Tree Inventory -
North Central Section

Ecological Resource Consultants
2820 Wilderness Place Suite A
Boulder, Colorado 80301

N

Legend

12 Tree Location and ID

NE 1/4 SEC. 6

UNPLATTED

EX. GAS EASEMENT NORTH YARDS REC. NO. 3040911

EX. NON-EXCLUSIVE ACCESS & UTILITIES EASEMENT REC. NO. 4230000

NE 1/4 SEC. 6

EX. GAS EASEMENT NORTH YARDS REC. NO. 3040911

EX. NON-EXCLUSIVE ACCESS & UTILITIES EASEMENT REC. NO. 4230000

NE 1/4 SEC. 6

334 335 345 346 336 337-343 344 333 332 331 330 347 312-329 348-375 175 173 149 154 156 157 161 162 164 166 169 152 153 155 158 159 160 163 165 168 172 171 174 176 170 177 178 179 182 183 180 181 184 186 185 187 189 190 188 191 192 193 194 195 196 376 310 311 309 308 306 307 305 304 301 300 299 303 298 302 294 296 293 297 292 295 290 291 289 287 288 286 285 284 283 282 197 198-252 253 281 280 279 278 277 385 398 392 391 389 388 386 387 397 396 393 395 394 390 384 382 383 381 380 379

Ecological Resource Consultants, Inc.
5672 Juhls Drive ~ Boulder, CO ~ 80301 ~ (303) 679-4820

SCREENING REPORT

FOR

FEDERAL-STATE LISTED THREATENED AND ENDANGERED SPECIES AND GENERAL WILDLIFE

FOR

ANDALUSIA SITE

WELD COUNTY, COLORADO

JULY 10, 2018

Prepared For:

EJE, LLC
7353 S. Alton Way Ste. A-100
Centennial, CO 80112
Contact: Matt Janke
Phone: (303) 770-9111
Email: MJanke@E5XManagement.com

ERC Project #1000-1802

Screening Report
for
Federal-State Listed Threatened and Endangered Species and General Wildlife

Andalusia Site
Weld County, Colorado

July 10, 2018

Contents

Figures

1.0 INTRODUCTION

Ecological Resource Consultants, Inc. (ERC) has prepared this report at the request of the property representative, EJE, LLC. The approximately 317 acre property referred to herein as the Andalusia Site (survey area) is located in the Town of Erie, Weld County, Colorado. The survey area is under consideration for potential future land use changes which will likely alter a majority of the current survey area landscape, therefore this report has been prepared to specifically identify potential federal and state listed threatened and endangered species and/or habitat that could exist on or immediately surrounding the survey area. In addition, this report provides a cursory screening of general wildlife use characteristics and existing vegetation community types.

This report has been prepared in accordance with the Migratory Bird Treaty Act (MBTA), Endangered Species Act (ESA) and Colorado Parks and Wildlife (CPW) Colorado Statute Title 33.

2.0 GENERAL SURVEY AREA DESCRIPTION

The survey area is located on the west side of County Road 3 directly southwest of the intersection with Highway 52 in the Town of Erie, Weld County, Colorado in the *Firestone Lake – Saint Vrain Creek* watershed (HUC 101900050709). More specifically, the survey area is located in **Section 6, Township 1 North, Range 68 West**, in Weld County **(latitude 40.079217° north, longitude -105.042058° west).** From the intersection of Interstate 25 and Highway 52, the survey area can be accessed by heading west on Highway 52 for approximately 3.5 miles, then the survey area is accessible by a gravel farm road on the south side of Highway 52 which connects with other dirt/gravel farm and oil and gas access roads that can be used to access interior portions of the survey area. Refer to **Figure 1** and **Figure 2** for a location map and a US Geological Survey (USGS) topographic map of the survey area.

The survey area comprises approximately 317 acres and has an average elevation of 5,000 feet above mean sea level. The survey area is predominantly comprised of upland agricultural lands currently planted with wheat row crops, hayfields, and fallow areas used as cattle pasture. The central portion of the survey area has been recently disturbed by construction of a sewer line for nearby residential development and is now devoid of vegetation. Topography across the survey area is relatively flat with a topographic high point in the southern portion, mainly sloping downward towards the north, and slightly downward to the east and west. The eastern central portion of the survey area comprises a topographic depression that comprises palustrine emergent (PEM) wetland habitat, the interior portion exhibits a cattail marsh habitat and the outer perimeter is PEM wet meadow habitat. The northwest portion of the survey area comprises similar PEM wet meadow habitat including two linear topographic depressions that were inundated during the field inspection and enclosed by overstory canopy tree cover. The southwest portion of the survey area comprises a large PEM wet meadow habitat typical of the survey area as well as a separate palustrine scrub-shrub (PSS) wetland habitat situated in a closed topographic depression.

In addition, three man-made, earthen lined, irrigation ditches mapped on USGS topographic mapping as Cottonwood Extension Ditch, Lower Boulder Ditch, and Boulder and Weld County Ditch bisect the southern and central portions of the survey area and also form portions of the north and east survey area boundaries. All the ditches generally flow from the south and west to the north and east through the survey area and contained surface water flows ranging from 1 to 3 feet during the field inspection.

Two primary land use class/vegetation cover types exist within the survey area in accordance with the Southwest Regional Gap Analysis land cover dataset. Upland habitats are primarily characterized as Cultivated Cropland and wetland habitats/irrigation ditches are characterized as Western Great Plains

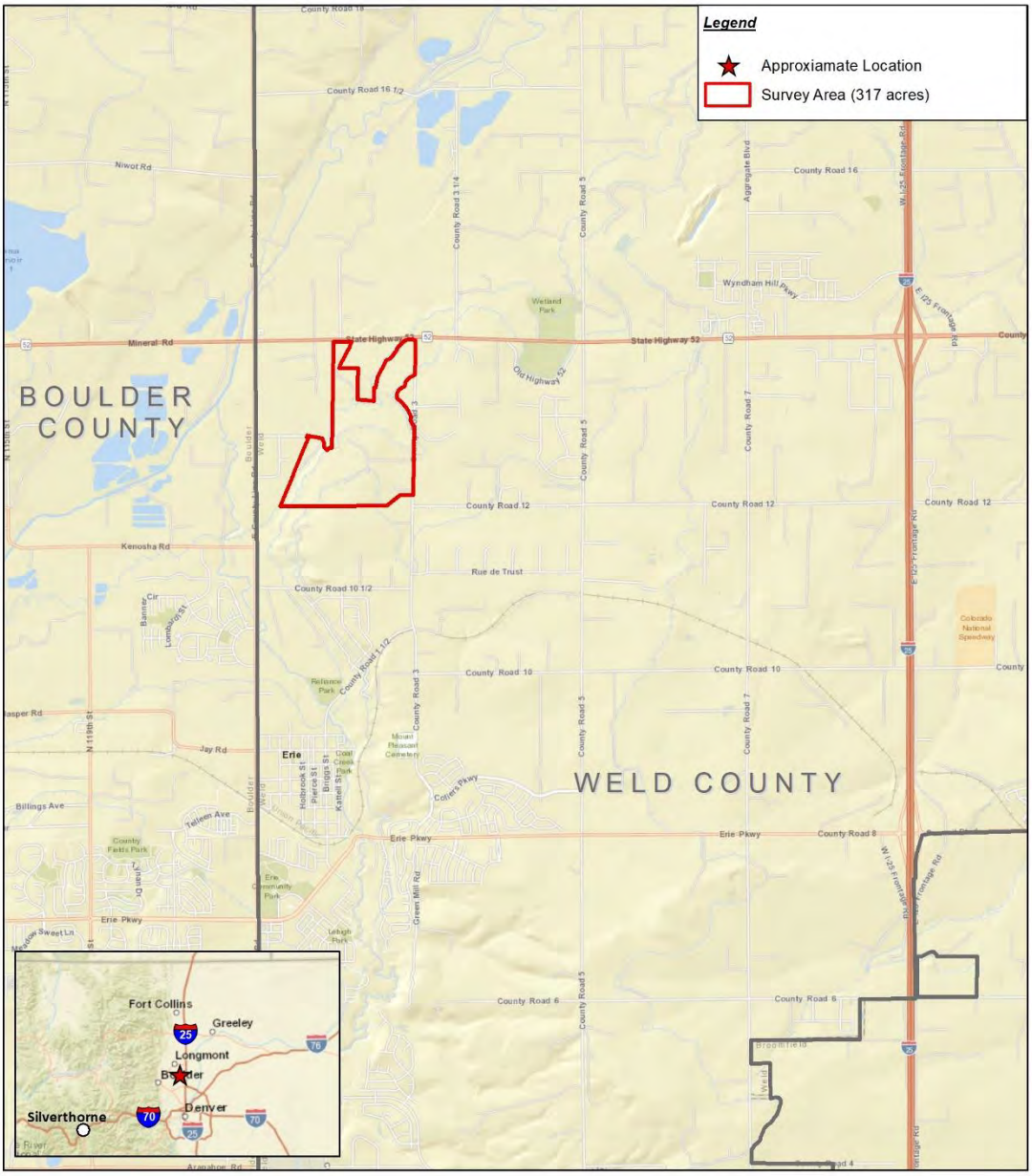
Floodplain (however this cover type has been highly altered and is not considered natural within the survey area) (SWReGAP 2011). In general, the vegetation communities characterized within the survey area are somewhat based on natural vegetation associations in the region (NatureServe 2018); however, have been disturbed by historic and current land use practices thus represent somewhat degraded forms of these communities. A summary of habitat types within the survey area is provided as follows.

Cultivated Cropland

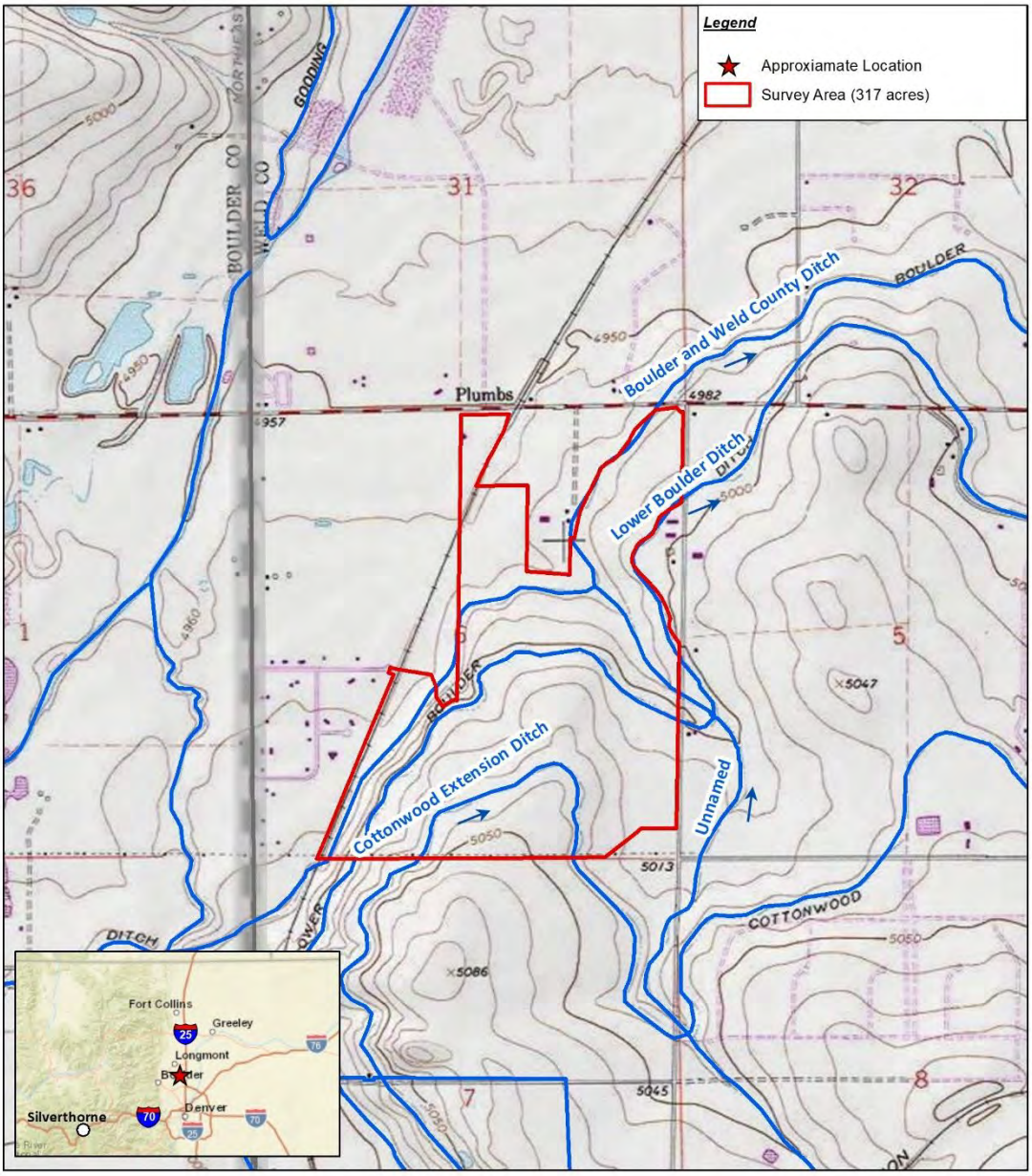
The cultivated cropland community is characterized as non-natural system which includes lands used for the production of annual crops where crop vegetation accounts for greater than 20 percent of the total vegetation and where the land is actively tilled (SWReGAP 2011). This class also includes all land being actively tilled. This vegetation community across the survey area is dominated by species such as common wheat (*Triticum aestivum*) (planted this growing season), alfalfa (*Medicago sativa*), smooth brome (*Bromus inermis*), western wheatgrass (*Pascopyrum smithii*), meadow false rye grass (*Schedonorus pratensis*), and cheatgrass (*Bromus tectorum*) intermixed with a variety of ruderal herbaceous species. Vegetative cover across the survey area generally ranges from 90-100% cover, with the remaining cover comprising exposed surface soil. Generally, most of the vegetation within the survey area appears to be regularly mowed, grazed, and/or disturbed by farming activities. One area through the central portion of the survey area has been recently disturbed for the construction of a sewer line and gravel roads, which is currently devoid of vegetation. Overall, upland habitats within the survey area are mainly herbaceous vegetated agricultural lands in various stages of production and use (wheat/hay crops or pasture).

Western Great Plains Floodplain

The Western Great Plains Floodplain community is found in the floodplains of medium and large rivers of the western Great Plains. Alluvial soils and periodic, intermediate flooding (every 5-25 years) typify this system. Dominant communities within this system range from floodplain forests to wet meadows to gravel/sand flats; however, they are linked by underlying soils and flooding regime. These areas are often subjected to heavy grazing and/or agriculture and can be heavily degraded (SWReGAP 2011). Within the survey area this community generally includes the PEM wet meadow habitats/cattail marsh habitat, PSS wetland habitat, and the irrigation ditches. It should be noted that the areas identified as this cover type within the survey area have been highly altered, are not directly connected to active floodplains and therefore are not considered natural. This vegetation community within the survey area is dominated by species such as broadleaf cattail (*Typha latifolia*), reed canary grass (*Phalaris arundinacea*), Nebraska sedge (*Carex nebrascensis*), clustered field sedge (*Carex praegracilis*), Baltic rush (*Juncus balticus*), woolly sedge (*Carex pellita*), with some sparse communities of narrowleaf willow (*Salix exigua*). Few stands of mature Russian olive (*Elaeagnus angustifolia*), and eastern cottonwood (*Populus deltoides*) are located sporadically throughout the survey area, mainly located in the vicinity of the irrigation ditches and/or wetland habitat. The PEM wet meadow and PSS habitats contain a temporarily flooded water regime. All irrigation ditches identified within the survey area contained surface water flows ranging from 1 to 3 feet during the field evaluation and appear to be regularly maintained by cutting/mowing of vegetation on the ditch banks and/or ditch burning techniques.



Prepared By: ERC *5672 Juhls Drive* *Boulder, CO 80301* *(303) 679-4820* *ERC #1000-1802*	**FIGURE 1.** **LOCATION MAP** **ANDALUSIA SITE** **WELD COUNTY, COLORADO**	0 0.5 1 Miles



Prepared By:

ERC

5672 Juhls Drive
Boulder, CO 80301
(303) 679-4820

ERC #1000-1802

FIGURE 2.
USGS TOPOGRAPHIC MAP

ANDALUSIA SITE
WELD COUNTY, COLORADO

Refer to **Photos 1-12** below for typical characteristics within the survey area. The overall survey area characteristics and vegetation communities are depicted on the aerial photograph provided as **Figure 3**.

Photo 1. Example of the PEM wet meadow habitat in the northeast portion of the survey area. A tree row comprising two linear PEM topographic depressions can be seen in the background.

Photo 2. View south of two linear topographic depressions comprising PEM wetland habitat in the northeast portion of the survey area. The depressions were inundated at the time of the field inspection which is evident in this photo.

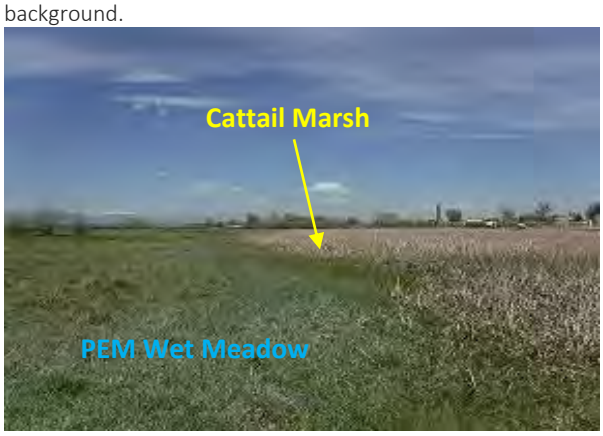


Photo 3. View north from the eastern central portion of the survey area showing PEM wetland habitat comprising a cattail marsh and surrounding PEM wet meadow habitat.

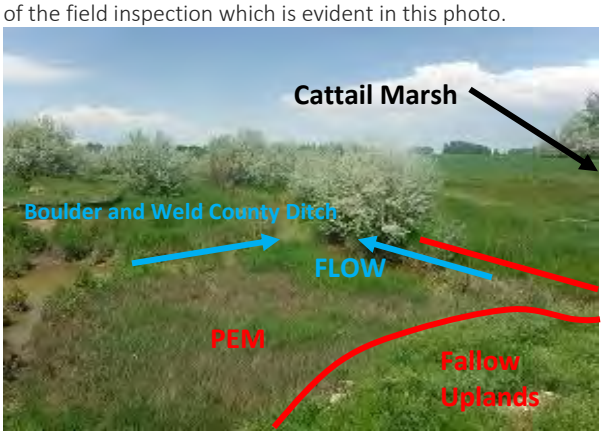


Photo 4. View north at Boulder and Weld County Ditch in the central portion of the survey area. This is the area where the cattail marsh (not pictured) drains into the ditch, and the confluence comprises PEM wetland habitat as shown above.

Photo 5. View south at PSS wetland habitat in the southwest corner of the survey area. The PSS habitat is situated in a closed topographic depression and is a relatively unique habitat in an otherwise agricultural landscape.

Photo 6. View east of typical characteristics of Lower Boulder Ditch within the central portion of the survey area. Lower Boulder Ditch was the widest (approx. 20 ft) and deepest (3 to 4 feet) ditch mapped within the survey area.

Photo 7. View east of Boulder and Weld County Ditch within the survey area. The ditch comprises mostly herbaceous vegetation along the banks with little tree/shrub cover which is evident in this photo.

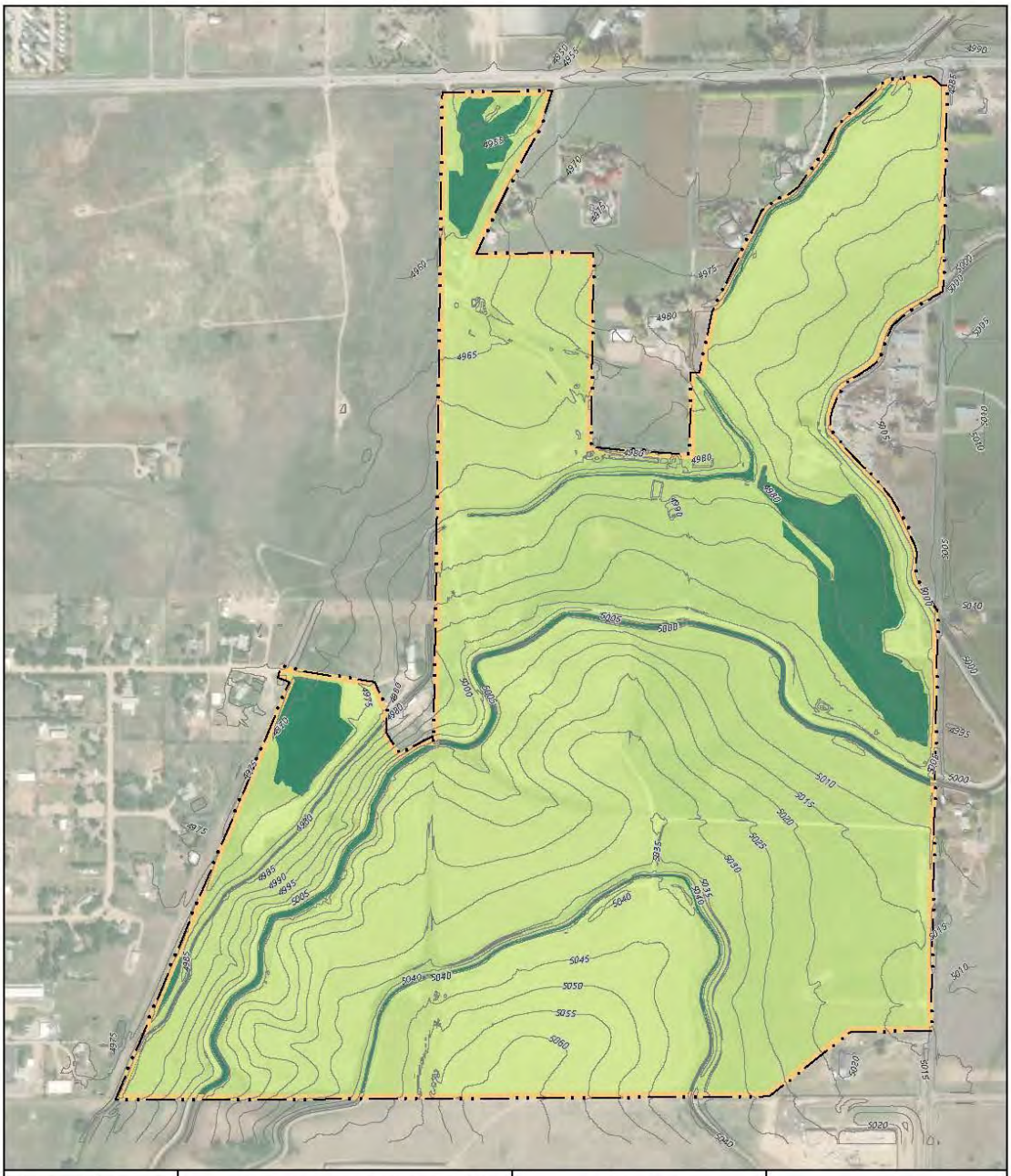
Photo 8. View south of Cottonwood Extension Ditch within the survey area. This ditch contained herbaceous vegetation within the ditch bottom and the banks appeared to be regularly burned to remove vegetation which is evident in this photo.

Photo 9. View north of Cultivated Cropland vegetation community consisting entirely of planted wheat row crops in the northeast portion of the survey area.

Photo 10. View northwest at uplands within the central portion of the survey area comprising cattle pasture dominated by smooth brome herbaceous vegetation.

Photo 11. View west at hay fields within the southern portion of the survey area. This photo is representative of the uplands across the entire southern portion of the survey area.

Photo 12. View of recently disturbed area in the central portion of the survey area for construction of a sewer line and gravel roads (right). Agricultural fields planted with wheat row crops can be seen at the left of the photo.


Prepared By:
ERC
5672 Juhls Drive
Boulder, CO 80301
(303) 679-4820
ERC #1000-1802
Cultivated Cropland (291.5 acres, 92%)
Western Great Plains Floodplain (25.8 acres, 8%)
ERC Survey Area Boundary (317 ac.)
5' Contour
FIGURE 3.
VEGETATION
COMMUNITIES
ANDALUSIA
WELD COUNTY, COLORADO
DATE: JULY 10, 2018
1:8,400
N
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500
1,000
Feet

3.0 SCREENING METHODOLOGY

ERC conducted a literature review as part of initial data collection for preparation of this report. Among others, ERC reviewed the available literature sources including; CPW information and the US Fish and Wildlife Service (USFWS) Federal Register.

A field inspection was subsequently conducted on May 7, 8 9, 10, 11, 22, and 23, 2018 to identify and document the presence of natural vegetation communities, general wildlife use and potential for threatened and endangered species/habitat. Upon review of all available resources, including literature and field inspections, ERC provides the following determination for the survey area.

4.0 GENERAL WILDLIFE HABITAT (NON-REGULATED)

Wildlife utilizes the general landscape in a multitude of ways and uses a variety of habitats as areas of permanent inhabitance, seasonal inhabitance, breeding grounds, migratory routes, for foraging purposes, or as temporary shelter. Potential wildlife habitat includes agricultural land (wheat and hay fields), fallow uplands (pasture), herbaceous and scrub-shrub wetland communities, and irrigation ditches.

Historic and current land use associated with agricultural practices have restricted and/or degraded the development of any significant natural vegetation communities within a majority the survey area, which limits the overall quality of potential wildlife habitat. The predominant habitat type which occupies 92% of the survey area is characterized by the Cultivated Cropland community which comprises agricultural land currently used for the agricultural production of wheat row crops and/or hay that is regularly mowed. Fallow uplands occupy a portion of this community generally along the perimeter of the cultivated fields, pasture areas, and around the perimeters of wetland habitats and irrigation ditches. This vegetation type which is dominated by non-native or weedy species is not typically considered of high ecological value to wildlife; however, agricultural lands can have beneficial values to certain wildlife species. These areas at a minimum are considered “open space” providing limited foraging and hunting grounds, refuge and limited areas for nesting (Kingery 1998). Such lands often serve as a buffer between natural areas, providing food, cover, nesting and open-space habitat which allow movement and exchange of plant and animal populations. In addition, there are few mature stands of trees/shrubs and some dense herbaceous vegetation located sporadically within the fallow uplands and in the vicinity of the wetland habitats and irrigation ditches. Overstory canopy trees and midstory shrubs, situated near an agricultural landscape, can provide potential roosting and nesting habitat for visiting and residential raptors and smaller migratory birds. The agricultural land which is present across the survey area has largely replaced the native shortgrass prairie habitat which would have been present in this region. Herbaceous non-native species, ruderal native species, and planted row crop vegetation which permeate the vegetation communities generally do not provide quality habitat for most wildlife. In general, agriculture practices have altered the structure, function, community composition, and habitat value of land within a majority of the survey area; however, some areas do provide a variety of important wildlife habitat values in an otherwise agricultural landscape. Within the survey area, significant limitations for wildlife use exist due to land use activities such as regular mowing, habitat fragmentation from fences and roadways, and noise disturbances from oil and gas production equipment within the survey area and in areas adjacent to the survey area.

The Western Great Plains Floodplain habitat within the survey area occupies a smaller percentage (8%) within the eastern central portion, northwest portion, southwest portion, and generally in the immediate vicinity of the irrigation ditches. Wetlands and irrigation ditches can provide a variety of wildlife habitat features such as cover, forage or nesting habitat, and can act as a movement corridor for various small to

mid-size mammals, amphibians, birds, and reptiles. The general structural characteristics of the wetland habitats and irrigation ditches including a seasonal water source and dense emergent vegetation does create a relatively unique habitat in an otherwise arid and agricultural landscape. Portions of the wetland habitats and the irrigation ditch channels appear to be inundated for at least some portion of the growing season which provides added wildlife benefits and habitat variety within the survey area; however, irrigation ditches are typically dry for portions of the year which severely limits habitat value for wildlife that requires a year-round water source such as certain amphibians and reptiles. Hydrology within the PEM wet meadow habitats and PSS wetland habitat appears to be partially supported by a high groundwater table; however, later in the growing season, the water table likely lies below the surface indicating these areas likely do not exhibit surface water throughout the year further limiting habitat value for wildlife that requires a year-round water source. Within the survey area, some limitations for wildlife use exist due to habitat fragmentation from roadways, fences, restricted culverts, and noise disturbances; however, overall wetland habitat of the survey area provides a variety of important wildlife habitat values.

Some local wildlife species that may use this habitat within the survey area includes coyote (*Canis latrans*), red fox (*Vulpes vulpes*), rabbit (*Lepus sp*.), cottontail (*Sylvilagus sp.*), raccoon (*Procyon lotor*), black tailed prairie dog (*Cynomys ludovicianus*), white-tailed deer (*Odocoileus virginianus*), deer mouse (*Peromyscus maniculatus*), meadow vole (*Microtus pennsylvanicus*), red-winged blackbird (*Agelaius phoeniceus*), mourning dove (*Zenaida macroura*), killdeer (*Charadrius vociferous*), western meadowlark (*Sturnella neglecta*), barn owl (*Tyto alba*), hawks (*Buteo sp*.), and garter snake (*Thamnophis sp.*).

- Generally, there are features within the survey area and the surrounding area that provide general habitat for local songbirds, raptors, and small to mid-size mammals; however, the majority of habitat on the survey area (approximately 92%) comprises cultivated cropland which is highly degraded from a wildlife perspective by historic and current land use practices. Within the survey area, the Western Great Plains Floodplain habitat occupies a smaller percentage of the survey area (8%) but still provides a variety of important wildlife habitat values.

5.0 MIGRATORY BIRD TREATY ACT

Migratory birds are protected under the Migratory Bird Treaty Act (MBTA) (16 U.S.C. 730-712). The MBTA makes it illegal for anyone to take, possess, import, export, transport, sell, purchase barter, or offer for sale, purchase, or barter any migratory bird, or the parts, nests, or eggs of such a bird except under the terms of a valid permit issued pursuant to Federal regulations. In Colorado, all birds except for the European starling (*Sturnus vulgaris*), house sparrow (*Passer domesticus*) and rock pigeon (*Columba livia*) are protected under the MBTA. A total of 523 migratory bird species are known to occur in the Mountain-Prairie Region (USFWS Region 6, Montana, Wyoming, Utah, North Dakota, South Dakota, Nebraska, Kansas and Colorado); 320 of the 523 migratory bird species are known to breed in USFWS Region 6.

Migratory birds likely exist within the survey area. The Western Great Plains Floodplain and Cultivated Cropland habitats exhibit few overstory canopy trees/midstory shrubs within the survey area that provide at the very least, potential nesting and foraging habitat for migratory birds. Several red-winged blackbird (*Agelaius phoeniceus*), black-billed magpie (*Pica hudsonia*), and killdeer (*Charadrius vociferous*) individuals were directly observed on the survey area during the field inspection. Such birds are protected under the MBTA, and killing or possession of these birds (or their parts and nests) is prohibited under the MBTA. The migratory birds observed likely utilize the survey area primarily for foraging and seasonal nesting.

- Based upon literature review and an onsite assessment of the survey area, ERC has determined that some migratory birds likely utilize the survey area. These birds are protected under the MBTA and killing or possession of these birds is prohibited. Future land use changes that may occur on the survey area which remove the more permanent vegetation should first ensure that active nests are not disturbed. Generally, the active nesting season for most migratory birds in this region of Colorado occurs between April 1 and August 31. No active nests were observed within the survey area during the field inspection.

- In addition, raptor nest sites are further protected by the CPW. The CPW has established recommended buffer zones and seasonal activity restrictions for a variety of Colorado raptors. While no active nests were observed and no CPW mapped buffer zones are located within the survey area (CPW 2017a), raptors could potentially establish nesting in the vicinity of the survey area. Future land use changes should ensure that no active raptor nest sites have established generally (depending on species) within a ½ mile of the survey area. A nest survey can be conducted in the vicinity of the survey area prior to any disturbance in order to verify the presence/absence of active raptor nest sites.

6.0 SPECIES PROTECTED UNDER THE ENDANGERED SPECIES ACT OF 1973

The ESA of 1973 was enacted by the United States to conserve endangered and threatened species and the ecosystems that they depend on. Under the ESA, species may be listed as either "endangered" or "threatened"; both designations are protected by law. The ESA is administered by the USFWS. The USFWS has developed project specific species lists, available online by request, identifying threatened, endangered, and proposed species, designated critical habitat, and candidate species protected under the ESA that may occur within the boundary of the proposed project and/or may be affected by the proposed project (USFWS 2018) (Tracking Number: 06E24000-2018-SLI-1100). The species list for the survey area has identified a total of 9 threatened or endangered species within the survey area.

Species Not Present

The following federally listed threatened and endangered species are identified to occur within Weld County. However, these species are not known to exist within the specific vicinity of the survey area and/or have specific habitat requirements (i.e., elevation range) that are not common in the vicinity of the survey area.

Common Name	Scientific Name	Status*	Determination
Mexican spotted owl	*Strix occidentalis lucida*	FT	NO EFFECT

*Status key:
FT – Federally listed as threatened

- The survey area does not contain the specific habitat characteristics necessary to support the species listed above. These species and/or critical habitat is not present within the survey area. Therefore the project will have no effect on the species, their habitats, or proposed or designated critical habitat.

Water Depletions Species

The USFWS under the ESA has determined that water depletions in the South Platte River Basin are considered an adverse effect to the listed species identified below. The survey area is considered to be located within the South Platte River Basin.

Common Name	Scientific Name	Status*	Determination
Least tern	*Sternula antillarium*	FE	NOT PRESENT, NO EFFECT^
Pallid sturgeon	*Scaphirhycchus albus*	FE	NOT PRESENT, NO EFFECT^
Piping plover	*Charadrius melodus*	FT	NOT PRESENT, NO EFFECT^
Western prairie fringed orchid	*Platanthera praeclara*	FT	NOT PRESENT, NO EFFECT^
Whooping crane	*Grus Americana*	FE	NOT PRESENT, NO EFFECT^

*Status key:
FT – Federally listed as threatened
FE – Federally listed as endangered
^Proposed project (i.e., residential development-supplied by municipal water) is considered non-water dependent therefore no effect to water depletions species.

Any water related project conducted in the Platte River Basin that has a federal nexus; such as federal funding or a federal permits (i.e., Clean Water Act (CWA) Section 404 Permit), is subject to ESA Section 7 Consultation with the USFWS. The consultation is a mandate for water depletion projects that may affect threatened and endangered species that rely on the South Platte River.

- The survey area does not contain the specific habitat characteristics necessary to support the species listed above. These species and/or critical habitat is not present within the survey area. Therefore the project will have no effect on these listed species, their habitats, or proposed or designated critical habitat.
- Any future project which may be water related or determined to be a water depletion to the South Platte River Basin may potentially be considered an adverse effect to these species. Generally non-water dependent projects such as residential developments (which are supplied by municipal water) are not considered water depletions and therefore would have no effect on these species.

Species Potentially within Range

The following federally listed threatened and endangered species are identified to occur or historically occur within Weld County (USFWS 2018). The survey area is located within the potential known range for these species to occur. Further analysis was conducted to determine if the species or habitat has the potential to exist within the survey area considering site-specific conditions and characteristics. A brief explanation is provided as to the species life cycle, habitat requirements and potential occurrence within the survey area. The survey area is not within designated critical habitat of any federally listed species.

Common Name	Scientific Name	Status*	Determination
Colorado butterfly plant	*Gaura neomexicana var. coloradensis*	FT	NO EFFECT
Preble's meadow jumping mouse	*Zapus hudsonius preblei*	FT	NO EFFECT
Ute Ladies'-tresses orchid	*Spiranthes diluvialis*	FT	NO EFFECT

*Status key:
FT – Federally listed as threatened

COLORADO BUTTERFLY PLANT (GAURA NEOMEXICANA VAR. COLORADENSIS)

The Colorado butterfly plant is listed as federally threatened under the ESA. This plant species is a short-lived, perennial herb endemic to moist soils in mesic or wet meadows of floodplain areas in southeastern Wyoming, north central Colorado, and extreme western Nebraska. This early to mid-seral stage species occurs primarily in habitats created and maintained by streams active within their floodplains, with vegetation that is relatively open and not overly dense or overgrown. The conversion of natural wet

meadows and natural riparian corridors to agricultural land and urban development is the primary threat to the continued existence of the species (Federal Register 2000).

- The upland agricultural land, densely vegetated herbaceous wetland habitats, irrigation ditches, and lack of streams with active floodplains within the survey area does not provide typical habitat conducive to this species. Neither individuals nor potential habitat for the Colorado butterfly plant were observed on or immediately surrounding the survey area. The survey area is not located within designated critical habitat for this species (Federal Register 2005). This species and/or critical habitat is not present within the survey area. Therefore the project will have no effect on the Colorado butterfly plant, its habitat, or proposed or designated critical habitat.

PREBLE'S MEADOW JUMPING MOUSE (ZAPUS HUDSONIUS PREBLEI)

On May 13, 1998 the US Fish and Wildlife Service issued a final rule to list the Preble's meadow jumping mouse (PMJM) as a federally threatened species under the ESA. PMJM range extends from southwestern Wyoming through eastern Colorado generally below 7,600 feet. Armstrong et al. (1997) described typical PMJM habitats as "well-developed plains riparian vegetation with relatively undisturbed grassland and a water source in close proximity." Also noted was a preference for "dense herbaceous vegetation consisting of a variety of grasses, forbs and thick shrubs" (USFWS 1999). This species is known to regularly travel into adjacent uplands to feed and hibernate. The PMJM hibernates in an underground burrow from September to May. PMJM bears two to three litters per year, averaging five young per litter, in a grass-lined nest. In general, PMJM surveys are recommended for areas with suitable habitat in Weld County below 7,600 feet and within 300 feet of vegetated irrigation canals, ditches, and wetlands. Areas that are highly disturbed or modified (including landscaped lots and paved areas) or wetland areas dominated by cattails are excluded from this recommendation.

No populations of the PMJM are known to occur within the vicinity of the survey area (UDFCD 2010). Further, the survey area and immediate vicinity is not designated (or proposed) as Critical Mouse Habitat by the USFWS (USFWS 2017a). The USFWS Mouse Block Clearance Map for the Denver Metro Area (USFWS 2010) which identifies areas exempt from further review for PMJM habitat, shows the survey area occurs outside the Block Clearance Zone.

- No PMJM individuals were observed on or surrounding the survey area. The majority of the survey area is comprised of agricultural land that is regularly mowed and/or grazed thus does not provide habitat suitable for this species. The USFWS states that sites where wetlands are entirely composed of dense stands of cattails are exempt from trapping survey. The wetland habitat, irrigation ditches, and adjacent fallow uplands within the survey area do exhibit a limited amount of dense herbaceous vegetation that could be considered potential habitat. However, the majority of the wetland habitats are largely dominated by cattails, routinely mowed, and/or are weedy pasture lands that are generally isolated by agricultural lands. In addition, the irrigation ditches appear to be regularly maintained by removing vegetation along the banks which would not be considered suitable habitat conducive to the PMJM. This species and/or critical habitat is not present within the survey area. Therefore the project will have no effect on the PMJM, its habitat, or proposed or designated critical habitat.

UTE LADIES'-TRESSES (SPIRANTHES DILUVIALIS)

The Ute ladies-tresses is listed as federally threatened under the ESA. The Ute ladies-tresses occurs in seasonally moist soils and wet meadows near springs, lakes, or perennial streams and their associated

floodplains below 6,500 feet in elevation in certain areas of Utah, Colorado, Idaho, Wyoming, and Nevada. Typical sites include early successional riparian habitats such as point bars, sand bars, and low lying gravelly, sandy, or cobbly edges. They seem to require "permanent subirrigation", conditions where the water table is close to the surface, but they are not tolerant of permanent standing water. Typical habitat is open and sparsely vegetated, populations decline if trees and shrubs invade the habitat. They do not compete well with aggressive species such as reed canary grass or monocultures of cattails.

- The densely vegetated wetland habitat and irrigation ditches within the survey area are dominated by dense cattail vegetation and/or monocultures of other emergent species which is not typical habitat conducive to the Ute ladies-tresses. No Ute ladies-tresses or suitable habitat was identified within the survey area. This species and/or critical habitat is not present within the survey area. Therefore the project will have no effect on the Ute ladies-tresses, its habitat, or proposed or designated critical habitat.

7.0 STATE THREATENED AND ENDANGERED SPECIES

Species identified as state threatened or endangered are protected by the CPW under Colorado Statute Title 33. State regulations prohibit "*any person to take, possess, transport, export, process, sell or offer for sale, or ship and for any common or contract carrier to knowingly transport or receive for shipment*" any species or subspecies listed as state endangered or threatened. The CPW also has identified State Species of Special Concern, which are species or subspecies of native wildlife that are currently vulnerable in their Colorado range and have the potential to become threatened or endangered (CPW 2010). Species of Special Concern are not protected under State regulations but the 'take' of individuals and disturbance of their habitat is strongly discouraged.

All state listed species were screened as potential inhabitants of the survey area based on general habitat requirements and CPW Species Profiles (CPW 2017b). ERC evaluated the species listed by CPW as threatened or endangered that could potentially exist within the survey area. All animal species listed above as threatened or endangered by the USFWS are also listed by the CPW as threatened or endangered, respectively, therefore were not duplicated below.

Species Not Present

The following listed threatened and endangered species are identified to occur within the state (CPW 2017b). However, these species are not known to exist within the specific vicinity of the survey area and/or have specific habitat requirements (i.e., elevation range) that are not common in the vicinity of the survey area (CPW 2017b and USFWS 2017).

Common Name	Scientific Name	Status*
Boreal toad	*Bufo boreas boreas*	SE
Southwestern willow flycatcher	*Empidonax traillii extimus*	SE
Lesser prairie-chicken	*Tympanuchus pallidicinctus*	ST
Plains sharp-tailed grouse	*Tympanuchus phasianellus jamesii*	SE
Arkansas darter	*Etheostoma cragini*	ST
Bonytail	*Gila elegans*	SE
Razorback sucker	*Xyrauchen texanus*	SE
Humpback chub	*Gila cypha*	ST
Colorado pikeminnow	*Ptychocheilus lucius*	ST

Common Name	Scientific Name	Status*
Greenback cutthroat trout	*Oncorhynchus clarki stomias*	ST
Rio grande sucker	*Catostomus plebeius*	SE
Lake chub	*Couesius plumbeus*	SE
Plains minnow	*Hybognathus placitus*	SE
Suckermouth minnow	*Phenacobius mirabilis*	SE
Northern redbelly dace	*Phoxinus eos*	SE
Southern redbelly dace	*Phoxinus erythrogaster*	SE
Brassy minnow	*Hybognathus hankinsoni*	ST
Common shiner	*Luxilus cornutus*	ST
Gray wolf	*Canis lupus*	SE
Grizzly bear	*Ursus arctos*	SE
Lynx	*Lynx canadensis*	SE
Wolverine	*Gulo gulo*	SE
Kit fox	*Vulpes macrotis*	SE
River otter	*Lontra canadensis*	ST

*Status key:
ST – State listed as threatened
SE – State listed as endangered

- The survey area does not contain the specific habitat characteristics necessary to support the species listed above. These species and/or critical habitat is not present within the survey area. Therefore the project will have no effect on the species, their habitats, or proposed or designated critical habitat.

Species Potentially within Range

The following state listed threatened and endangered species are identified to occur or historically occur within Weld County. The survey area is located within the potential known range for these species. Further analysis was conducted to determine if the species or habitat has the potential to exist on the survey area considering site-specific conditions and characteristics. A brief explanation is provided as to the species life cycle, habitat requirements and potential occurrence within the survey area.

Common Name	Scientific Name	Status*
Burrowing owl	*Athene cunicularia*	ST
Black-footed ferret	*Mustela nigripes*	SE

*Status key:
ST – State listed as threatened
SE – State listed as endangered

BURROWING OWL (ATHENE CUNICULARIA)

The burrowing owl (Owl) is listed as a state threatened species in Colorado. The Owl is small (length of 24 centimeters), long-legged, boldly spotted, and barred with brown and white. The Owl is a breeding species across the plains of eastern Colorado however rarely winters in the state. Nesting habitat is abandoned burrows, especially prairie dog colonies, located in grasslands, mountain parks, well-drained steppes, deserts, prairies and agricultural lands from late March through October. The Owl can usually be observed on low perches such as fence posts, dirt mounds or the ground. Clutch size of this Owl averages six to seven and incubation lasts up to 30 days. The owlets usually run and forage at 4 weeks and fly at 6 weeks. Primary threats to existence of this species are habitat loss due to intensive agriculture,

habitat degradation and fragmentation due to control of burrowing mammals and predation by cats and dogs.

- No Owl individuals were observed on or surrounding the survey area. The survey area is located within the overall range of the black-tailed prairie dog; however, no colonies were observed within the survey area. Much of the agricultural land within the survey area is regularly mowed or tilled further limiting the potential use of the survey area by this species. Any future land use changes within the survey area should not adversely affect the continued existence or potential habitat of this species.

BLACK-FOOTED FERRET (MUSTELA NIGRIPES)

The black-footed ferret (BFF) *(Mustela nigripes)* is a medium-sized mustelid (a member of the weasel family). The BFF is the only ferret species native to the Americas. Its historical range spanned much of western North America's intermountain and prairie grasslands, extending from Canada to Mexico. Historically, BFF habitat coincided with habitats of black-tailed prairie dog *(C. ludovicianus)*, Gunnison's prairie dog *(C. gunnisoni)*, and white-tailed prairie dog *(C. leucurus)*. Prairie dogs make up more than 90% of the BFF's diet. BFF's are limited to open habitat, the same habitat used by prairie dogs: grasslands, steppe, and shrub steppe. It depends largely on prairie dogs: ferrets prey on prairie dogs and utilize their burrows for shelter and denning (Hillman and Clark, 1980). It has been estimated that about 40-60 hectares of prairie dog colony are needed to support one ferret (Belant and Biggins 2008). BFF's once numbered in the tens of thousands, but due to a combination of human-induced threats they were believed to be extinct twice in the 20th century. As of 2015, BFFs have been reintroduced in the wild at 24 sites across 8 states, Canada, and Mexico.

- No BFF individuals were observed on or surrounding the survey area. The survey area is located within the overall range of the black-tailed prairie dog; however, no colonies were observed within the survey area. Further, the survey area occurs within the block clearance zone for black-footed ferret surveys (USFWS 2009). Any future land use changes within the survey area should not adversely affect the continued existence or potential habitat of this species.

8.0 SUMMARY

ERC has conducted this screening for federal and state listed threatened and endangered species and general wildlife for the approximately 317 acre survey area. The following provides key items identified as part of this report:

1. Two primary land use class/vegetation cover types exist within the survey area. Upland habitats are primarily characterized as Cultivated Cropland and wetland habitats/irrigation ditches are characterized as Western Great Plains Floodplain (altered). Historic land use for agricultural practices has led to degradation of the native vegetation community.
2. Generally, there are features on the survey area and the surrounding area that provide general habitat for local songbirds, raptors, and small to mid-size mammals. However, habitat within the survey area is somewhat degraded and of lower ecological value from a wildlife perspective due to historic and current land use for agriculture, which has restricted overall growth and establishment of vegetation.
3. Based upon literature review and field evaluation of the survey area, ERC has determined that some migratory birds likely utilize the survey area to a limited degree. These birds are protected under the MBTA, and killing or possession of these birds is prohibited. Generally, the active nesting season for

most migratory birds in this region of Colorado occurs between April 1 and August 31. Any future land use changes that may occur within the survey area that remove more permanent vegetation during the active nesting season should first ensure that active nests are not disturbed. A nest survey can be conducted prior to vegetation removal that may occur during this time frame.

- In addition, raptor nest sites are further protected by the CPW. The CPW has established recommended buffer zones and seasonal activity restrictions for a variety of Colorado raptors. While no active nests were observed and no CPW mapped buffer zones are located within the survey area (CPW 2017a), raptors could potentially establish nesting in the vicinity of the survey area. Future land use changes should ensure that no active raptor nest sites have established generally (depending on species) within a ½ mile of the survey area. A nest survey can be conducted in the vicinity of the survey area prior to any disturbance in order to verify the presence/absence of active raptor nest sites.

4. No federally listed threatened and endangered species and/or habitat protected under the ESA were identified within the survey area. The survey area is not within designated critical habitat of any federally listed species. The vegetation communities and features within the survey area were investigated as potential habitat for federally listed species. Potential threatened and endangered species habitat was found to lack one or more habitat components critical for the federally listed species likely to occur in the area. Furthermore, connectivity to known populations was limited due to geographic, hydrologic, and other habitat constraints. Therefore the project will have no effect on federal listed species, their habitats, or proposed or designated critical habitat.
5. Any future project which may be water related or determined to be a water depletion to the South Platte River Basin may potentially be considered an adverse effect to water depletion species. Generally non-water dependent projects such as residential developments (which are supplied by municipal water) are not considered water depletions and therefore would have no effect on these species.
6. No State listed threatened or endangered species and/or habitat protected under CPW under Colorado Statute Title 33 were identified within the survey area. The vegetation communities within the survey area were investigated as potential habitat for state listed species. Potential threatened and endangered species habitat was found to lack one or more habitat components critical for the state listed species likely to occur in the area. Furthermore, connectivity to known populations was limited due to geographic, hydrologic, and other habitat constraints. No other individuals or habitat for state listed threatened and endangered species would likely be impacted by any future land use changes.

This report has been prepared by:

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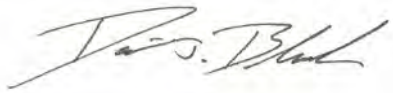
Kyle Medash, Ecologist

Reviewed and approved by:



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