

Sites 5LR9949, 5LR9961, and 5LR9974 are individually considered eligible for listing in the National Register of Historic Places under criterion d (36 CFR 60.4). Each will be adversely affected to a greater or lesser extent by the draw down of Horsetooth Reservoir. Mitigation of these adverse effects is warranted.

As recommended by the Advisory Council on Historic Preservation (ACHP 2002), appropriate treatments for all or portions of archaeological sites include:

- Active preservation in place for future study or other use,
- Complete or partial recovery of archaeological data,
- Public interpretive display, or
- Any combination of these and other measures

Determining which of these treatments is most appropriate is dependent upon the nature of the site, anticipated impacts, and interests of the consulting parties. If it is decided to recover archaeological information through the naturally destructive methods of excavation, then “a research design and data recovery plan based on firm background data, sound planning, and accepted archaeological methods should be formulated and implemented.” (ACHP 2002: 2).

Systematic data recovery is deemed to be the most appropriate strategy for mitigating the adverse effects to the three sites. Data recovery should proceed according to explicit and systematic protocol designed within a problem-oriented research framework with testable hypotheses (Provincial Museum of Newfoundland and Labrador 2001: 4). The problem domains and research hypotheses are framed within the broader context of three locally relevant socioeconomic themes:

- Stone Quarrying (1870-1920)
- Farming and Ranching (1860-1940)
- Irrigation (1859-1959)

3.1 STONE QUARRYING (1870-1920)

Stone quarrying was the predominant industry in this area until Horsetooth Reservoir was built. Highly visible evidence of this activity was left behind, ranging from deep quarry cuts and rubble piles, through stone walls and foundations, to railroad grades and artifact scatters. Quarrying has not been the subject of in-depth historical studies at either the national or regional levels (King 1984), and this project offers the opportunity to study various aspects of this phenomenon.

3.1.1 Problem Domain 3.1.1: Chronology

Knowing when a place was occupied is one of the most fundamental objectives of archaeology. Occupational date(s) may be assigned to historic sites through a review of historic records, analyses of diagnostic artifacts, or a combination of those two methods. Documentation may be plentiful for Site 5LR9974, the Wathen Ranch and second Stout Post Office, but the written records may be mute about the age(s) of Site 5LR9949 and 5LR9961. For these latter two sites, interpreted age ranges of selected artifacts may be more effective in establishing site chronology. If the trash deposits at Site 5LR9961 are deep enough and stratified, and if the artifacts within

each stratum can be assigned age ranges, then it may be possible to distinguish episodes of dumping. Any artifacts found within one or more of the stone foundation rooms at Site 5LR9949 will be most useful in establishing the possible age(s) of the site. The provenience of those artifacts located outside the foundations may be problematic.

Research Hypothesis 3.1.1.1: Site 5LR9949 was built and occupied during the heyday of stone quarrying in the Horsetooth valley, ca. 1880-1900.

Research Hypothesis 3.1.1.2: A single dump episode is represented at Site 5LR9961 and it is principally associated with the most intense period of stone quarrying in the valley, ca. 1880-1900.

Research Hypothesis 3.1.1.3: Site 5LR9974, the location of the Wathen Ranch and second Stout Post Office, dates between ca. 1882, when the post office was moved to this location, and the late 1940s, when Horsetooth Reservoir was built.

3.1.2 Problem Domain 3.1.2: Site Function

Why people settled where they did and how they lived are questions that comprise the essence of anthropological inquiry for any time period. Settlement patterns are discerned by consideration of a site's physical location relative to its information content (i.e., kinds and numbers of artifacts and features). A better understanding of such patterns is certainly enhanced if the site occupation(s) can be dated. Although stone was quarried from the Horsetooth valley as early as the 1870s, construction of the Bellvue to Stout branch of the Greeley, Salt Lake and Pacific (GSL&P) railroad in 1881 precipitated a building boom in the Horsetooth valley. Some features of stone quarrying—such as quarry pits, dumps, derricks, and roadbeds—would by necessity be located at the stone outcrop. Support facilities—such as finishing mills, powder and tool sheds, blacksmith shops, and crushing plant—are most likely to be found within a short distance of the outcrop. Related facilities—such as domestic structures, commercial structures, schools, and government buildings (e.g., post offices)—would be located at some distance from the quarries, probably for health and safety reasons, as well as to be near transportation facilities (e.g., railroad and roads). Thus, it may be said that site function is directly related to the distance between the site and the nearest quarry.

Research Hypothesis 3.1.2.1: The structural foundations at Site 5LR9949 are the remains of a stone processing facility.

Research Hypothesis 3.1.2.2: Few or no domestic artifacts will be found at Site 5LR9949.

Research Hypothesis 3.1.2.3: The majority of the artifacts in the trash dump at Site 5LR9961 will have domestic origins.

Research Hypothesis 3.1.2.4: The foundations at Site 5LR9974 are the remnants of domestic or commercial structures.

Research Hypothesis 3.1.2.5: Artifacts that are found at Site 5LR9974 will have domestic or commercial origins.

3.1.3 Problem Domain 3.1.3: Technology

Quarrying stone from an outcrop is generally a straightforward process: large blocks of stone are separated from the outcrop using specialized machines, methods, and tools. As described by King (1984), one technique “known as plug and feather, involved drilling holes into which workers then drive wooden wedges (plugs) and half-round metal bars (feathers) to crack the stones into blocks ready for further fabrication at a mill or by hand labor.” Less time consuming is a method whereby the drill holes are filled with “black powder and by means of slow-burning fuses or battery charges blasted out the stone into workable sizes.” This technique probably produced more rubble than blocks. Some quarries used a more sophisticated machine called a channeler, which was powered by steam, compressed air, or electricity, and moved along a two-rail track while its chisels cut a “channel” in the rock. After 1890, other quarries used a wire saw. Stonemasons would rough shape the blocks for transport to finishing mills or dressing plants, which then prepared the stone for market. Other equipment commonly found in quarries included hoist derricks, inclined tramways, and flat, low-wheeled wagons for hauling stone.

Research Hypothesis 3.1.3.1: Stone was extracted from the outcrop at Site 5LR9949 using the plug and feather method. Discarded feathers, and possibly plugs, should be found at the site.

Research Hypothesis 3.1.3.2: Masons rough-finished stones in the rooms next to the quarry pit at Site 5LR9949. Fragments of stone should be abundant in these areas.

Research Hypothesis 3.1.3.3: The base(s) of hoist derricks should be present in the quarry area at Site 5LR9949.

3.1.4 Problem Domain 3.1.4: Extra-local Relationships

Those who settled in the Horsetooth valley came from nearby towns and cities (e.g., Fort Collins, Greeley, or even Denver), or other areas of the country. As such, they would have brought with them, or had shipped in, many items that they could not manufacture locally. Such items would include machinery, parts, and tools, possibly even milled lumber. Manufacturer’s names, locations, and dates may be embossed or stamped on some of the larger tools or pieces of equipment.

Research Hypothesis 3.1.4.1: The majority of the extra-local items came from nearby towns.

Research Hypothesis 3.1.4.2: Because of their scarcity, extra-local items would be repaired rather than discarded when they broke or were no longer usable.

3.2 FARMING AND RANCHING (1860-1940)

Slightly before and during the boom in stone quarrying, the livelihood of other settlers in the Horsetooth valley was founded upon farming and ranching. William Bachelder settled in Spring Canyon at the southern end of the Horsetooth valley in 1871 and raised sheep. His success encouraged others to raise flocks, and until about 1885, sheep raising and wool growing were important elements of the local economy. Much of the land now occupied by Horsetooth Reservoir was homesteaded and farms established in the mid- to late-1880s. These farmers built substantial homes of local stone, raised cows and chickens, grew corn, wheat, and garden vegetables, and produced milk and butter. Many of the farmers supplemented their income by

hauling rock in the quarries and loading railroad cars. Site 5LR9974, and possibly 5LR9961, are representative of this theme.

3.2.1 Problem Domain 3.2.1: Chronology

Research Hypothesis 3.2.1.1: Site 5LR9974, the Wathen Ranch and second Stout Post Office, is one of the oldest sites in the valley. Diagnostic artifacts recovered from the site should be older than the quarries (i.e., pre-1880).

Research Hypothesis 3.2.1.2: Site 5LR9974 was occupied longer than most other sites in the valley, ca. 1870 until the late 1940s when Horsetooth Reservoir was built.

Research Hypothesis 3.2.1.3: If the trash dump at Site 5LR9961 was principally associated with farming and ranching in the valley, then the age ranges of diagnostic artifacts should encompass a lengthy period from ca. 1860 until the 1940s.

3.2.2 Problem Domain 3.2.2: Site Function

Research Hypothesis 3.2.2.1: Site 5LR9974 was principally a domestic facility (ranch house) that also served a governmental purpose (post office). Artifacts of a domestic nature should dominate the artifact assemblage, with a smaller number of artifacts that can be linked to its post office function.

Research Hypothesis 3.2.2.2: Site 5LR9961 has always been used for refuse disposal. No features or structural remnants will be present.

3.2.3 Problem Domain 3.2.3: Technology

The techniques and tools required for farms and ranches differed markedly from stone quarrying, the other major industry in the Horsetooth valley. Besides the domestic structures, other structural evidence of farming and ranching include barns, sheds, corrals, fences, windmills, and roads. Artifacts include plowing and harvesting implements, sheep shears, fence mending tools, and blacksmith equipment.

Research Hypothesis 3.2.3.1: Site 5LR9974 is part of the Wathen Ranch and recovered artifacts should reflect that function.

Research Hypothesis 3.2.3.1: If the refuse deposit at Site 5LR9961 is stratified, then it may be possible to discern an evolution in tool types and the use(s) of those tools.

3.2.4 Problem Domain 3.2.4: Extra-local Relationships

The farmers and ranchers in the project area had direct and indirect connections to the world beyond the valley. Goods produced locally (e.g., meat, produce, grains, and hay) were shipped to Fort Collins, Greeley, and beyond, by railroad and road. Finished products, such as tools and equipment, came into the valley by the same agencies. The early settlers probably also brought material goods with them when they first entered the area. The quantity and quality of these extra-local items should provide insights into the degree of dependency upon products and information from the outside world.

Research Hypothesis 3.2.4.1: Items such as ceramics, cutlery, and specialized tools cannot be manufactured locally and will have been imported. Their frequencies in the artifact assemblage at Sites 5LR9961 and 5LR9974 should measure the strength of these outside connections.

Research Hypothesis 3.2.4.2: If the refuse deposit at Site 5LR9961 is stratified, then it may be possible to describe an evolution in the preference for such extra-local items.

3.3 IRRIGATION (1859-1959)

Even before Horsetooth Reservoir was constructed in the late 1940s, water was an important commodity to the other major industries, especially farming and ranching. The earliest pioneers in the Upper South Platte River Basin built small ditches and diverted water from mountain streams. By 1860, farmers had also dug ditches diverting water from the Cache La Poudre River, immediately north of the project area. The building of irrigation systems to provide water for such water-loving crops as alfalfa, potatoes, and sugar beets, became a major industry from the 1870s until 1910. The resulting elaborate system of canals and reservoirs transformed northeastern Colorado into some of the nation's most intensively cultivated farmland. The 1920s and 1930s were plagued by droughts and water shortages, however, which greatly affected the livelihoods of local farmers.

The Colorado-Big Thompson Project was conceived as a venture to divert, capture, store, and regulate the direct and indirect use of water for irrigation, domestic, municipal, industrial, power, and recreational purposes. The project diverted water from Colorado's Western Slope to Eastern Slope water users. Begun in 1937, it took over 20 years to complete. Horsetooth Reservoir is one of the Colorado-Big Thompson Project's principal storage facilities on the eastern side of the Continental Divide. Constructed between 1946 and 1949, the reservoir covers an area of 1,873 acres at an elevation of 5430 ft. and impounds 147,322 acre-feet of water. Water stored in the reservoir supplies irrigation water for lands in the Cache La Poudre Valley.

None of the three sites exhibit any evidence of water diversion, conveyance, or storage. A well, 8-10 ft. deep and made of stacked sandstone slabs (5LR9975), is located about 1,500 ft. west of Site 5LR9949, the quarry and stone processing facility. Though distant, it may have provided all the water the quarry workers needed. Water devices for the other sites may have been destroyed or are buried by many inches or feet of silt. A few water storage cisterns are scattered about the project area.

The draw down of Horsetooth reservoir provides the opportunity to investigate construction practices for the dams and reservoir, with a special emphasis on how the available construction equipment governed the pattern of landscape use. In addition, topographic maps of the landscape before water was added will be prepared. These maps will display previous cultural resources surveys, known sites, and construction disturbance areas.

3.3.1 Problem Domain 3.3.1: Technology

Providing water for domestic and industrial purposes, as well as irrigating crops, requires a fairly sophisticated appraisal of the water needs and development of the means to extract, convey, and store this commodity. Water could be captured from nearby streams (e.g., Spring and Dixon Creeks), springs, wells, or incidental runoff, conveyed via shallow ditches or pipes to storage reservoirs or cisterns.

Construction of the Horsetooth Dams and other features associated with the reservoir involved extensive earth moving and disturbance of the existing landscape. Large mechanical equipment accomplished these activities and remnants of such ground disturbance may still be visible in the draw down area. The size and efficiency of construction equipment and construction techniques have also changed in the 50-plus years since the Horsetooth Dams and Reservoir were completed. The differences should be clear and measurable.

Research Hypothesis 3.3.1.1: Some type of water storage feature (e.g., cistern) should be present at Site 5LR9949, the stone quarry.

Research Hypothesis 3.3.1.2: The Wathen Ranch (5LR9974) would have required a great deal of water for domestic use, animals, and crops. As such, a system of well, ditches or pipes, and storage features should be present.

Research Hypothesis 3.3.1.3: The pattern of the late 1940s construction activities will differ from modern construction sites.

Research Hypothesis 3.3.1.4: The pattern for the construction of Horsetooth Reservoir will differ from contemporaneous Reclamation projects due to the distinctive setting of Horsetooth.