

National Park Service
U.S. Department of the Interior



Klondike Gold Rush National Historical Park
Skagway, Alaska

Canyon City Loop Trail Environmental Assessment July 2015



Canyon City lodging, 1898. Yukon Archives, Anton Vogee Collection, #57.

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1. BACKGROUND

The purpose of Klondike Gold Rush National Historical Park (KLG0) is to preserve in public ownership, for the benefit and inspiration of the people of the United States, the historic structures, trails, artifacts, landscapes, and stories associated with the Klondike Gold Rush of 1898 (Public Law 94-323).

The National Park Service (NPS) proposes to enhance the visitor experience at Canyon City through the creation of a ¼ mile loop trail that expands on the existing trail in the historic Canyon City town site located 8 miles up the Chilkoot Trail in KLG0 (Figure 1).

Canyon City has been a popular camping area since the trail's creation. It was the site of an organized settlement during the Klondike Gold Rush of 1897-99. The site's prominence stems from its location at the south end of the Taiya River Canyon (Dyea Canyon) (Norris 1986:1). A day's travel from Dyea, Canyon City evolved as the first major stop on the Chilkoot Trail route to the Klondike gold fields. It became a natural resting place for packers and prospectors before negotiating the difficult canyon and gateway to the upper Taiya Valley (Ferreira 2010:42). In addition to cultural resources, numerous natural resources can be interpreted in this area.



Figure 1- View of pack train and west side of Main Street in Historic Canyon City (Alaska State Library, William Werner Shorthill Collection, PCA 389-58; KLG0). Library CC-54-6732.).



Figure 2- Example of the Wagon road and cobble alignments that are located throughout the Historic Canyon City area (University of Washington, Klondyke Album PH Coll 397.4, UW 21784; KLG0 Library). TV-61-10406

By the summer of 1898, the wagon road from Dyea to Canyon City had been significantly improved, although its pioneer character remained. The trail itself remained close to the river but spread within the business district. According to the NPS cultural landscape report for the area, "the trail corridor was abnormally wide...probably due to the grandiose ideals incorporated into the town plat...The trail itself, however, was a rocky sinuous path less than 15 feet wide" (Ferreira 2010:42) (Figure 3).

Canyon City is also located near the confluence of two major watersheds, one that is heavily influenced from glacial runoff (Nourse River), and the other more influenced by precipitation runoff (Taiya River). This makes it an ideal location to interpret the differences in the river systems and surrounding natural

resources. The modern campground is located on the East side of the Taiya River and is still a popular camping destination for visitors traveling over the Chilkoot Trail. Currently, the trail to the Historic Canyon City is an out and back trail with the primary focus on the Dyea-Klondike Transportation Company (DKT) boiler, a large gold rush infrastructure artifact that is included on the NPS List of Classified Structures. However, there are numerous other cultural and natural resources in the vicinity that have the potential to make the site more of a destination for visitors without denigrating the historical integrity of the site.

1.1 Purpose and Need

Accumulated findings of archeological surveys, visitor surveys, and visitor incidents demonstrate a need in the Canyon City area for improved trail access.

Social trail development is extensive through the heart of the historic town site where several artifacts and building remains can be seen above the surface of the accumulating duff layer. The most recent archeological work in the area (Griffin 1997) found that social trails were traveling directly over historic building sites and degrading the integrity of the sites. Safety is also a primary concern. The longest search for missing persons within KLGO occurred in the historic town site area. Individuals were following social trails looking for artifacts and became disoriented, resulting in three days lost without food or shelter.

Anecdotal information from field staff continues to indicate ongoing disappointment from park visitors regarding the overall Historic Canyon City experience. A 1990 archeological survey listed the need for interpretation and recommended that onsite interpretation would greatly improve the visitor experience and connection with place (Leeper 1990:10).

The purpose of the project is to protect, interpret, and connect visitors with both the natural and cultural resources of the historic Canyon City town site. This will be accomplished by constructing an interpretive loop trail with interpretive signs conveying information about the boom and bust settlement of Canyon City.

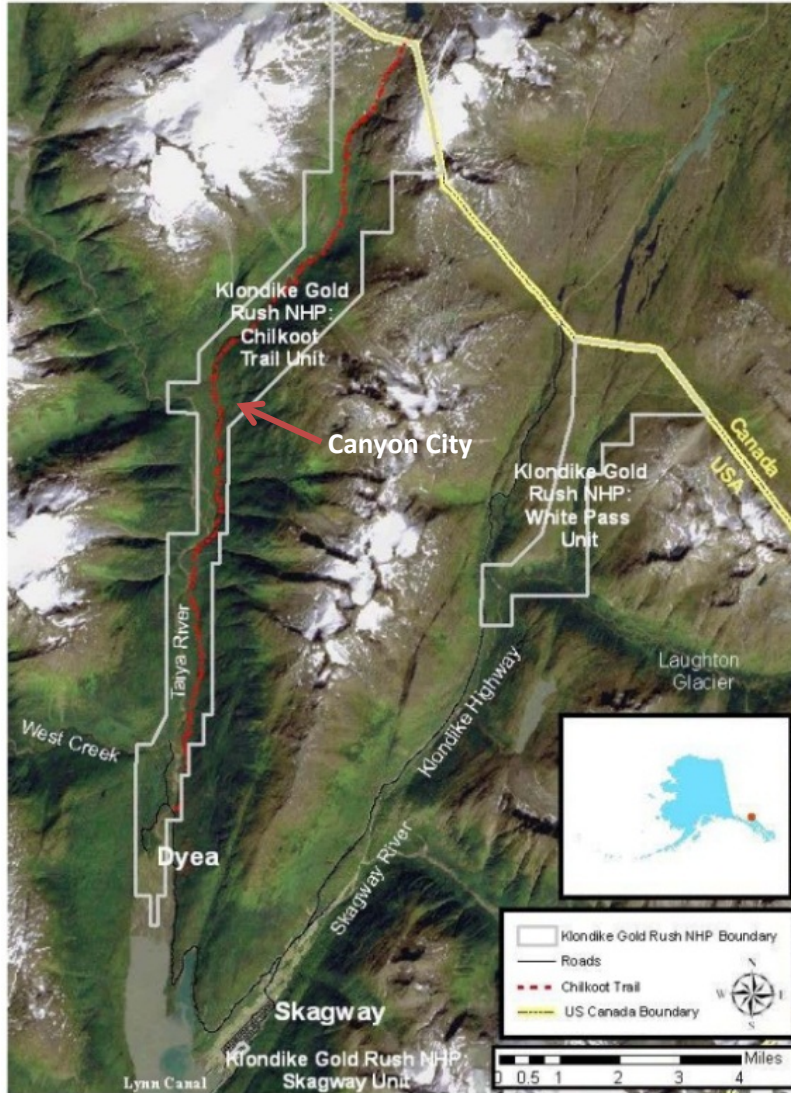


Figure 3 - Overview of Klondike Gold Rush National Historical Park (ArcGIS Map, 2015)

1.2 Impact Topics Considered and Eliminated

Project-related resource issues and concerns are grouped into distinct impact topics to aid analysis of environmental consequences. The impact topics listed were identified on the basis of federal laws, regulations, orders, NPS Management Policies (2006), and staff knowledge of potentially affected resources.

The following impact topics will be evaluated in this EA: Cultural Resources, Visual Resources / Viewshed, Vegetation, Wildlife, Soils, Wetlands and Riparian Areas, and Soundscape.

The following impact topics were identified but dismissed from further evaluation; a brief rationale for elimination is provided for each topic.

Air Quality: There may be short-term minimal impacts to local air quality from chain saws and helicopter use. All 2 cycle gas mix and bar oil utilized in the backcountry are Green Seal Certified products. According to the most recent State of the Parks Report published in 2013, “air quality in Southeast Alaska is very good, but localized air pollution from sources such as marine vessels and cruise ships, wood burning stoves, vehicle exhaust, and unpaved roads can contribute to the deterioration of air quality that can affect park resources. Additionally, Trans-Pacific pollutants such as nitrogen are a growing concern for all of western North America. Lichens are well known sensitive receptors for air pollution and are used as bio monitors of air quality worldwide” (NPS 2013:3). The use of chainsaws would be minimal with less than 5 gallons of fuel being consumed for the entire project. Due to these factors there would be no potential for significant impacts to air quality.

Wilderness: There is no wilderness located within Klondike Gold Rush National Historical Park. Wilderness will not be considered further in this EA.

Subsistence Resources, Use, and Access: ANILCA created new conservation system units and additions to existing units of the national park system in Alaska. Section 816 of ANILCA prohibits the taking of wildlife in national parks and monuments unless specifically authorized. KLGO was established in 1976 before the passage of ANILCA. Neither ANILCA nor NPS regulations authorize subsistence use on federal lands within KLGO. Since these uses are not authorized within KLGO, they will not be impacted by the proposed project and are therefore eliminated from further consideration. An ANILCA 810 analysis is not necessary and will not be prepared for this action.

Threatened and Endangered Species (T&E species): No T&E species or associated habitat(s) have been documented within the project area. Therefore, T&E species are eliminated from further consideration.

2. ALTERNATIVES

2.1 Alternative 1: No Action

Under the No Action Alternative, the existing Canyon City town site trail would remain in place. The existing trail is a gravel tread trail that varies in width from 2-3ft and is 3,200 ft. long. Brushing and maintenance would continue along this section. No additional interpretive signage would be added. Other features within the historic Canyon City area would be allowed to naturally decay and be reclaimed into the environment. The historic trail would continue to be overgrown by succession of the surrounding forest.

2.2 Alternative 2: Construct a ¾ mile Loop Trail with Interpretive Signage (Preferred Alternative)

The proposed loop trail would start at the terminus of the existing Canyon City trail (at the DKT boiler) and would continue to the southwest to the bank of the Nourse River, then progress back to the east where it would connect with the historic wagon road from Dyea and turn north to merge with the original trail and the bridge across the Taiya to the Chilkoot Trail (Figure 4). Work would be carried out by NPS trail crew staff and is estimated to take eight weeks. The trail would be constructed with

both hand and motorized equipment. Work would begin in the fall of 2015 with the majority of work occurring during the summer of 2016. The expected total footprint of the new trail would be 0.18 acres (7,874 square feet).

The proposed trail would be 2 feet wide, 3,937 feet long, and constructed of locally procured gravels (see below for more information on gravel sources). The proposed route is located entirely on a gravel flood plain with a mixed forest of open cottonwood, pockets of spruce and dense alder in the low lying areas.

There are also several sections of social trail of which would be rehabilitated. These sections are less than 200 ft. in length and vary from 1-3 ft. in width. Vegetation mat removed from the new trail sections would be retained and placed over the social trails.



Figure 4 - Overview of the project area. The slough visible in Figure 4 is seen heading east just south of where the proposed trail meets the Nourse River (NPS ArcGIS Map, 2015).

The major areas of ground disturbance would be in the locations requiring tree stump removal from the trail corridor. For the entire length of the proposed trail, it is estimated that less than 15 live trees would need to be removed. Individual trees would be surveyed since there are so few of them in the alignment. The proposed trail would pass through approximately 120 linear feet of alders that would also be removed. The alder stumps would also require removal but the root systems are much shallower and would result in minimal ground disturbance.



Figure 5 -1894 Survey photo of the Historic Canyon City area clearly showing the results of the glacial outburst of the Nourse Valley. Also the main slough that cuts directly across to the Taiya River is visible. (Library and Archives Canada, International Boundary Commission Collection, PA162925; KLGO Library BC-37-2082).

At most 50 cubic yards of gravel would be needed for this project (3,937 ft. long, 2ft wide, 2 inches deep) Gravel would be taken from borrow pits. Gravels would be removed with hand and motorized equipment throughout the project.

Up to twelve (12) borrow pits would be created for this purpose. The pits are estimated to range in size from 1 to 15 cubic yards. All pits would be located outside of wetlands and their location

would be field checked with a cultural resource specialist prior to installation to ensure that no cultural resources are located in their footprints or affected by their creation. Borrow pit sites would be

strategically located to completely avoid impact on the surrounding cultural resources and to have no significant effect on the natural resources in the area. Borrow pits would be re-vegetated after use by backfilling with organics from the trail corridor.

Several small rock structures are planned for this section of trail. Rock structures would consist of up to 16 stone steps down a steep traverse and a stone causeway up to 200 feet in length. The causeway would consist of a stone border to hold and elevate the gravel trail tread in place. The stair section would be the same width as other trail sections; the causeway would be up to 2 feet wider to keep the gravel tread width at 2 feet. Causeway sections would primarily be located where the trail passes through an intermittent slough or low area. Throughout the process great care would be taken to not disturb any of the existing cobble alignments that remain from the gold rush. There would be no wood structures along the route.

The Canyon City loop trail would take advantage of viewpoints of the historic trail as much as possible while preserving the historic corridor.

Under the Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703), it is illegal to "take" migratory birds, their eggs, feathers or nests. "Take" includes by any means or in any manner, any attempt at hunting,

pursuing, wounding, killing, possessing or transporting any migratory bird, nest, egg, or part thereof. In accordance with the USFWS timing guidelines recommended for the protection of migratory birds; vegetation clearing, site preparation, or other construction activities that may result in the destruction of active bird nests would not be undertaken during the nesting season, April 15 through July 15. If any active nest is encountered at any time, it would be protected from destruction. "Active" is indicated by intact eggs, live chicks, or presence of an adult on the nest. Eggs, chicks, or adults of wild birds would not be destroyed. All brushing would occur after July 15 in accordance with the Migratory Bird Treaty Act

Signage would consist of up to ten (10), 24x36 inch panels detailing the history of the site and small (8x8 inch) trail signs as needed for natural and cultural feature identification. All signs would be consistent with existing signs along the Chilkoot Trail.

A boot brush sign would be installed at the Chilkoot Trailhead to help mitigate the potential spread of invasive species along the trail and into the project area. Invasive species inventories and surveys have been conducted in the project area and no invasive species of concern have been found within a 1 mile buffer of the Canyon City town site.

The project would also follow standard archeological procedures to avoid impacting cultural resources. See Appendix B for the Canyon City Loop Trail Archaeological Research Design.

3. AFFECTED ENVIRONMENT

The Canyon City Loop Trail would be located in the Historic Canyon City town site, 8 miles up the Chilkoot Trail from Dyea. The lower Taiya River Valley terminates at the historic Canyon City town site, where a narrow canyon begins, heading in a northeasterly direction. To the west across the valley floor, the Nourse River Valley begins and runs in a northwesterly direction (refer to Figure 1 for overview). The historic town site lies on a flat outwash plain between the two rivers that flow out of these valleys (see Appendix A). A slough of the Nourse River cuts directly across the valley south of this area and joins with the Taiya just below the recreational Canyon City Campground. This slough defines the southern boundary of the flat area where the historic town site was located (visible in the site aerial photo, Figure 4). This area is not considered the main confluence of these two rivers as this slough seems to be ephemeral and dependent on the seasonal flow of the Nourse River (Ferreira 2010:186).

The vegetation of the lower valley has been scoured by major flood events leaving relatively sparse vegetation and a thin organic layer. These flood events also deposited large amounts of glacial debris from the site of Canyon City southward. It is estimated that the last devastating flood in the area occurred between 1883 and 1887 (Ferreira 2010:331) (Figure 5).

The vegetation in the immediate vicinity of the proposed trail location is open mixed forest with pockets of closed spruce and hemlock forest where the hillside meets the floodplain. There are dense sections of alder in the low lying areas where there is more moisture. A large portion of the flood plain is

covered in grasses and understory shrubs such as highbush cranberry and willow (see Appendix A and B).

Several archeological surveys conducted in the Canyon City area in the past 30 years have contributed to a thorough understanding of cultural resources in the vicinity (see Appendix B, Figure 6).

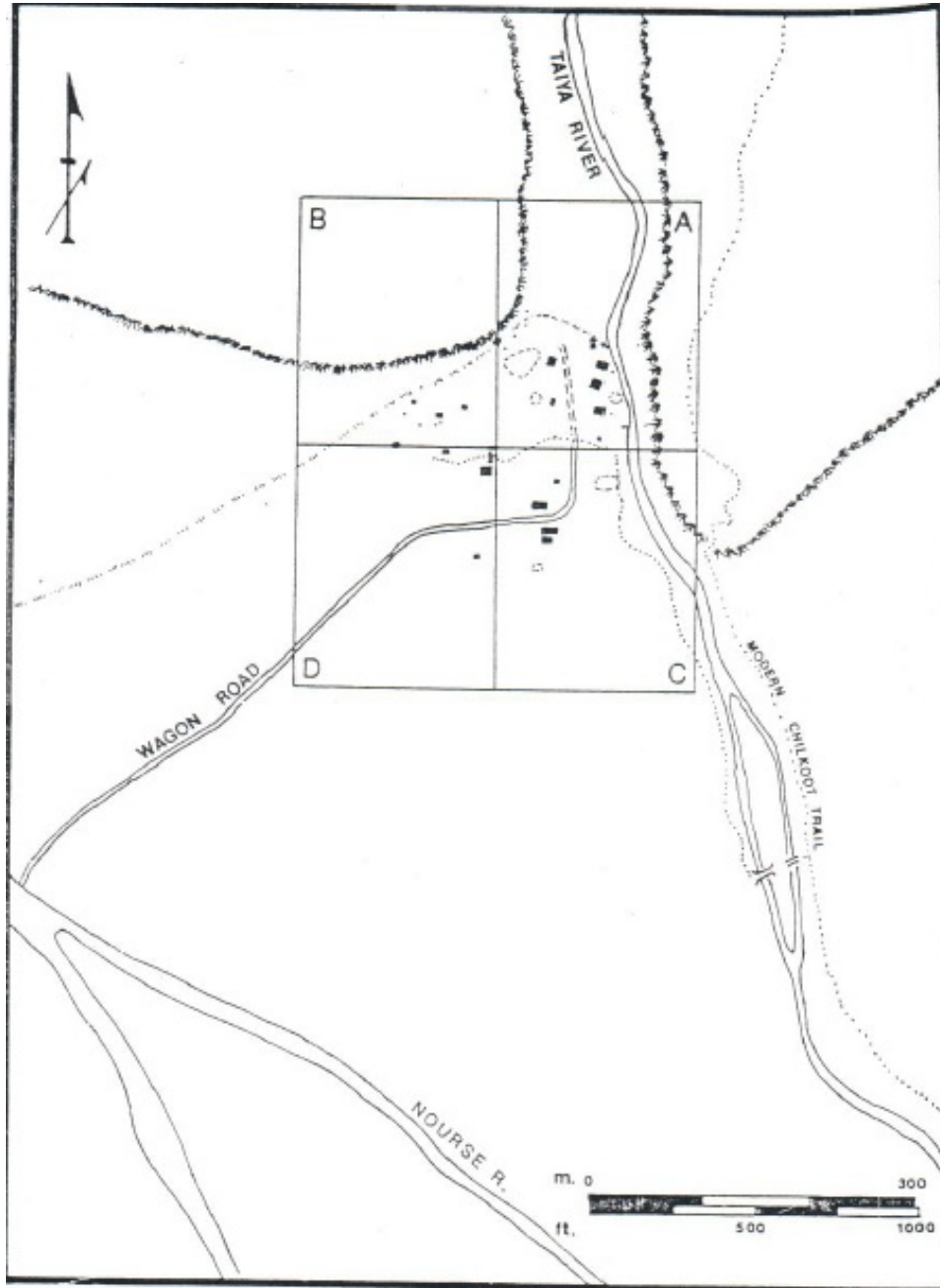


Figure 6 - Overview of Canyon City showing the four areas inventoried (from Carley 1981:76, their figure 11).

4. ENVIRONMENTAL CONSEQUENCES

4.1 Alternative 1: No Action

Under the no action alternative, there would be no short-term disturbance from tools and workers in the area and there would be no impact to the undisturbed areas in the vicinity of the Nourse River and outside of the main town site location. Development of social trails would continue to impact both natural and cultural resources throughout the historic town site. The Canyon City town site would not be interpreted for hikers; the no action alternative would not provide an opportunity for an increased connection with visitors. Cultural resources would continue to be absorbed into the surrounding natural vegetation, absorbing signs of the once vibrant town site and the achievements of those who established it.

Social trails located at the DKT boiler and radiating out from the ambiguous end of the current trail would continue to damage the existing cultural resources. These trails are a result of visitors walking off the maintained trail, creating social trails through and in some cases over archeological features. Once these social trails are visible, foot traffic on them tends to increase, causing more damage to sensitive resources. Cultural resources would continue to be impacted by the social trails traveling over/through potentially significant features.

4.2 Alternative 2: Construct Historic Canyon City Loop Trail (Preferred Alternative)

Visual resources: The primary change resulting from the preferred alternative would be the visual impact of the removal of vegetation and establishment of a trail tread through the historic town site and glacial outwash plain. The proposed trail would traverse the same corridor as the historic wagon road from 1898, taking advantage of viewpoints of the historic wagon road wherever possible, and preserving historic features. Interpretive panels with photos from the period (similar to Figure 5) would accentuate the connection of the past and present with the visitor. The layout of the trail would also preserve the historic corridor to Canyon City.

Vegetation: None of the land cover types that are being disturbed are classified as sensitive or threatened. This particular forest type (Open Black Cottonwood Forest) is well represented throughout the rest of the outwash plain and in several other locations throughout the park. According to the *Klondike Gold Rush National Historical Park: Landcover classes and plant associations* report, “none of the plant associations known or thought to occur in Klondike Gold Rush NHP have been formally ranked as rare (with rarity defined as a conservation status of G1 or G2, S1 or S2), and although the range and extent of provisional plant associations is not completely known, it is thought that most of these associations occur commonly outside of the Park and that their distribution is relatively secure,” (Flagstad and Boucher 2015:27). The clearing of the trail corridor would have negligible effects on the forest type as a whole. The rehabilitation of several existing social trails in the project area would have minor beneficial effects on the forest type as a whole.

The creation of the Canyon City Loop Trail could lead to an increase in invasive species along the Chilkoot Trail. There currently is a bridge across the Taiya River (the main natural barrier between the

recreational Chilkoot Trail and the Historic town site) and a spur trail to the peninsula and historic town site. The spur trail has been inventoried for invasive species and, to date, none have been found. Increasing the length of the trail would increase the area visitors have access to but not the type of invasive species introduced. The creation of the loop trail would have negligible effect on the spread of invasive species throughout the park.

Increased human use does have the potential for the introduction of invasive species to occur at the site. However, the development of the loop trail would not increase the variety or quantity of invasive species in the park due to planned mitigation measures, including installation of a boot brush at the Chilkoot trailhead. Boot brushes would be installed at the trailhead along with an interpretive sign about invasives and at Sheep Camp to encourage hikers to remove dirt that may be carrying invasive plant seeds before continuing on the trail. Large hand pulling efforts (by staff, service groups and community events) have focused in the Dyea area for many previous years and have aimed to protect the native species in that area as well as to prevent those invasive species from migrating up the Chilkoot Trail corridor. Outreach implemented in 2015 includes visitor interpretive talks and evening presentations focused on invasive species. An identification chart of KLGO's invasive plants with contact info the natural resources office was also distributed to all KLGO staff this summer and would be placed in all Chilkoot trail warming huts to aid with identification and reporting of invasive plants detected by hikers. Ongoing visitor education is the strongest mitigation measure available to the park to help curb the spread of invasive species into the project area.

Wildlife: There may be temporary displacement of wildlife due to noise and human activities during the brushing and construction phases of the project. Brushing would occur after July 15 in accordance with the (MBTA) and individual trees would be surveyed for bird nests. When the project is finished human activity would return to low levels and wildlife patterns would return to normal. Bears and other mega fauna currently use the Chilkoot Trail and this additional piece of trail is not expected to have a significant impact on wildlife behavior or use of the area. The increase in human use would have a minimal effect on the wildlife as there is already a trail in the vicinity and may even result in positive outcome for wildlife as the presence of social trails is eliminated.

Boreal Toads, a species of concern, who inhabit areas of the park are not known to live in the project area. There are no toad breeding sites within a 1 mile buffer of Canyon City. The closest toad survey site to the project area is located 1.3 miles south of Canyon City and has never had recorded breeding. Opportunistic detections of adult toads have occurred within the 1 mile buffer of the site. Additionally 2 unconfirmed sightings of Northwestern Salamanders have been reported, but follow-up systematic surveys to confirm these reports failed to detect salamanders and so they are considered unconfirmed for KLGO. As the project area is not a toad breeding site the project would have a minimal to no impact on toads.

Soils: Up to twelve (12) borrow pits would be located throughout the project site. These would be cleared by on-site archeologists prior to or during construction (Appendix B) and would not be located in wetlands. The disturbed areas would be re-vegetated with vegetation mats and filled with organics from the tread profile.

Due to the thin organic layer (1-2cm thick) found throughout the proposed footprint of the new trail there would be very minimal ground disturbance along the length of the trail.

Wetlands and Riparian Areas: Less than 0.1 acres of wetlands and no riparian zones would be impacted during the project. A National Park Service Wetlands Statement of Findings used to evaluate wetlands impacts and prescribe mitigation measures and compensation efforts is not required for this project. Trail construction with wetlands interpretation components with less than 0.1 acre of impact is excepted from these requirements. At most 0.04 acres of wetland would be affected by trail construction. Trail construction would have a negligible effect on the flood retention, habitat and other values received from wetlands.

Soundscape: There would be minor short-term noise disturbance from chain saws, aircraft, and construction crews during the brushing and construction phases. The noise would continue at varying levels for a maximum total of eight weeks. There would be no long-term noise impacts from the project beyond normal operations in the Park.

Cultural Resources: The alignment of this loop trail would be surveyed by archaeologists prior to trail construction. If historic properties are found during the survey the trail would be realigned to avoid impacting these resources. The park is seeking concurrence from the State Historic Preservation Office (SHPO) on a conditional finding of “no historic properties adverse effected” for the project based on the outcome of this survey. Additionally archaeologists would monitor trail construction in order to minimize damage to the historic resources of Canyon City. The historical landscape would be enhanced by the construction of a trail near a portion of a Gold Rush era trail alignment. For more information on the mitigation to cultural resources, please refer to Appendix B.

There are numerous cultural resources in the vicinity of the proposed Canyon City Loop Trail. The Chilkoot Trail is a National Historic Landmark and a Cultural landscape and Canyon City is a contributing feature to the Chilkoot Trail. This project would help exhibit these resources to visitors and to create in visitors a greater sense of place and connection with the experiences of the individuals who participated in the 1898 Klondike Gold Rush. It would also remove human traffic over the archaeological features of historic Canyon City by eliminating the social trails that currently run human traffic over those features.

Cumulative Effects: Cumulative impacts were analyzed to add up the incremental impacts to the environment resulting from adding the alternatives to other past, present, and reasonably foreseeable future actions. Under Alternative 2 (the Proposed Action), there are no past, present, or reasonably foreseeable future actions whose effects, when combined with the effects of this action, result in cumulative effects.

5. CONSULTATION AND COORDINATION

List of Persons and Agencies Consulted:

Department of Natural Resources, State of Alaska, Anchorage, AK
Skagway Traditional Council, Skagway, AK
Shina Duvall, State Historic Preservation Office, State of Alaska, Anchorage, AK
Shawn Jones, Archeologist, Klondike Gold Rush National Historical Park (KLGO)
Mike Tranel, Superintendent, KLGO
Samantha Rechert, Curator, KLGO
Karl Gurcke, Historian, KLGO
Leslie Martin, Trail Crew, KLGO

List of Preparers:

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Phoebe Gilbert, Acting Chief or resources (June-July 2015 KLGO
Aric Baldwin, Trails Foreman, Klondike KLGO

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APPENDIX A

**Floodplain Statement of Findings
Canyon City Loop Trail
Klondike Gold Rush National Historical Park**

Recommended

Michael J. Tranel, Superintendent, Klondike Gold Rush National Historical Park

Date

Certified for Technical Accuracy and Servicewide Consistency

Chief, National Park Service Water Resources Division

Date

Approved

Alaska Regional Director

Date

Introduction

Proposed Action

A 3937 ft. trail extension would be constructed to create a loop trail to enhance the cultural and natural interpretation of the Historic Canyon City Townsite area of the Chilkoot Trail, Klondike National Historical Park, Alaska. The proposed route is located entirely within the floodplain of the Taiya River. Currently, the trail to the historic townsite is an out-and-back spur trail off of the Chilkoot Trail with several social trails branching off of the spur trail. Some of the social trails are damaging archeological features at the site. The trail construction would help to direct traffic away from these sensitive features.

The loop trail would start at the terminus of the existing Canyon City spur trail and continue to the southwest to the bank of the Nourse River, then progress back to the east where it would connect with the historic wagon road from Dyea and turn north to merge with the existing Canyon City spur trail and the bridge across the Taiya to the Chilkoot Trail.

Site Description

Canyon City is located eight miles north of the head of the Chilkoot Trail in Klondike Gold Rush National Historical Park. The town site is located on the west bank of the Taiya River and just north and upstream of its confluence with the Nourse River. Historically, Canyon City was a settlement during the Klondike Gold Rush (1897 through 1899). It was a day's travel from the head of the Chilkoot Trail and a natural stopping gateway to the upper Taiya River valley. Consequently it became the first major stop for prospectors traversing the trail. The area is currently a popular camping area for people hiking the Chilkoot Trail.

The proposed route is located entirely on a gravel flood plain within a mixed forest of open cottonwood, pockets of spruce and dense alder in the low lying areas. The vegetation of the lower valley has been scoured by two major flood events (see below) leaving relatively sparse vegetation and a thin organic layer. These flood events also deposited large amounts of glacial debris from the site of Canyon City southward. Due to this thin organic layer there would be very minimal ground disturbance along the length of the trail. The majority of the proposed construction area of the loop trail is 6-10 feet above the Mean Water Level. The Canyon City Loop Trail is on a peninsula of land between the Nourse and Taiya Rivers. On site investigations have displayed no signs of flooding in the area of the proposed trail despite having the 3rd highest recorded water level in the lower Taiya in 2014.

The proposed trail along with a majority of the Chilkoot Trail south of Canyon City would be subject to the effects of a glacial outburst in the Nourse watershed. The distance to higher ground is similar to other locations along the Chilkoot Trail south of Canyon City at about a quarter mile. The under-story between the proposed trail and higher ground is thinner in many places than on the Chilkoot Trail. Visitation to KLGO averages nearly a million people annually of who approximately 3,000 hike the 33-mile Chilkoot Trail. Canyon City is the preferred camp for families and visitors who do not want to undertake the entire Chilkoot Trail and providing additional recreational opportunities in this area would greatly increase the visitor experience.

Canyon City has been a popular camping ground since the trail's inception. It was the site of an organized settlement during the Klondike Gold Rush of 1897-99. The site's prominence stems from its open and flat location at the south end of the Taiya River Canyon (Dyea Canyon) (Norris 1986:1). A day's travel from Dyea, Canyon City evolved as the first major stop on the Chilkoot Trail route to the Klondike gold fields. It became a natural resting place for packers and prospectors before negotiating the difficult canyon and gateway to the upper Taiya Valley (Ferreira 2010:42).

General characterization of floodplain values and of the nature of flooding and associated floodplain processes in the area

The Taiya River watershed is a coastal river system that includes glacially-fed streams and dramatically changing river channels. The Taiya River receives its primary runoff from annual snowpack and glaciers and carries a heavy sediment load. The dynamic channel migration has already caused the loss of over 30% of the townsite of Dyea, part of the National Historic Landmark, located 7 miles downstream from the project site. Retreating glaciers, the development of proglacial lakes, and periodic glacial lake outburst floods have strongly influenced patterns of erosion and deposition during seasonal flood events and periodic glacial lake outbursts. The topography of the region was mainly formed by glaciation which ended approximately 13,000 years ago. Alpine glaciers still exist at higher elevations. Soils in the Taiya River valley are composed of alluvial deposits (ERTEC, 1983).

The level of the Taiya River changes frequently on a seasonal and often daily basis. The Taiya and its tributaries are fed by glacial runoff so generally the highest levels are seen in the springtime during the seasonal thaw. River flow is typically high during spring and early summer, although not usually high enough to cause flooding unless there has been a heavy snowfall or the area receives an abnormal amount of precipitation. Summer is usually the driest time of the year and the river levels are maintained by snowmelt. Late summer and fall is the wettest season for the area and consequently carries the highest seasonal flood risk for the Taiya River. Warm temperatures causing increased snowmelt compounded with increased precipitation can cause seasonal floods that constantly rework the physical landscape.

Catastrophic glacial lake dam outburst floods wash glacial ice, boulders, soil and vegetation down the river. The most recent outburst flood occurred in 2002 and past events have been documented since the 1800's. Most historic accounts cite telltale signs of flood events such as widening of the river, areas of bare gravel, and sparse vegetation. The largest of these events most likely occurred at the head of the Nourse River sometime between 1883 and 1887 and moved boulders up to 8 feet in diameter, stripping the landscape of vegetation 20 feet above the riverbanks (Ferreira, 2004; Hood, 2006)

Justification for Use of the Floodplain

Description of why the proposed action must be located in the Floodplain

The purpose of Klondike Gold Rush National Historical Park (KLGO) is to preserve in public ownership, for the benefit and inspiration of the people of the United States, the historic structures, trails, artifacts, landscapes, and stories associated with the Klondike Gold Rush of 1898 (Public Law 94-323). The National Park Service (NPS) proposes to enhance the visitor experience at Canyon City through the creation of a ¾ mile loop trail that expands on the existing trail in the Historic Canyon City town site located 8 miles up the Chilkoot Trail in KLGO.

The goal of the project is to protect, interpret, and connect visitors with both the natural and cultural resources of the Historic Canyon City town site. This would be accomplished by the creation of an

interpretive loop trail with interpretive signs about the boom and bust settlement of Canyon City. This project would formalize a social trail route that already exists in the area. This project has to take place in the floodplain as that is where Canyon City is located. Historically, travel routes took advantage of the floodplain in this area where the relatively flat, open area provided space to stop and rest. Because the areas of interest (the historic townsite and natural riverine environments) occur on the floodplain, the proposed project by nature would take place in that area.

Investigation of alternative sites

Due to the restrictions of topography and the location of Canyon City, no other alternative sites were investigated. Traveling along the floodplain is safer than traveling along the steep valley walls. The alternative to constructing the trail would be to take no action.

Description of Site-Specific Flood Risk

The Taiya River covers a drainage area of 179 square miles, with a channel slope of 210 feet per mile, an average basin elevation of 3,400 feet, 20 percent forest cover, 33 percent glacial cover, and average annual precipitation of 90 inches. The predicted maximum glacial outburst flood discharge is 25,000 cubic feet per second compared to an average discharge of 1,130 cubic feet per second (Jones and Fahl, 1994).

The project location is located upstream of the confluence of the Taiya and Nourse Rivers. The trail location is 100ft higher in elevation than the river level and would only flood in an extreme flood event.

In 2002 an event comparable to an extreme flood for the project area took place 7 miles downstream when 10 million cubic yards of the moraine of West Creek Glacier collapsed into the proglacial lake causing the lake level to rise and spill into West Creek flooding Klondike Gold Rush National Historical Park and the small community of Dyea. This flood event produced a peak discharge of 16,209 cubic feet per second and forced the residents and recreational campers at Dyea to evacuate immediately. The flood caused significant damage to the community's infrastructure. This event instigated an investigation of geologic hazards in the area, that concluded that West Creek was unlikely to cause another flood event, but that the Nourse Glacier moraine and other unnamed glacial features in the Nourse Valley may cause outburst flood events in the future, although no glacial features currently show signs of instability (Denton, et al., 2005). Due to the project location being upstream of the confluence of the Nourse and Taiya River this location would flood only in an extreme event similar to the 2002 glacial outburst flood.

Recurrence interval of flooding at the site

The USGS operates a stream gage site on the Taiya River near Dyea, 7 miles downstream of the project area. While not completely representative of the conditions upstream at the Canyon City site, flood recurrence intervals at the gage site may be used as a predictor for conditions in the basin. The analysis only accounts for "normal" flow and not the irregular outburst flooding events. Trail flooding resulting in periodic trail closures on the lower Chilkoot Trail occur at a stage height of 17 feet with a recurrence interval of 2 years. Dyea campground flooding and some road inundation occur at a stage height of 19 feet with a recurrence interval of 5 years. Based on the site geomorphology, vegetation, and historical records, sections of the proposed project area proximal to the Nourse and Taiya Rivers would likely flood at a recurrence interval of 10 years.

Changes in glacial geomorphology and hydrology have caused at least three catastrophic flood events in the past 150 years. One in 1897 caused the deaths of three prospectors at Sheep Camp (Schirokauer,

2007). The most recent event was in 2002 when heavily saturated soils caused a moraine failure on West Creek, a tributary of the Taiya River. Sometime between 1875 and 1880 a catastrophic glacial lake outburst flood scrubbed the nearly one-mile wide valley floor clean of vegetation.

Hydraulics of flooding at the site (depths, velocities)

Similar to the predictions of flood intervals for the project area, data from the USGD Dyea stream gage site is assumed to be representative of the flood hydraulics for the project location. During the 2002 outburst flood of West Creek the Dyea gage measured a discharged peak volume of 16,209 cubic feet per second (Denton, et al., 2005). A discharge of 25,000 cubic feet per second has been estimated for the Taiya River for a 1967 glacial outburst (Jones and Fahl, 1994).

Time required for flooding to occur (amount of warning time possible)

The time required for a glacial lake outburst can vary from a few hours to a few days, but usually drain quickly enough to create flood hazards downstream with little to no warning (Post and Mayo, 1971). In the September 18, 1897 glacial outburst flood, a tower of water from between 5 to 40 feet high, depending on the source, had traveled 2 miles in 10 minutes, from Stone House Camp to Sheep Camp and struck with such force that the eponymous boulder of Stone House was moved a quarter mile downstream (Gurcke, 2011). In the 2002 West Creek glacial outburst flood the day before the flood occurred, glacier guides noticed water pouring over the top of the glacial moraine. They assumed only that the creek was changing course and removed all their equipment from the area. It was the sound of rushing water that alerted residents to the flood (Capps, 2004).

Opportunity for site evacuation in the event of flooding

During the Sheep Camp glacial outburst flood of 1897, the sound of rushing water warned people a flood was coming. All but one person survived by running to higher ground. During the West Creek glacial outburst flood of 2002, warning signs were present, such as a well-developed slump scarp and a horizon of groundwater seepage in the face of the moraine, but not clearly recognized.

The majority of the proposed construction area of the loop trail is 100 feet above the current riverbanks. Only one section of trail approaches within 300-500 feet of the rivers is located on or near the active floodplain and the area likely to be affected by outburst flooding and by normal floods with longer recurrence intervals. It is approximately one quarter mile to higher ground from the confluence. It is assumed that if visitors are in the active floodplain area they would be able to hike to higher ground in the event to a flood.

Canyon City is located 4.8 miles south of Sheep Camp where Rangers are stationed. Response time to travel the 4.8 miles from Sheep Camp to Canyon City is estimated at 3 hours. In the event of a flood visitors could walk north to Sheep Camp and on to Bennett in Canada via the Chilkoot Trail where they would be transported to Skagway via train. If hiking out is not an option due to either the physical limitations of the visitors or environmental factors it is also possible they could be flown out by helicopter.

Geomorphic considerations (erosion, sediment deposition, channel adjustments)

The development of the loop trail would not have a substantive effect on erosion, sediment deposition, and channel adjustment. There would be some soil compaction and some opportunity for water to occupy the unvegetated trail surface, but the effects would be negligible. The elimination and revegetation of the social trail network in the area would result in a net decrease of these effects. Large

natural flooding events and resulting geomorphic changes would be of such a scale that they are not likely to be affected by the project.

In 1894, J.J. McArthur took a photograph that encompasses the project area while standing on the side of Mount Hoffman looking south down the Taiya River valley where it joins the Nourse River. The photo shows clear effects of a dramatic flood event. Vegetation had been stripped away in a v-shape culminating at the mouth of the Nourse River Canyon.

Channel migration is frequent on glacially fed rivers due to the heavy sediment load and flooding is often a catalyst for these channel changes however at the project location the potential for channel migration is low. Unlike further downstream near Dyea there is little evidence of channel migration as there are few old channels found at the project area.

Description and explanation of flood mitigation plans

The Municipality of Skagway is developing plans to install an early flood warning system for the Nourse River. Risk to hikers of the trail can be mitigated by not allowing camping in the project area on the floodplain, which would encourage people to only pass through and camp in the designated campground on the east side of the Taiya River closer to higher ground.

Measures to reduce hazards to human life and property to the regulatory floodplain level, while minimizing the impact to the natural resources of the floodplain, including the use of non-structural measures as much as practicable

The Municipality of Skagway is developing plans to install an early flood warning system for the Nourse glacier. Educating hikers about the warning signs of a catastrophic flood and informing them of the need to get to higher ground as quickly as possible would also help mitigate the risk.

The development of a loop trail would not introduce any structural changes that would have an effect on the floodplain and natural resources associated with it. The elimination and natural revegetation of the social trail network would result in a net improvement of natural site conditions.

The trail crew would employ sustainable design and best building practices to the proposed loop trail in order to maintain the floodplain and associated natural resources. Design aspects include limited structure installation, alignment to maintain natural sheet flow and overflow patterns of the site, no hardened surfaces, and re-contouring and vegetation of impacted areas (social trails) to a more natural condition. The revegetation of the social trail network would result in a net improvement of the natural site conditions.

Acknowledgement that structures and facilities are designed to be consistent with the intent of the standards and criteria of the National Flood Insurance Program (44 CFR Part 60).

The proposed loop trail would be designed to be consistent with the intent of the standards and criteria of the National Flood Insurance Program.

Summary

Klondike Gold Rush National Historical Park has identified a proposed action for improving the Canyon City Trail. Constructing a loop trail on the floodplain between the Taiya and Nourse Rivers would help protect the cultural resources that are currently being degraded and also provide additional interpretation opportunities to increase visitor appreciation of both the natural and cultural resources of

this unique area. The risks of flooding can be mitigated by installing an early flood warning on the Nourse glacier and by educating hikers about warning signs of a flood and informing them what action to take should a flood occur.

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APPENDIX B

Archaeological Data Recovery Plan and Research Design: Canyon City Loop Trail survey of the Chilkoot Trail AHRs site (49-SKG-090) ASMIS site KLG0 00016

Prepared by Shawn Jones, Archaeologist
Klondike Gold Rush National Historic Park
March 24, 2015

Introduction:

The Chilkoot trail is a 33 mile passage from the base of the Taiya River valley in Dyea Alaska to the foot of Lake Bennett in present day British Columbia. The trail has been used as a travel corridor with the interior of Alaska from the time before European contact to present day. It was used by the Chilkoot Tlingit and Athabaskan Tagish peoples of southeast Alaska to exchange goods back and forth between the interior and coastal regions, and used historically as a route to travel from Dyea to Lake Bennett in order to begin the voyage up the Yukon River to Dawson in search of gold.

When the Klondike Gold Rush began, the volume of traffic through the area swelled. Canyon city, a collection of finished structures, log buildings, and tents at the north end of a large flat canyon floor located at the 8th mile of the Chilkoot Trail, was utilized as a stampeders camp due to the flat landform and its locality at the culmination of the wagon road which originated in Dyea Alaska. Even with the accommodating landform and location, it was the goal of most stampeders to reach Sheep Camp to cache their goods which is the reason Canyon City did not reach its full potential before the development of the southern terminus of the tram system (Norris 1986).

Two companies, The Dyea-Klondike Transportation Company (DKT) and the Chilkoot Railroad and Transport Company (CR&T) began construction at the north end of Canyon City on transportation powerhouses and communication lines which ran to the summit of the Chilkoot Pass. This construction sparked a boom which brought in several businesses and with the traffic to support those businesses coming over the trail daily, Canyon City was in full swing (Norris 1986). The decline of Canyon City assuredly came with the decline of the gold rush in the Yukon. From that point Canyon City lay as a silent reminder of this historic event until recreational hikers begin taking the detour from the recreational camp of Canyon City to visit the historic Townsite on their trip over the Chilkoot Trail.

Although the flood of people which came along with Klondike Gold Rush had substantial effects on the canyon, natural forces have also had their effect on the landscape. The canyon has been subject to flooding and erosion from the 2 glacially fed rivers running south through this level canyon floor. A photographically documented glacial moraine outburst flood, Shown by the lighter disturbed area, has also affected the landscape of the canyon by washing through removing trees, boulders, and sediment as shown in the following photograph by J.J. McArthur of the Canadian International Boundary Commission photo of Canyon City looking south in 1894. Although many 1897 gold rush surface features remain in the northern outreaches of the landform, this fluvial influence has assuredly affected the

geographic landform and almost certainly has had an effect on the presence of intact subsurface cultural deposits in the Canyon pre 1894.

Klondike Gold Rush NHP is proposing to construct a loop trail continuing from the termination of the previously established trail into Canyon City which dissipates shortly west of the Dyea-Klondike Transportation Company (DKT) boiler or KLGO feature number CC47 (Figure 1: Canyon City



Figure 7: Overview of project area

Features Satellite Imagery Map). The loop would pick up from there and continue south west to a portion of the east bank of the Norse River. From there, the trail would continue east northeast to connect with the bridge that crosses the Taiya where the present Canyon City Trail begins. Construction of the trail would entail removal of the surface vegetation, peat, and possibly the first few inches of soil to create an even 2 foot wide path. Low portions of the trail would be filled to bring the elevation to an even footpath. The bare path would then have locally harvested crushed gravel added to the trail surface for visitor safety, erosion prevention, and stability. This locally harvested gravel would come from nearby borrow pits that would be determined through this survey.

Aside from this trail offering more recreational and interpretive opportunities at the Canyon City Camp, it would also develop a formal trail continuing past the historic Townsite which would reduce social traffic exploring the terminus of the historic Townsite trail and minimize foot traffic damage to the resources. Unplanned social trails located at the Boiler and radiating out from the ambiguous end of the current trail are actively damaging the existing cultural resources. Visitors walking off trail are creating social trails through and in some cases over archeological features. Once these social trails are visible, foot traffic on them would increase causing more damage to the resources. This trail loop would focus foot traffic on a defined continuation of the main path and in so doing discourage social trails and minimize off trail exploration and damage to the resources.

The object of this project will be to complete section 106 compliance on the proposed portion of the Canyon City Loop Trail. As outlined in the draft environmental assessment, the placement of the trail footprint has been laid out in an area that no cultural resources have been previously located. For this project archaeologists will be determining if there are previously unrecorded cultural resources located within the proposed footprint of the loop trail and locating culturally sterile areas to use as borrow pits for the local gravel source. If cultural resources are discovered, archeologists would reroute the footprint of the proposed trail away from any archeological sites or features in order to avoid adverse effects to the resources.

Known AHRS Sites subject to investigation:

This survey would be investigating AHRS site SKG-090, ASMIS site KLGO 00016, Canyon city

History:

The history of the Canyon City was compiled and written by Frank Norris in 1986. The following is a portion of that report pertaining to the Canyon City archaeological site. The archaeological site was originally documented by Caroline D. Carley in 1979-80.

“Canyon City itself sprang into existence in late 1897. Not surprisingly, early growth centered on the area where stampedeers crossed the river; the townsite during summertime was the last level ground before they climbed the steep, risky trail overlooking the Taiya River Canyon. The stream crossing area served a valuable purpose during winter as well as summer. Riffles in the river allowed Klondikers to cross here in the summer and fall in relative safety. In the winter, when hikers could walk up the riverbed, the site was a welcome stretch of flat ground where camping or the caching of goods took place.

The development of tramway systems over Chilkoot played a major role in creating Canyon City. Two such companies located their powerhouses there. The Dyea-Klondike Transportation Company (DKT) established its powerhouse on high ground west of the Chilkoot Trail and one-fourth mile south of the river crossing. The Chilkoot Railroad and Transport Company (CR&T) established a large plant on the west bank of the Taiya River, at the north end of town and close to the river crossing.

Early in the gold rush, both companies planned sophisticated transportation systems over Chilkoot Pass; hence the powerhouses in Canyon City. The DKT Company hoped to build a tram road from Canyon City to the Scales, and an aerial tramway from there to the summit. Amid much fanfare, the more extravagant CR&T Company proposed a railroad from Dyea to Canyon City; from there, a tramway was planned over Chilkoot Pass. Original plans, released in mid-October 1897, called for the CR&T railroad to be completed by November 15, and the entire system to be finished by January 1.

In order to implement the plans of the DKT Company, its three main backers located a 150-by-100 foot parcel of land "for building purposes" on October 26, 1897. On that date, improvements at the site consisted of "foundations of logs being laid for two buildings on the ground." This land was "situated at the mouth of the canyon" and was "up and near the road leading from Dyea to Sheep Camp." The property was turned over to DKT corporate ownership on January 22, 1898. To make way for the CR&T system, a right-of-way north from Dyea was soon established, and before long, a fifty-ton steam boiler was hauled by wagon up the riverbed to Canyon City.

Construction of a warehouse or stable for the line apparently began by the end of 1897.

Spurred on partly by the construction of the two tramway powerhouses and partly by the great influx of stampedeers, the townsite became a reality by early December 1897. First known as Canon Camp, it was later called Canon, Canon City, Canyon and Canyon City. Growth in the town appears to have begun near the river crossing and extended south. The town was formally organized, complete with a platted system of lots and blocks. Several lots were recorded before the end of 1897, and in mid-December, approximately 150 people were there. Evidence provided in a historical survey of the townsite suggests that at least some of the platted streets were laid out in the cardinal directions

Photographs show that the Canyon City townsite was occupied by stampedeers' tents and a smattering of wood-braced canvas tents in December 1897. By the end of January, however, the *Dyea Trail* proclaimed that Canyon City was undergoing a small building boom, and by late February, thirty cabins existed at the site. By March, apparently unimproved lots were being sold for between \$200 and \$300.

The town was at its height of activity between February and April 1898. One source has suggested that the town once boasted a transient population of over five thousand. Photographs and contemporary descriptions suggest that the town never exceeded fifteen hundred population.

Although never as large as either Dyea or Sheep Camp, Canyon City boasted a diverse business base. During the town's brief but hectic existence, the following businesses were found there:

8 hotels

7 restaurants

5 taverns

2 supply stores

2 storage tents

2 tramway company power plants

2 blacksmith shops

2 barber shops

4 miscellaneous businesses (real estate office, doctor, freighting outfit, hay and feed store)

24 businesses (total is less than accumulated subtotals because several businesses served more than one function)

At least ten other businesses also existed here, but the signs identifying them could not be discerned in the historical photographs. At least twenty-five wooden business buildings were constructed, but several businesses, both large and small, were set up in wall tents. Unfortunately, there were few cross-streets or other reference points from which businesses could be located. Therefore, the actual locations of several businesses found in the deed books and other records are unknown.

Canyon City's businesses spread out along either side of the Chilkoot Trail, locally called First Street. A few businesses, primarily those involved in packing and freighting, were located at the north end of town near the river crossing. Jammed between the canyon walls and the river, and lying in an area susceptible to floods, the north end of town was not suited to the construction of permanent structures.

South of the CR&T Company complex, the trail and the river diverged. A relatively dense row of buildings, primarily wooden buildings but some tents, lined the wide trail corridor in the main business district. South of this area, the density of buildings along First Street diminished. The trail angled to the southeast, and regained a southern orientation before leaving town.

After the spring flood of stampeders had passed by, Canyon City was doomed. Within weeks, traffic over the trail slowed to a fraction of what had existed before. Except as an operations facility for the two tramway powerhouses, there was little reason for Canyon City to exist. Therefore, it is not surprising that a photograph taken in the summer of 1898 indicates a lack of activity. In July 1898, the DKT Company tramway line merged its operations with the CR&T Company line and shut down. The post office was discontinued on November 18, 1898.

Few parties traveled over the Chilkoot Trail for the next half century. A large amount of deterioration took place during this intervening period. The large CR&T buildings and the other low-lying structures nearby were swept away. A recent historical survey also indicates that the Taiya River appears to have undermined several buildings along the Chilkoot Trail at the north end of the main business strip. This included four or five wooden buildings on the west side of the trail and at least one building on the east. Moreover, the river had also undermined several buildings that once existed behind the eastern row of buildings. These latter sites, numbering six or eight substantial wooden buildings or tents, were apparently perched on the banks of the Taiya River during the gold rush period. The Taiya River has migrated between fifty and one hundred feet west in this area during the intervening eighty years. Periodic floods have probably invaded Canyon City since the gold rush, and at least one recent fire has been recorded.

When the recreational trail was built in the early 1960s, a spur trail was created here to allow visitors to wander about the old townsite. By 1968, a bridge spanned the Taiya River in this area. In 1969, a visitor noted "a number of badly deteriorated structures" in

the area. As late as 1972, however, at least one building (Site S3 as identified in the 1979 archaeological survey) remained standing. The original bridge was replaced by the present swinging bridge in 1982.” (Norris 1986)

Previous Archeology

The initial reconnaissance surveys of Dyea and the Chilkoot trail were completed in 1979 by Caroline D. Carley of the Office of Public Archeology at the University of Washington. Carley led the survey collecting initial data of the principle cultural resources of the Chilkoot Trail and White Pass Units. Then In 1984, Michele Jespersen and Dean Pittenger, archeologists from the Bureau of Indian Affairs, conducted a survey of three native allotments on the lower part of the Chilkoot trail. Their findings correspond to features CC 52-56 of Karl Gurcke's 1986 survey. These features include a cobble structural foundation (CC 52) and pit features (CC 53-56) located in the northwestern extents of the Canyon City Historic Townsite.

Several compliance surveys have been carried out in the Canyon City area. Harvey Shields completed compliance work in 1982, then in 1984, 1985, 1986, and again in 1990, National Park Service archeologists under the direction of Karl Gurcke surveyed and tested portions of the Chilkoot Trail. This includes areas around the Canyon City recreational shelter and campground which were surveyed and sub-surface tested before the installation of outhouses and bear poles; however no sub-surface remains were identified and artifacts noted in the area were believed to have been moved there by recreational hikers (Leeper 1990).

Karleene Leeper completed a pedestrian survey of the Canyon city area in 1990 during her survey from Finnegan’s point to Canyon City and she located 64 features which included 3 complexes not located in the 1979 Carley survey. After Karleene Leeper’s work, conservation work on the DKT boiler was completed by Eve Griffen in 1997 and then again in 2013 by Paul French and Annemarie Gundel. Canyon City’s most recent comprehensive survey of known sites was completed in 2007 by James Quinn in which spatial data of all features relocated was collected.

For the purpose of this project, the survey work that has been completed in direct relation to the areas of potential effect include the Caroline Carley initial survey, Karleene Leeper’s 1990 survey, and finally James Quinns 2007 survey in which GPS spatial data was collected. These surveys have delineated the Canyon City archeological site and recorded the locations of 64 features. This data has and would continue to be utilized to direct the placement of the proposed loop trail away from all known cultural resources that could be affected by this project.

Archeological sites affected:

AHRS site SKG-090 or ASMIS site KLGO 00016 is the site of canyon city. It is made up of numerous features, artifacts, structural remains, and a wagon road delineated into an archeological site at the northern end of the valley that contains the southern terminus of the Chilkoot tram system and the confluence of the Taiya and Norse rivers. Work for this project would be completed directly outside of the recorded features contained within the Canyon City archeological site.

Research Design:

This project is designed to complete survey and testing for section 106 of the NHPA compliance prior to any ground disturbance planned in the construction of a proposed section of trail south of the Canyon City Historic Townsite. This project is designed to determine if there are any previously undocumented cultural resources located within the footprint of the proposed trail. If any are discovered, archeologists would route the trail footprint away from these previously undocumented cultural resources whether those resources be surface features or intact subsurface deposits.

Prior to any field work, historic and literary research would be compiled. This would include in-depth information on all previous archaeological surveys and all known sites and features in the area. Determining all previously recorded features in Canyon City would enable archeologists to avoid any presently identified archaeological resources. The purpose of this survey would be to test the proposed trail route for any previously undiscovered archaeological features or intact subsurface cultural deposits in order to avoid these resources during the development of this section of the proposed loop trail.

The survey would begin with an intense pedestrian survey of the proposed trail route and borrow pit locations. Any features located during the initial pedestrian survey would be recorded and have the trail rerouted or borrow pit locations moved to avoid them. After the initial pedestrian survey is completed, the route would be marked and recorded with GPS. After the intense surface survey has been completed, metal detection and shovel testing would be carried out along the course of the proposed trail to test for any subsurface cultural deposits. Any intact subsurface cultural deposits located during the testing would be recorded, analyzed, and delineated and the trail would be routed around to avoid the intact deposits.

The proposed trail route would be surveyed by having archeologists walk 20 meter interval transects along the proposed route of the trail. This would be performed to survey the entire route of the proposed trail. The extent and distance of these transects may be adjusted in the field according to the differing landforms, crew visibility, and crew safety.

Many of the gold rush features and artifacts should be evident from the ground surface; however metal detection would be utilized to locate any historic features not visible from the surface. The metal detection would be completed with two archeologists surveying the extent of the proposed trail much like the pedestrian survey. One archeologist would walk the proposed corridor offset 2.5 meters to one side of the centerline of the trail. Upon any metal detector hits, pin flags would be placed at the area of the area of detection. After the proposed route is completed the archeologists would walk the proposed corridor offset 2.5 meters on the opposite side of the centerline. Any areas identified through the metal detection would be tested to analyze and delineated the deposit and to determine if the trail can be successfully routed around the resource without causing adverse effects to the resource.

To complete the survey, a single line of shovel tests would be excavated along the proposed trail route. Shovel tests would be excavated every 30 meters over the roughly 1200 meters of proposed trail. These tests would be 30 centimeter round shovel tests which would be excavated in 30 meter increments over the entirety of the proposed trail route. They would be excavated in natural stratigraphic layers and would be screened through ¼ inch wire mesh hardware. Shovel tests would be recorded with shovel test forms, descriptions, GPS mapping, and digital photography. These shovel tests would be excavated to one meter deep, sterile soil defined as 20 centimeters of soil below cultural deposits with no cultural materials or until bedrock is reached.

If intact subsurface cultural deposits are encountered; they would be analyzed to determine the association of the deposit; weather they are historic or prehistoric, and delineated to determine if the trail can be successfully routed around the resource without causing adverse effects to the resource. Delineation would be completed by placing shovel tests 5 meters apart in each of the cardinal directions until sterile soil is reached delineating the extent of the cultural deposit.

All artifacts collected are anticipated to be housed in the KLGO curatorial facility. Artifacts recovered on state lands would remain property of the state and can be returned to the state archives or curated in the KLGO archives under incoming loan agreement paperwork as the state determines.

Purpose and Character of Proposed Work:

The purpose and character of the work being completed on the proposed section of trail at Canyon City during the 2015 field season is to complete survey and testing compliance for section 106 of the NHPA prior to any ground disturbance during the construction of a section of new trail south of the Canyon City historic site. After relocating all previously recorded features and assuring the trail footprint would not have any adverse effect on them, archeological fieldwork would determine if there are any previously undocumented cultural resources located within the path of the proposed canyon city loop trail or borrow pits for locally sourced gravel. This survey and testing would support the mitigation plan by rerouting the trail footprint around any newly discovered cultural resources to avoid causing adverse effects to these resources.

Project objectives:

This project is designed to substantiate a trail route which would not affect any of the cultural resources associated with the Canyon City archeological site, and if undiscovered resources are located, actively route the trail away from any cultural resources weather those resources be surface features or intact subsurface cultural deposits. Archaeologists would place the trail footprint to avoid any presently identified archaeological features. Then they would survey and test the proposed trail route for any previously undiscovered archaeological features or intact subsurface cultural deposits in order to avoid any resources during the development of the proposed loop trail section.

Documentation:

All archeological work undertaken would be performed and reported in compliance with the "Secretary of Interior's Standards and Guidelines for Archaeology and Historic Preservation" and NPS-28, Cultural Resources Management Guideline, and other applicable policy directives. Principal staff would meet the professional qualifications stated in the "Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation."

All archeological work would be documented using digital photography along with hand sketched maps and GPS data. The archeological work would also be documented by staff members maintaining daily journals, logs, forms, and descriptive sketches of all archeological activity.

Products:

A final report on the work performed and effects on the resources would be provided to the OHA within 180 days after the completion of the project. This report would include the assessments of effects on any historic or prehistoric resources located during this survey. Illustrated recording of any new features discovered, and a comprehensive map of all recorded features would be presented along with the report.

Tentative Schedule:

June 1 – 5 & 8-12 Initial survey and testing.

Proposed Canyon City Loop Trail

Klondike Gold Rush National Historical Park

Department of the Interior
National Park Service

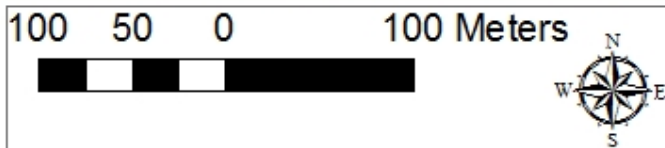
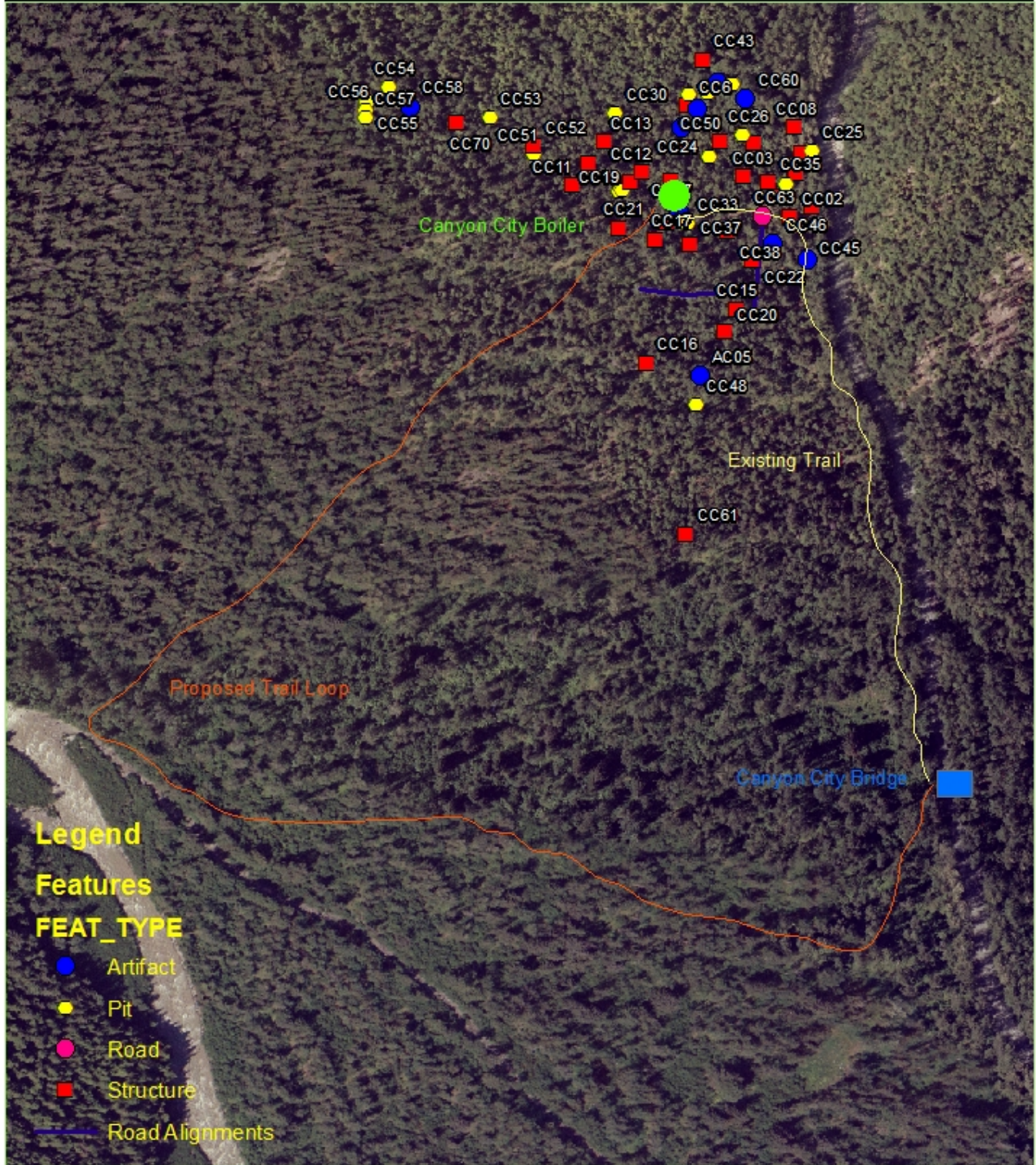


Figure 1: Canyon City Features
Shawn Jones Archaeologist
Klondike Gold Rush NHP

Proposed Canyon City Loop Trail

Klondike Gold Rush National Historical Park

Department of the Interior
National Park Service

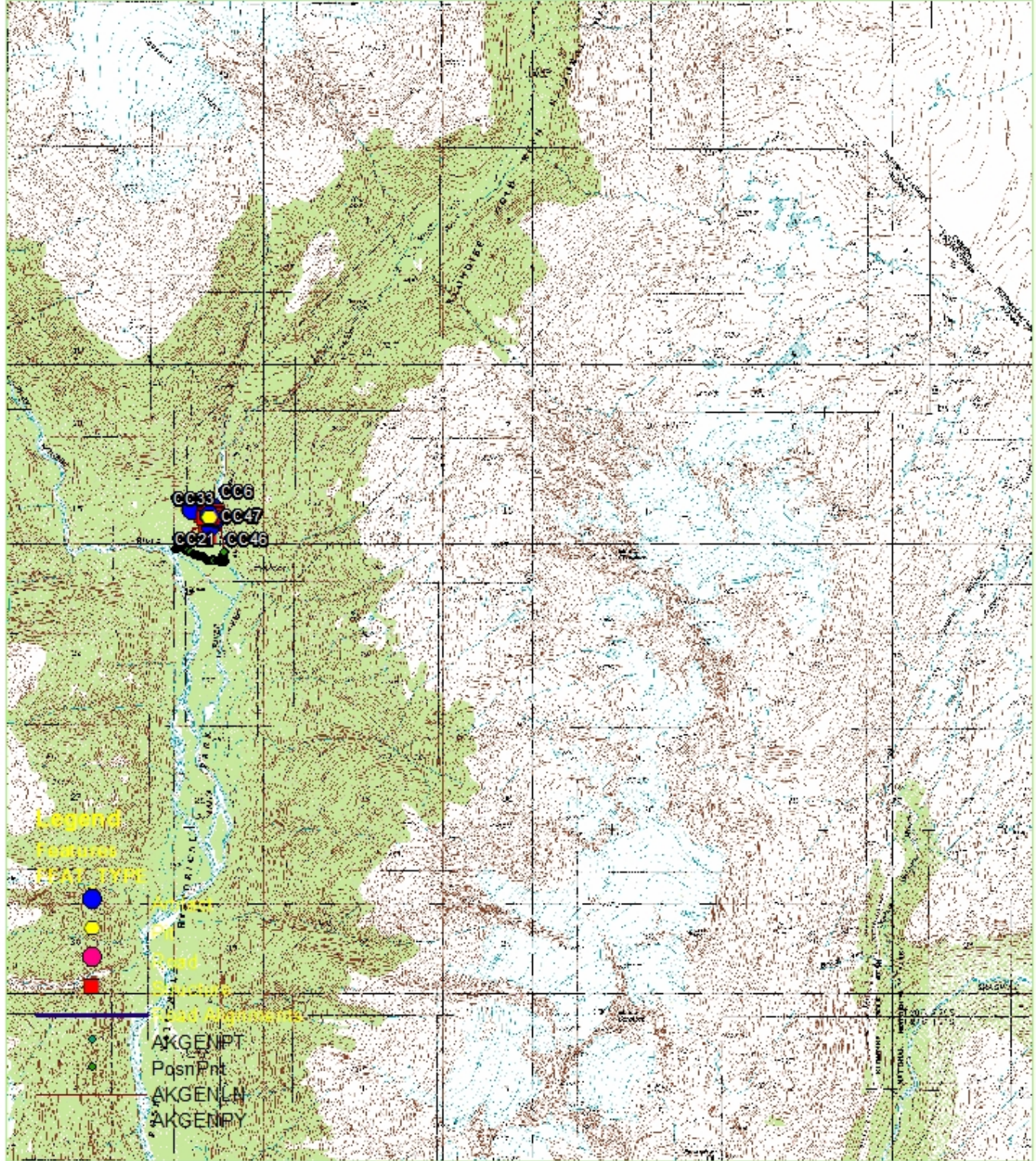


Figure 2: Skagway C 1, 1:63,360
Canyon City Klondike Gold Rush NHP
Shawn Jones Archaeologist



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