

The following items are available for public to review on the GBOS webpage:

<https://www.muni.org/Departments/operations/streets/Service/Pages/GirdwoodBoardofSupervisors.aspx>

GBOS Info on Holtan Hills:

[HLB Memo responding to GBOS request](#)

[Holtan Hills Bifurcation Agreement](#)

[Site Concept Map](#)

[GBOS request for HLB Holtan Hills Follow up](#)

These items were discussed at the MOA GBOS meetings in April and July, minutes are available here:

[MOA GBOS Quarterly July 24 2023 agenda final](#)

[MOA GBOS Quarterly July 24 2023 minutes draft](#)

[MOA GBOS Quarterly April 24 2023 minutes final](#)

Videos of these meetings are included in the library of GBOS meetings available on YouTube:

[MOA GIRDWOOD BOARD OF SUPERVISORS GIRDWOOD, ALASKA - YouTube](#)



Christina Cope Hendrickson &lt;christina.cope@gmail.com&gt;

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**Public Comments: POA 2021-00278 & 2023-00206**

1 message

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**Christina Cope Hendrickson**

&lt;christina.cope@gmail.com&gt;

To: Andrew.W.Gregory@usace.army.mil

Cc: "Kelley, Kyle T." &lt;kyle.kelley@anchorageak.gov&gt;, "Tyler, Margaret S." &lt;margaret.tyler@anchorageak.gov&gt;, Jennifer Wingard &lt;skijester@gmail.com&gt;, Mike Edgington &lt;gbos.medgington@gmail.com&gt;, "Briggs, Tiffany E" &lt;tiffany.briggs@anchorageak.gov&gt;

Mr. Gregory,

Kindly confirm receipt of this email.

I am writing to provide comments on the subject permit applications. Photos and videos of past infractions cited in the narratives below are available upon request. I recognize the limitations of .mil addresses to receive these files.

**A. Pre-permitting construction activities****Ongoing construction activities make both applications appear after-the-fact.**

On both parcels, the applicant is already engaged in construction activities within the wetland areas. To date, applicant's family and vendors cleared, grubbed, and are filling wetlands and staging construction equipment in wetlands, without proper spill response best management practices, within both application areas. This conduct appears to eschew permitting procedures and are akin to the after-the-fact permit granted to Mr. (Col) Baldwin. The Agency's conduct sets a precedent of valuing "asking for forgiveness" rather than "permission."

**B. SWPPP Violations****The applicant fails as a steward of the public assets adjacent to his proposed developments.**

This Municipality of Anchorage is remiss in conducting weather-driven event audits of the improper best management practices installed on 2021-00278. In both heavy rain events October 2022 and July 2023, the significant rainfall amounts deteriorated the partial covering on already excavated material. This led to unfiltered runoff onto adjoining Heritage Land Bank parcels and into Glacier Creek. Mr. Cabana stores construction equipment on this parcels without mitigating best management practices, such as duck ponds. Ergo, the unfiltered runoff contains oil sheens.

**C. Traffic****Conduct a formal traffic study with the Department of Transportation and Municipality of Anchorage.**

The proposed capacity of both parcels warrants a review of Girdwood's road designations and engagement with the Department of Transportation for Alyeska Highway. The cumulative impact of traffic from two outlets on Alyeska Highway warrants a safety corridor evaluation and potential for larger road design through the wetlands. AMC 21.09.070 provides specific designs for collector roads, which these proposed roads should be designated based on the numbers and the proposed and current commercial uses, such as fisheries laydown and storage area and the brewery. These access roads shall contain bike paths, lighting and other safety features that meet or exceed the goals of our walkable community and seamlessly tie in with nearby infrastructure, such the Gird to Bird Bike Path.

**D. Cumulative Impacts**

**A legally-defensible analysis of these two applications will not result in a Finding of No Significant Impact and does not qualify either as a Categorical Exclusion.**

A full vetted Environmental Assessment will identify the adverse impacts to drainage within our alluvial fan, especially "up valley" from Glacier Creek. Throughout Alyeska Basin, the Heritage Land Bank owns and manages green spaces through which wildlife and water (in all its forms) flows. The layout of these proposed impermeable surfaces will negatively impact current residential structures and undercut established roads and adjoining infrastructure, such as utility corridors. I look forward to reading a DRAFT Environmental Assessment (EA) that addresses snow storage, green space, surface water discharge, lighting, traffic and incorporates AMC 21.09 and the proposed mitigation measures that the applicant shall adhere to. I encourage the EA's Social Resources subsection to include an Economic Study that could be leveraged by local planning initiatives, such as the Girdwood Area Plan update. I encourage the Agency to coordinate reviews of the DRAFT document with the Municipality and its Advisory Boards, including but not limited to the Heritage Land Bank Advisory Board and the Girdwood Board of Supervisors. Adherence to 33 CFR 230 is crucial to avoid litigation and incorporate substantive comments during the public review period.

E. Quantity of Wetlands and Classifications

**The small amount of wetlands potentially impacts on the two applicants is under-estimated.**

The true size of impacted wetlands based on construction and staging activities documented to date exceeds the amounts listed on the applications. The applicant must restore wetlands AND cease work until all federal, state and local permitting and zoning are completed and in-hand- regardless of the known need for additional housing in our community. All development should be in accordance with the legal standards outlined clearly in applicable codes.

Christina Hendrickson  
PO Box 978Girdwood, AK 99587

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- Christina

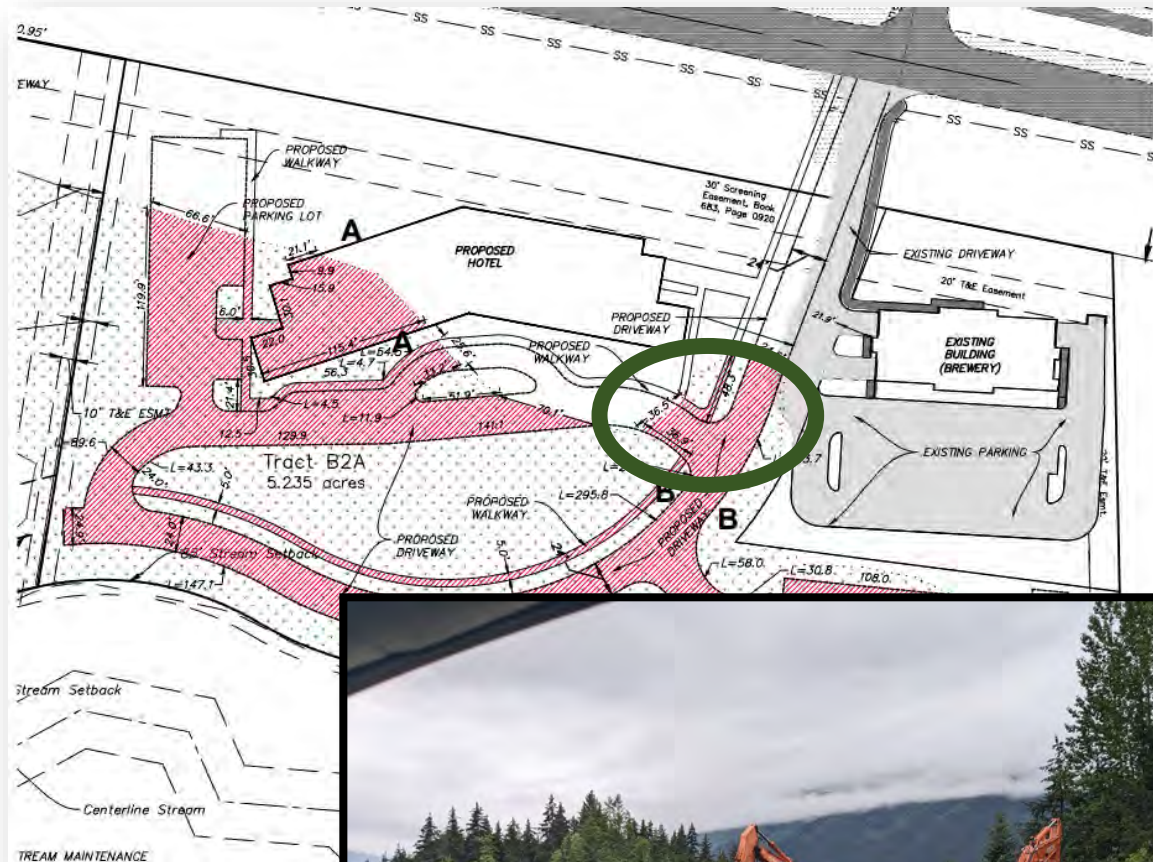
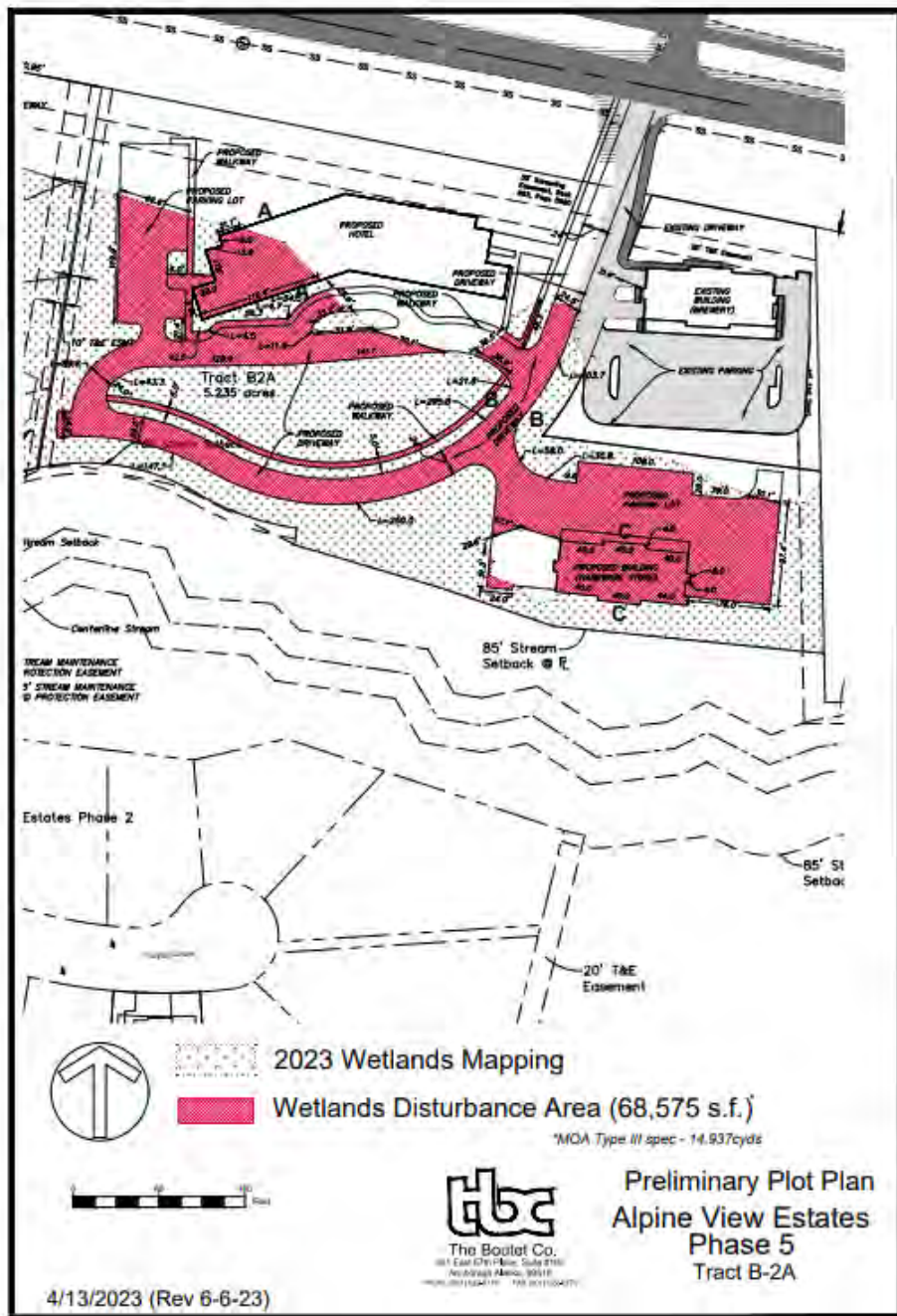
*Reduce. Reuse. Recycle.*

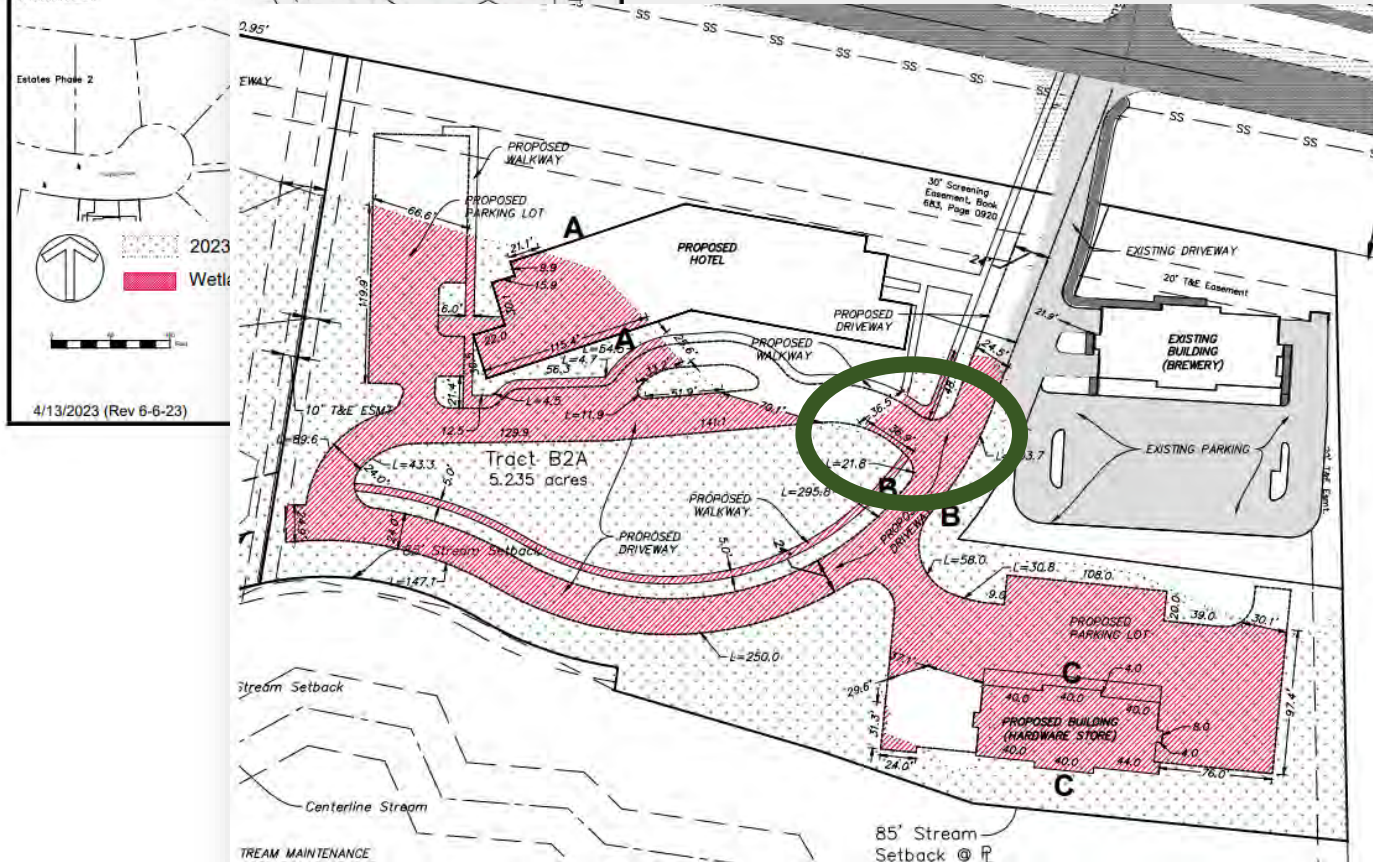
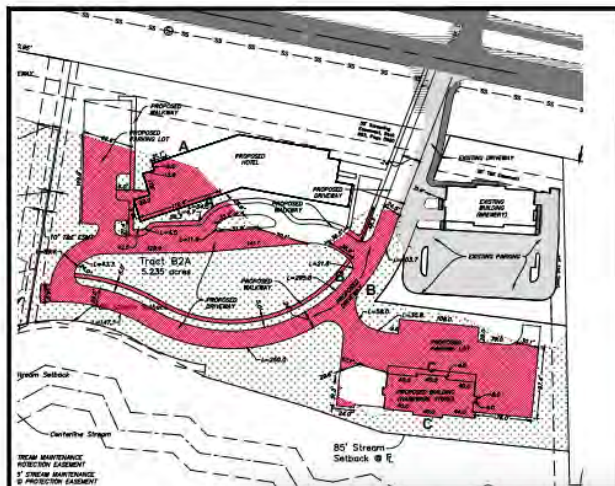
*Reduce: Think before you print.*

*Dena'inaq elnen'aq' gheshtnu ch'q'u yeshdu*

*'I live and work on the land of the Dena'ina.'*

*translation: S. Shaginoff-Stuart, J. Isaac*





2215 on 25 July



# Service Request

## SERVICE REQUEST NO. 222235

Request Type	Building, Fill, or Excavation without a Permit
Request Date	7/27/2023
Address	
Location	Parcel ID 07516342000
Request Description	Construction in wetland without USACE or Land Use Permit. Photo will not attach.
Inspector Assigned	Yes
Request Completed	No
Resolution Date	
Resolution	N/A



**Municipality of Anchorage  
Project Management and Engineering**



**MEMORANDUM**

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**DATE:** June 30, 2023

**TO:** Municipality of Anchorage Standard Specifications (MASS) Users

**FROM:** Brandon Telford, P.E., Design Manager

**SUBJECT: Soliciting Comments for MASS Update**

The Project Management & Engineering Department (PM&E) is preparing to update the Municipality of Anchorage Standard Specifications (MASS). The current version of MASS was issued in March 2015. The intent is to update all divisions within MASS and possibly restructure the organization of some of the divisions.

PM&E is seeking input from MASS user stakeholders including but not limited to: municipal departments, agencies, product vendors, and from the engineering and construction community for consideration of inclusion in the update. PM&E expects to release a draft update for comment in October 2023 with the goal of issuing the complete update in 2024.

PM&E will be accepting comments until 5:00 pm on **Friday August 18, 2023**.

Please send questions or comments to [massupdate@anchorageak.gov](mailto:massupdate@anchorageak.gov)

We appreciate your involvement in this process!!

**TO:** Land Use Committee C/O Girdwood Board of Supervisors  
**FROM:** Christina Hendrickson, PO Box 978, Girdwood, AK 99587  
**DATE:** July 27, 2023

**RE:** 2024 MASS Update & AWWU 2024 Design Construction Practices Manual

Respectfully recommend the Land Use Committee direct Girdwood Board of Supervisors (GBOS) to submit comments containing but not limited to:

1. A comprehensive packet of issues of concern related to the Girdwood Industrial Park (GIP), as communicated in Municipality of Anchorage-GBOS meetings (dating back to 2018) and conveyed by Lease Holders in Heritage Land Bank Advisory Committee (HLBAC) meetings.
2. Focused comments to address the infrastructure needs for any future plating actions for GIP. Demonstrate the economic drivers of supporting further the diversification of our local economy via local businesses that are already situated and underserved in that area. The content may be gathered from but not limited to: public comments provided to HLBAC for the Work Plan and testimony from Girdwood residents, lease holders.
3. A summary of our culvert upgrades in response to climate change-related weather events. Kyle Kelley will be able to articulate how he's had to solve problems within our alluvial fan. Our local glacial fed ecosystem varies from other areas of increased development in the Anchorage bowl, such as but not limited to Bear valley, South Addition, etc.

The letter should courtesy copy the landowner, the Heritage Land Bank. The oversight from HLB staff by not including this in their July 2023 meeting agenda further underserves our community, economy, and reduces resident's place at the table.

*Please see the update below from James Armstrong, Project Manager in the Engineering Division for Anchorage Water & Wastewater Utility:*

*The MOA is currently soliciting comments on our current edition of the [Municipality of Anchorage Standard Specifications \(MASS\)](#). The MOA is pulling together and reviewing comments received after the last MASS update provided via email at [massupdate@muni.org](mailto:massupdate@muni.org) and combining those comments with ones being generated during this most recent open period. I kindly ask that you use the MASS update email address rather than mine if you are commenting on this MASS update effort.*

*In addition, I would like to add to this announcement an interim update to AWWU's own [Design and Construction Practices Manual \(DCPM\)](#) update efforts. The inclusion of trenchless design requirements, on-site private system extensions, force sewer services and a few other items have delayed the final draft publication. With the recently started MASS Update, it now seems like fate has intervened so that they could be finalized together or at least that is the hope.*

*I am using my contact list for the DCPM updates to spread the word about this important MASS update in an effort to provide robust community involvement for these critical public documents.*

*Sincerely, James Armstrong, P.E.*

# Municipality of Anchorage



*P.O. Box 390  
Girdwood, Alaska 99587  
<http://www.muni.org/gbos>  
**David Bronson, Mayor***

*GIRDWOOD VALLEY SERVICE AREA BOARD OF SUPERVISORS  
Briana Sullivan & Jennifer Wingard, Co-Chairs  
Mike Edgington, Amanda Sassi, Guy Wade*

## LETTER OF OBJECTION

July 19, 2023

TO: State of Alaska  
Department of Natural Resources, Division of Mining, Land and Water  
Sent via email to: [yannick.calvez@alaska.gov](mailto:yannick.calvez@alaska.gov)

RE: Letter of Objection: ADL 234206

Yannick Calvez,

The Girdwood Board of Supervisors (GBOS) is writing to request extension of the of the comment period and to express our objection to the approval of ADL 234206 for ENSTAR use of and clearing within a section line easement across Municipal lands in the Girdwood Valley.

### **Narrative**

Request for Extension of the Comment Period.

Notice of the ADL was dated July 6; it was received by some community members July 10 and to date, only a handful of residents have become aware of the proposed project. GBOS was never formally notified by either the Division of Mining, Land and Water (DMLW) or the applicant, ENSTAR. Many community members remain unaware of the ADL and proposal. The July 20 public comment deadline does not provide GBOS and community members sufficient time to learn about the project, understand its implications for our community, and to provide comment.

Request for denial of authorization.

The proposed easement and project require significant clear cut through one of Girdwood's prized natural areas, which is designated Open Space to preserve the natural character and existing and future recreational opportunities. The area is frequently used year-round for recreation as identified in the [Girdwood Trails Management Plan](#) and the [Girdwood Trails Master Plan](#).

Lower Virgin Creek Trail and Joe Danich Trail both provide access to the area. Throughout the recent Girdwood Trails Plan process, the community acknowledged that the area is a vital watershed and important wildlife habitat within the unique temperate rainforest. Girdwood went to great effort to retain the area in its existing condition and to preserve primitive trails within it. Meetings addressing this topic often had greater than 100 people in attendance and lengthy discussions. Easement clearing would overlap and cross the trail, permanently and significantly damage the experience that our community has worked hard to preserve.

### **Conclusion**

The GBOS requests that at a minimum the DMLW extend the comment period by 30 days, to Monday, August 21, 2023. This extension of the comment period will allow the community to become aware of the project and provide their comments to the proposed project.

Furthermore, the GBOS encourages DMLW to deny the authorization for ADL 234206 because of conflict in use created by clearcutting adjacent to and across existing community trails.



Jennifer Wingard  
GBOS Co-Chair & Land Use Supervisor



Amanda Sassi  
Roads and Utilities Supervisor

Cc: Sterling Lopez, Sr. ROW & Permitting Agent [sterling.lopez@enstarnaturalgas.com](mailto:sterling.lopez@enstarnaturalgas.com)



3000 Spenard Road  
PO Box 190288  
Anchorage, AK 99519-0288  
[www.enstarnaturalgas.com](http://www.enstarnaturalgas.com)

August 3, 2023

Girdwood Board of Supervisors  
Attn: Jennifer Wingard, Co-Chair  
Briana Sullivan, Co-Chair  
Via Email: [girdwoodgalaxy@gmail.com](mailto:girdwoodgalaxy@gmail.com)  
[bsullivan.gbos@gmail.com](mailto:bsullivan.gbos@gmail.com)

State of Alaska, Department of Natural  
Resources, Division of Mining, Land and  
Water  
Southcentral Regional Office  
Attn: Yannick Calvez  
Via Email: [yannick.calvez@alaska.gov](mailto:yannick.calvez@alaska.gov)

Re: ADL 234206, ENSTAR Application for Development within Existing Section  
Line Easement

Dear Mr. Calvez and Co-Chairs of the Girdwood Board of Supervisors:

ENSTAR is writing to respond to comments made during the July 17, 2023 Girdwood Board of Supervisors ("GBOS") meeting regarding the above-referenced application, to the GBOS letter of July 20, 2023, to the RY Letter of July 20, 2023, and to comments that have been made directly to ENSTAR personnel. ENSTAR's intent in providing this letter is to provide further information on the record, address certain misapprehensions, and offer alternative approaches to address certain community concerns. ENSTAR appreciates your attention to this matter.

### Background

ENSTAR was founded as Anchorage Gas in 1959 and began gas service to Anchorage in 1961. Gas service to Girdwood began in 1996. Since then, ENSTAR has proudly delivered natural gas to the Girdwood area. ENSTAR currently serves 1,615 customers in the Girdwood valley. ENSTAR defines each gas meter as a "customer," so the number of actual residents served is difficult to ascertain. It is fair to assume, however, that the majority of buildings in Girdwood are equipped with natural gas meters for space heating.

Nearly all of ENSTAR's Girdwood customers are served through a single 6" plastic line (a "distribution main") that heads NNE along the Alyeska Highway from our pressure reducing station location on Ruane Rd. In the event of a line strike or other event impeding gas delivery on this single-feed line, downstream customers are at risk of a loss of gas. A loss of gas means a loss of heat and hot water, which can be particularly consequential to this community during winter months.

Understanding the risks and the impact of a compromise on single-feed lines, ENSTAR endeavors to improve the reliability of its system by installing two-way feeds where prudent. Girdwood is a prime example of an area requiring this added reliability. In 2022, for example, ENSTAR installed over 40,000 feet of distribution main elsewhere in its system to ensure that areas like Girdwood, that are only served by a single pipeline (a “one-way” or “single” feed), have the benefit of a secondary feed to provide system redundancy in the event of a line break. This is a best practice in the gas pipeline industry that helps to ensure both that hydraulic pressures stay high enough at the end of the line to maintain service in the winter and to ensure that, in the event the one-way feed goes down, service can remain on.

While ENSTAR is proud of our system-wide 99.99% reliability rate, we know that external forces can disrupt gas service, particularly in areas with one-way feeds. Historically, the biggest threat to ENSTAR’s pipelines is from third party excavators who hit and damage our pipelines over 100 times across our system most years.

In the case of Girdwood, the possibility of this risk materializing is not just hypothetical. In August 2016, while performing work for a DOT road construction project in the proximity of 1127 Alyeska Highway, Granite Construction hit the 6” distribution main, the one-way feed on Alyeska Highway. This damage jeopardized natural gas service to all Girdwood customers downstream, on the Alyeska Resort side, of that location. Fortunately, Granite’s line damage only compromised the top of the line and ENSTAR’s crews were able to install a bypass before pinching off the area that required the repair. Thanks to the fortuitous timing and the multiple steps undertaken by ENSTAR, service was maintained to all Girdwood customers.

Factors that allowed customers to continue to receive gas service under these circumstances include:

- **Timing.** Natural gas usage is highly temperature dependent, and this damage occurred in August, when natural gas usage is among its lowest. Because this happened during a summer month, there was very little demand on the pipeline and thus the pressure dropped only slightly while the repairs were being conducted.
- **Voluntary load reductions.** ENSTAR crews did not just rely on temperature to address the urgent need to keep natural gas service flowing; the Hotel Alyeska

switched to its back-up fuel upon ENSTAR's request and thus removed its load from the line.

- **Luck.** Despite these mitigating factors, ENSTAR line pressure dropped precipitously during this event. The Girdwood Distribution Main typically operates above 50 psi; pressure dropped to 5 psi during the event. Had the first two bullets not coincided, Girdwood would have experienced a mass loss of service.

It should be noted that if ENSTAR was unable to conduct the bypass and this particular area needed to be pinched off, all customers on the downstream side of this location (approximately 1,000 homes and businesses) would have lost service. Restoring gas service to an area like this is not simple and involves a meticulous process that requires an ENSTAR employee to physically inspect and ensure that each customer's service is on, no air is in the lines, and all appliances are safely relit. An outage in an area of this size would likely take anywhere from 4 to 7 days, depending on the resources available, to get all customers back in service. Moreover, given the seasonal use of many of these properties, it may have taken months to contact and reconnect each customer. Continuity of gas service is particularly critical during winter months where many homes do not have alternate heating sources and would be subject to freezing pipe issues.

Circumstances have changed in Girdwood since 2016; not only has the Hotel Alyeska built the Nordic Spa, which places a significant additional load on the Girdwood Distribution Main, but there has been, and apparently may continue to be, significant development and additional customers added. The number of customers served by the Girdwood Distribution Main has increased by 7% since 2016 and continues to grow.

More recently, in October of 2021, heavy rain resulted in Ruane Road washing out and exposing a portion of ENSTAR's 2" main that fed the AWWU plant. This line had to be cut out and replaced, with a bypass installed as a temporary fix. ENSTAR cannot predict when or how natural disasters and other unanticipated events will impact its system and the downstream customers. What we can do is take careful and prudent steps to make sure our customers are served under a variety of circumstances.

Reliable service is critical in this region. A lack of gas in the winter could quickly result in frozen pipes and potential threats to residents' safety. ENSTAR has presented this explanation for the project, and in response certain project opponents have made several assertions, including (1) that Girdwood residents are ok with losing natural gas

supply for several days; (2) that the likelihood of a damage is lower in the winter than in the summer; and (3) that if the project is needed, it should be sited elsewhere. These arguments are addressed below.

1. Reliability is not an optional component of service; it is essential to natural gas delivery.

The assertion was made by an affected landowner that Girdwood residents are indifferent to whether they receive reliable natural gas service. To ENSTAR's knowledge this is not a formal position taken by the Girdwood Board of Supervisors. Moreover, ENSTAR's statutory obligation as a regulated utility with a Certificate of Public Convenience and Necessity is to provide service that is "continuous and without unreasonable delay." ENSTAR would not, and legally cannot, rely on one landowner's representation as to the wishes of the rest of Girdwood residents, business owners, and landowners.

2. The risk of damage to ENSTAR's system is not seasonal.

Residents indicate that the likelihood of damage to ENSTAR's pipeline is lower in the winter than the summer due to construction schedules. This only marginally impacts the third party damage rate, and while the risk is slightly lower, it is not zero. ENSTAR's historical data shows that over the last ten years, 1,401 line hits occurred between October and March from 2016-2022, or approximately 45% of all line hits on our system. Please note that this data is system-wide and not specific to Girdwood. This risk would be slightly elevated in the more temperate parts of ENSTAR's service territory, where excavation work does not necessarily stop in the winter. Additionally, third-party damages are not the only ways that service could be disrupted on ENSTAR's system. Earthquakes, leaks, and washouts can occur at any time of the year and impact gas delivery to downstream customers on a single-feed line.

3. ENSTAR engineers carefully plan, design, and site projects to minimize cost and impact, while maximizing efficiency and achieving project objectives.

Consistent with its practice in other reinforcement projects, ENSTAR identified a path for boring this project that it deemed best-suited for the design. When determining which route to bore for like pipelines, ENSTAR's engineering department prioritizes (1) cost, specifically identifying the most economical way for ENSTAR to meet its need in order to minimize costs to customers; (2) safety

of ongoing operations so that ENSTAR has ready access for ongoing maintenance and to address any leaks that occur; and (3) engineering considerations such as pressure, elevation, the Joules Thompson effect, etc.

### Proposed Project

Having identified a reinforcement of Girdwood's one-way feed as a key priority to ensure the resiliency of its natural gas distribution network, ENSTAR's engineering department searched for the best way to do so. As it does in other parts of its service territory, ENSTAR identified the section line easement, which is owned by the State of Alaska, as the most reasonable way to reinforce the existing one-way feed. It submitted its application in April 2023, and the Department of Natural Resources Division of Mining, Land and Water provided public notice on July 6, 2023.

ENSTAR's application included a request for permission to clear a 20' wide right of way for the lineal extent of the easement. This request was made because the U.S. Department of Transportation, Pipeline and Hazardous Materials Administration ("PHMSA") requires ENSTAR to maintain cleared rights of way that allow the performance of certain actions to ensure its pipelines are safe, including leak surveying and installing signage. Additionally, it maintains the rights-of-way above its pipelines in a cleared state so that it can quickly respond to any leak. When natural gas leaks occur, ENSTAR's priority is the safety of the public and its employees. An encumbered right-of-way risks slowing a response and heightening any risk of a safety incident.

A project opponent has pointed out that ENSTAR "does not have a terminus" for this pipeline. This is correct. After completing the boring and conducting a soil analysis, ENSTAR will tie in to its distribution system at an appropriate location. ENSTAR has the expertise to determine where to lay pipelines on its own; indeed it has over 3,200 miles of distribution main throughout its system, the majority of which was laid by ENSTAR. As such, ENSTAR has elected to defer this final piece of the project until the boring portion is complete.

Accommodations/Mitigations

- Viewsheds.
  - ENSTAR understands that there are certain community members who have expressed concern about the project, including those with viewsheds that could potentially be affected. To address this concern, ENSTAR offers to sit down with the affected landowners and discuss revegetation in the area closest to their homes. ENSTAR has done as much with other landowners when proposed projects would affect viewsheds.
- Timing.
  - The project, as proposed, would be undertaken in the August-September 2023 timeframe. While DNR public notice was indeed shorter than ENSTAR would have liked, it comported with the law. Nonetheless, ENSTAR acknowledges both the need for further review of this project as well as the value of further dialogue.

Thank you for your commitment to our communities. We appreciate the feedback we've received and for the opportunity to provide this response. Our goal is to provide open communication with area residents and to take prudent steps to maintain reliable service to our customers.

Sincerely,



Steve Cooper  
VP of Operations & Engineering

# WINNER CREEK TRAIL BRIDGE AT GLACIER CREEK

Girdwood, AK



GIRDWOOD TRAILS  
ALASKA

*Meeting Purpose: 35% Design Update*

## PROJECT LOCATION

*Glacier Creek Trail Bridge: Winner Creek Trail*  
Proposed Bridge over Glacier Creek as identified in the Girdwood Trails Plan.

*Project Background*

*Glacier Creek Bridge Site*

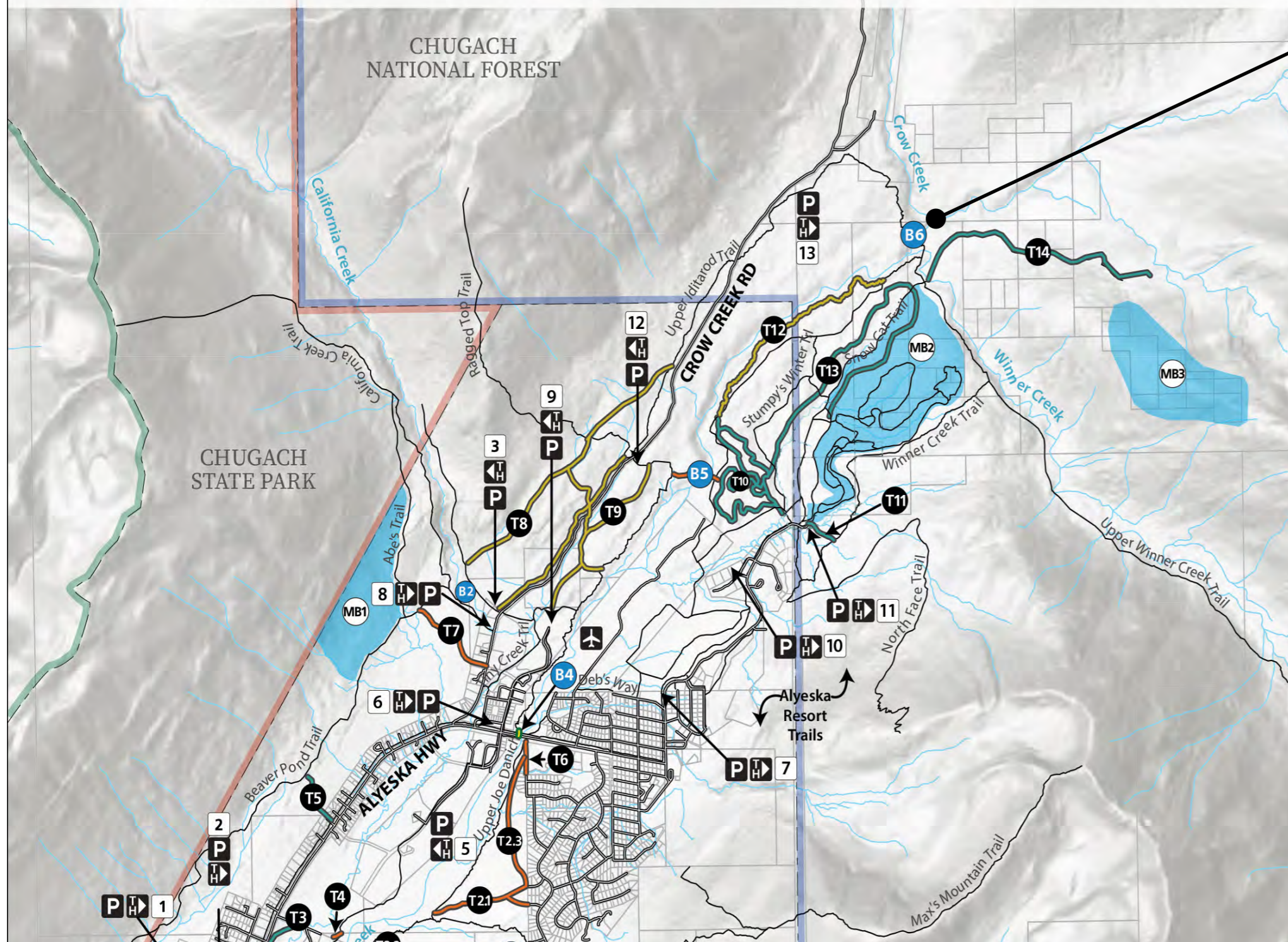
*Bridge Design*

*Interpretive Shelter*

**NEXT: September 5, 2023 APPROVAL**

### GIRDWOOD TRAILS PLAN: PROPOSED TRAIL NETWORK

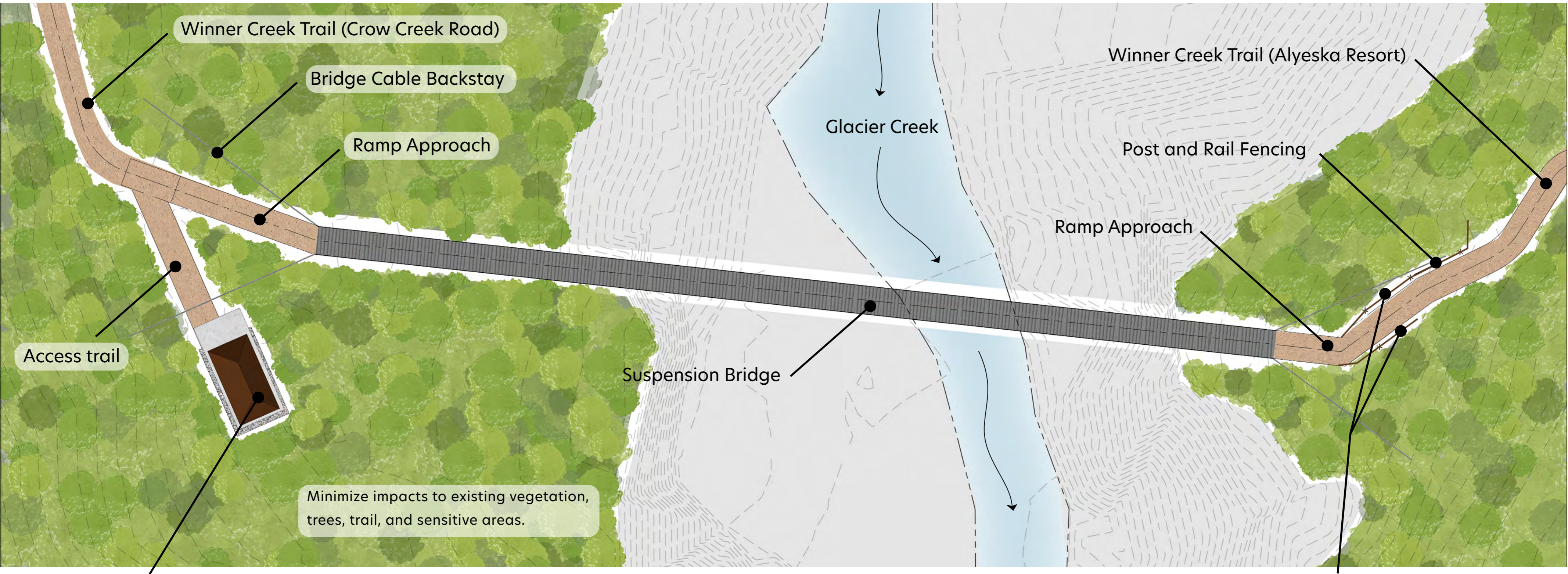
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|--|--------------------------------------|--|-----------|--|---|--|-------------------------------|
|  | Trail Class 5 (Fully Developed)      |  | Streets   |  | Trailhead Number                                  |  | Chugach National Forest       |
|  | Trail Class 4 (Highly Developed)     |  | Railroad  |  | Proposed Bridge                                   |  | Chugach State Park            |
|  | Trail Class 3 (Developed)            |  | Creeks    |  | Proposed Area for Mountain Bike Trail Development |  | Chugach State Park Wilderness |
|  | Trail Class 2 (Moderately Developed) |  | Parking   |  |   |  |                               |
|  | Trail Class 1 (Minimally Developed)  |  | Trailhead |  |   |  |                               |
|  | Existing Trails                      |  |           |  |   |  |                               |



# GLACIER CREEK BRIDGE SITE PLAN

WEST APPROACH

EAST APPROACH



**Hand Tram Interpretive Shelter**  
Existing timber frame tram structure will be relocated as an Interpretive Shelter.

**Hanging Deck Suspension Bridge**

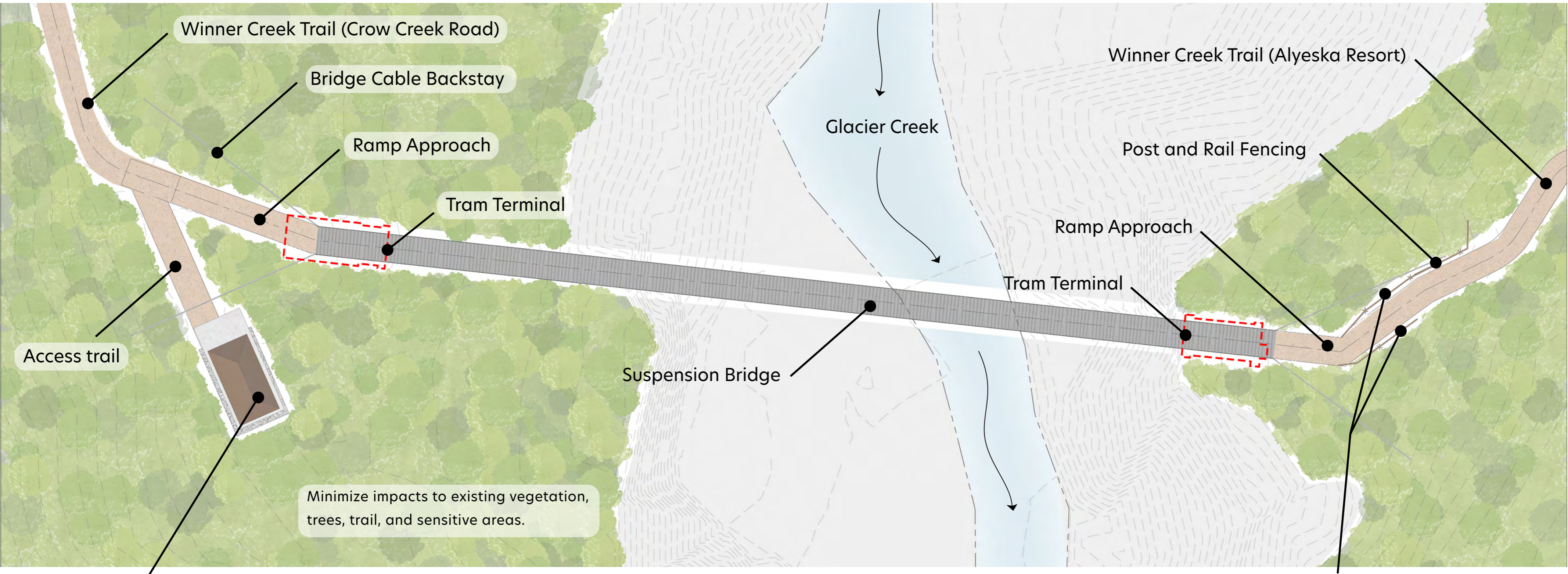
- Steel cable suspension bridge spanning 206 feet (+/-)
- Bridge width: 6 feet, to accomodate two-way traffic.

**Trail Realignment & Fencing**  
Post and rail fencing installed on either side of the trail approaching the bridge.

# GLACIER CREEK BRIDGE SITE PLAN

WEST APPROACH

EAST APPROACH



## Hand Tram Interpretive Shelter

Existing timber frame tram structure will be relocated as an Interpretive Shelter.

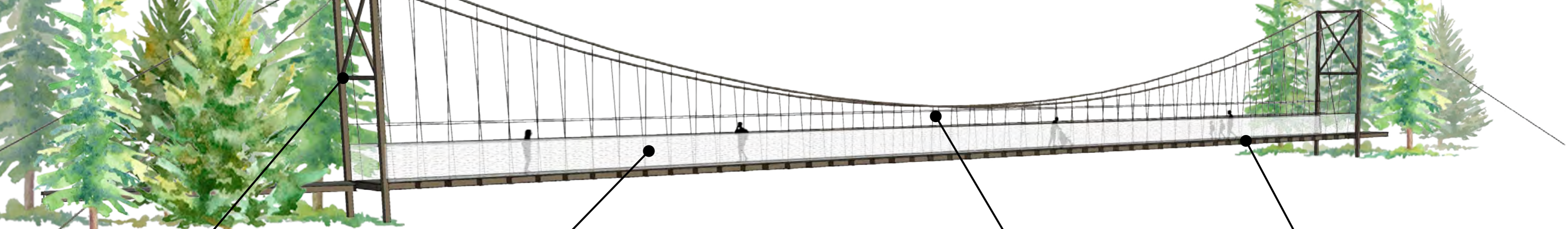
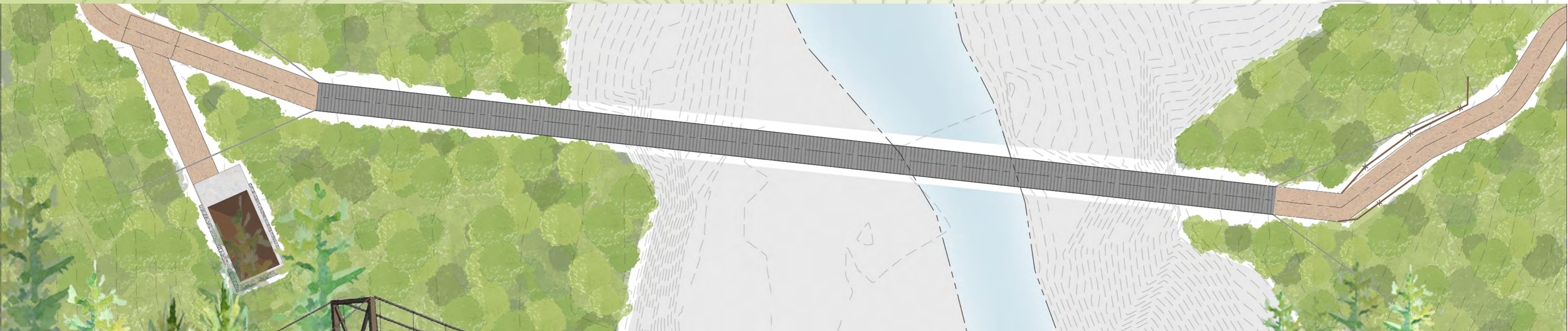
## Hanging Deck Suspension Bridge

- Steel cable suspension bridge spanning 206 feet (+/-)
- Bridge width: 6 feet, to accomodate two-way traffic.

## Trail Realignment & Fencing

Post and rail fencing installed on either side of the trail approaching the bridge.

# HANGING DECK SUSPENSION BRIDGE



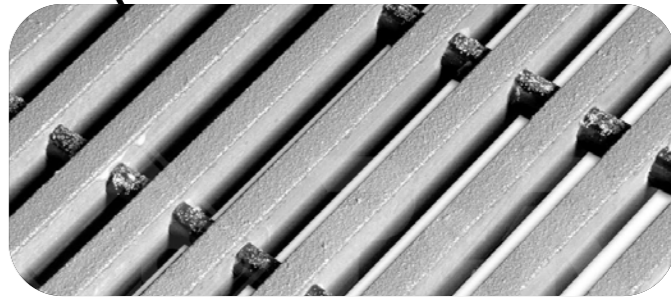
**Steel Towers & Cable**  
Galvanized Steel provides a longer life span and durability.



**Safety 'Webnet'**  
Deck to rail height (0-54") 'webnet' for fall protection.



**Longitudinal Cable**  
7' above deck and vertical hangers at 4' along the bridge.



**Decking**  
Pultruded fiberglass grating in light gray with a 24" dog strip.

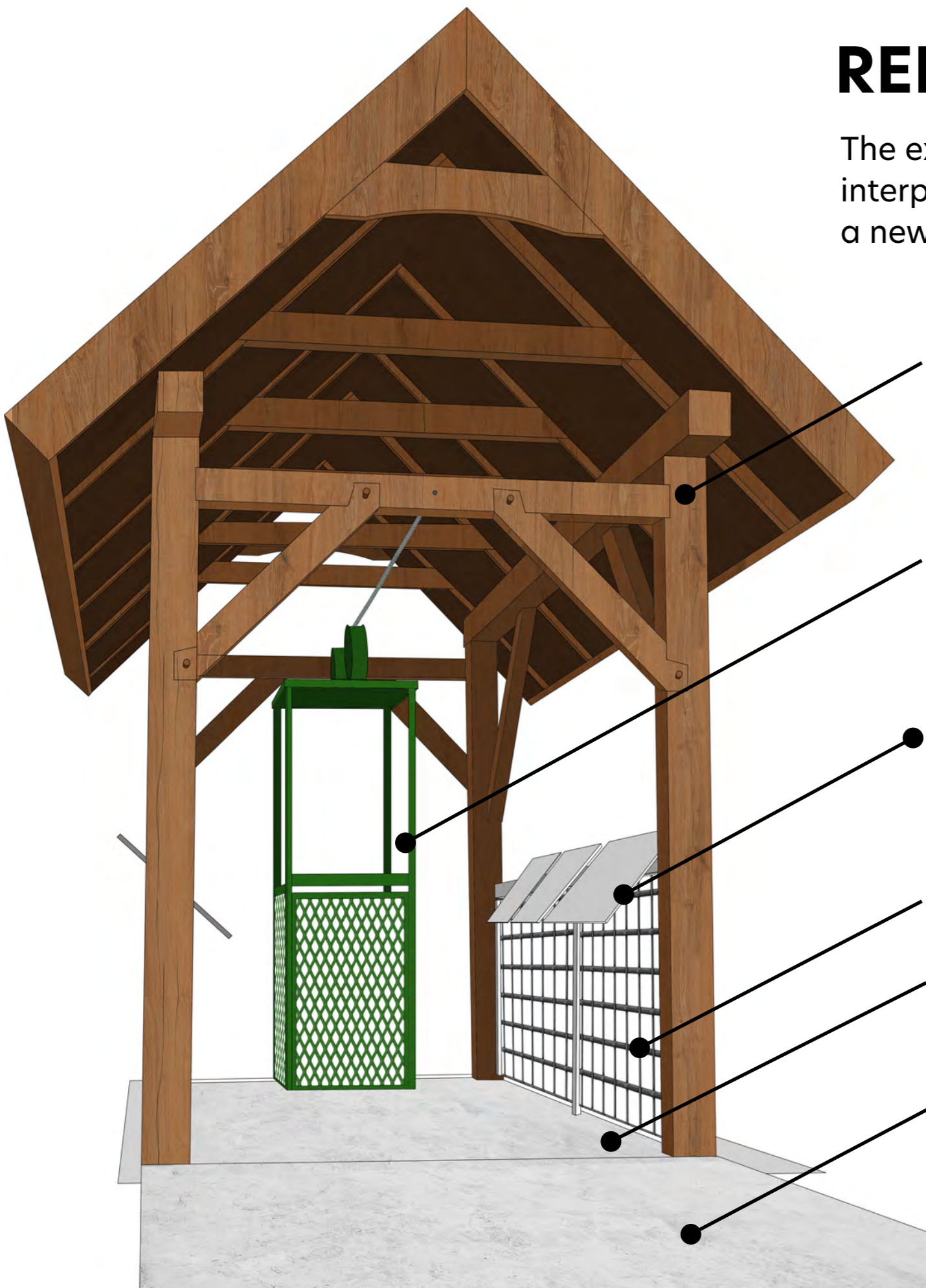
# HANGING DECK SUSPENSION BRIDGE



# INTERPRETIVE SHELTER

## RELOCATED HAND TRAM STRUCTURE

The existing hand tram structure is to be disassembled and relocated adjacent to the new bridge to create an interpretive shelter. A short access trail will connect the interpretive shelter to the main trail. The shelter will have a new concrete slab foundation. Siting of the structure will be sensitive to existing trees and vegetation.



*Timber frame hand tram structure*  
Disassembled and relocated adjacent to the new bridge to create an Interpretive Shelter.

*Tram Cart*  
Installed as a fixed-in-place interpretive element.


*Interpretive Panels*  
Attached to railing inside tram structure

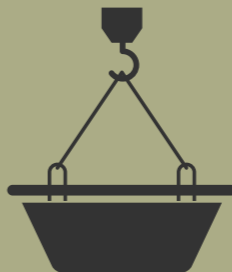
*Existing Railing*

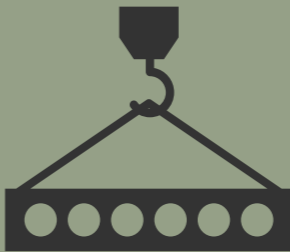
*Concrete Flooring*  
Wood grain stamped concrete

*Access Trail*  
A short access trail will connect the interpretive shelter to the main trail.

## INTERPRETIVE THEMES:

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History of surrounding Glacier Creek area
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Hand Tram History & Construction
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Hand Tram Engineering & Materials