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RE: Alaska Railroad Corporation, Port MacKenzie Rail Extension – Mitigation Reports

Mr. Navecky:

On November 21, 2011 the Surface Transportation Board (STB) issued a final decision (Docket No. FD 35095) authorizing the Alaska Railroad Corporation (ARRC) to construct and operate approximately 35 miles of new rail line connecting Port MacKenzie to ARRC's existing main line near Houston, Alaska. In that decision, STB requires that ARRC comply with numerous environmental mitigation measures. These mitigation measures were developed after extensive environmental analyses and consultations with agencies coinciding with the preparation of the Project's Environmental Impact Statement. Implementing these measures is intended to reduce, to the extent feasible, the potential environmental impacts from the proposed rail line.

A number of the mitigation measures require ARRC prepare and submit specific plans or reports to STB and the relevant resource agencies prior to constructing the new rail line. In accordance with those requirements, the following reports are enclosed, based on STB distribution requests:

Document Title	Distribution List
1. Bear Interaction Plan	STB, ADNR, ADF&G
2. Reclamation Plan	STB, ADNR
3. Invasive Species Control and Management Plan	STB, ADNR, ADF&G
4. Moose Mitigation Strategy Plan	STB, ADNR, ADF&G, USFWS
5. Maintenance of Navigable and Public Waterway Rights	STB, ADNR, ADF&G
6. Proposed At-grade Crossings of Officially Recognized Trails	STB

If there are any questions, ARRC is happy to discuss them.

Sincerely,

Brian A. Lindamood, PE
Project Manager, Special Projects

cc:

ADNR: Jeff Bruno, Wendy Steinberger, David Shade
ADF&G: Mike Bethe, Kenneth Bouwens, Tony Kavalok
USFWS: Maureen deZeeuw



Bear Interaction Plan

Port MacKenzie Rail Extension Project

1.0 Purpose

Construction and operation of the Port MacKenzie Rail Extension (PMRE) Project will occur in areas populated by both black bears (*Ursus americanus*) and brown bears (*U. arctos*). Considering this, the Surface Transportation Board's Office of Environmental Analysis included the following mitigation measures in the November 21, 2011 PMRE final decision (Docket No. FD 35095) authorizing the Alaska Railroad Corporation (ARRC) to construct and operate the new rail line:

Mitigation Measure 48: *The Applicant shall prepare and implement a bear interaction plan to minimize conflicts between bears and humans. In consultation with the Alaska Department of Fish and Game, the Applicant shall develop appropriate educational programs and management plans when project-related construction and operation plans are being prepared.*

Mitigation Measure No. 32: *The Applicant shall restrict its project-related workers from (1) hunting or fishing while stationed at work camps; (2) harassing wildlife, including winter or calving concentrations of moose (cows with yearling calves can be particularly defensive); (3) approaching known occupied bear dens; and (4) feeding wildlife.*

The purpose of this plan is to comply with these measures and minimize the potential for human/bear interactions. It provides guidance on educating employees about the hazards of working in bear country, proper waste management and site cleanliness to keep from attracting bears, and steps to take in the event of a bear/human incident. These recommendations were developed with input and technical guidance from the Alaska Department of Fish and Game (ADF&G) and are intended to advise ARRC and its contractors during the construction and operation phases of the PMRE Project. This plan should be readily available to ARRC and contractor employees working in the PMRE project area.

2.0 Site Description

The PMRE Project will connect Port MacKenzie to the existing ARRC main line near Houston, Alaska. The route is sparsely populated and provides natural habitat for both black and brown bears. Several streams supporting anadromous fish populations will be crossed; these streams provide food for bears and may support higher bear densities during active spawning periods (typically July through October) than surrounding areas. Areas of dense brush and vegetation also provide abundant cover opportunities for bears along the route, making it easier for humans to startle bears and increasing the risk of a dangerous encounter. These habitat features contribute to the presence of a thriving bear population; PMRE Project staff in the area need to be aware of and prepared for possible interactions.

3.0 Plan Overview

This plan addresses:

- Awareness and Education
- Work Site Cleanliness/Waste Management
- Incident Response Planning

Together, these components are intended to minimize interactions between bears and humans, and should an interaction occur, keep it from escalating into a dangerous situation for either the humans or bears involved. Site supervisors are responsible for the implementing this plan. This plan may not address every possible hazardous bear interaction scenario, and may be revised and refined should situations arise that are outside the realm of those presented.

4.0 Awareness and Education

Bear awareness and safety in bear country training is recommended for all ARRC personnel and contractors upon their first arrival on the work site. Personnel need a good understanding of basic principles and practices to properly respond to interactions. The video *Staying Safe in Bear Country* (Safety in Bear Country Society, 2004) is available as a commonly used, industry standard orientation aid. This and any other commercially available material may be supplemented by site specific procedures, especially employee awareness of specific high bear-use areas. Regardless of the materials used, the following subjects are important to cover during training:

- General bear behavior relevant to human safety
- Identification and avoidance of high bear use areas in and around the project corridor (e.g. anadromous streams, areas of dense brush, known den locations)
- Each employee's responsibility to take steps to prevent bear encounters (see work-site cleanliness/waste management)
- Emphasis on the processes of human-habituation and food-conditioning and the detrimental effects of directly or indirectly feeding wildlife
- Discussion of how equipment noise won't necessarily keep bears away; and may occasionally attract curious individuals
- Recognizing signs of bear dens and activity in the work area
- How to deal with a bear/human interaction including recognizing a bear's intent based on their body language and behavior
- Details on the project's bear conflict response procedures
- Procedures for reporting and responding to bear conflicts
- Sources for further information and suggested reading

In addition to this initial orientation session, work crews may need to regularly address site-specific bear awareness issues, especially when moving to a new area or working around anadromous fish streams. Employees should be aware of the following considerations as they may apply to specific work sites:

- Take extra caution when working around active fish spawning streams, as they are known feeding areas for bears.
- Avoid dense brush, especially near streams, berry patches, and other areas frequented by bears.

- Do not approach known occupied bear dens, and take extra caution in areas with bears dens.
- Do not feed bears (or other wildlife).
- Make lots of noise and carry bear spray when working in these areas to warn bears of your presence if going into these areas.
- If deemed necessary by site safety personnel, designate a worker to watch for bears when working around known habitat areas.
- Request a bear watch if you feel it is necessary for your safety.

5.0 Work Site Cleanliness/Waste Management

Work site cleanliness/waste management is an important step in worksite bear safety, as human food and garbage can be strong attractants to bears, leading to habituation and increasing the possibility of dangerous interactions with humans. Bears that obtain food or garbage associated with human activities usually learn to seek these out again, repeatedly bringing them into contact with humans. This can lead to dangerous confrontations, and often ends with the destruction of the bear. In addition, construction site wastes and garbage may contain noxious substances, such as toxic chemicals (e.g. antifreeze, petroleum lubricants, and diesel fuel), plastic bags, glass, or metal fragments that could impair the bear's health (ADF&G 2011). The availability of these and other potential bear attractants is a major safety concern; and keeping these items secure is the responsibility of everyone on the work site. Site supervisors should educate workers about the connections between proper waste containment and minimizing the potential for bear/human conflicts.

The following recommendations are intended to reduce confrontations between bears and humans by reducing bears' access to garbage and food on and around the worksite:

- Dispose of food and non-food wastes in bear-proof garbage cans. (Non-food wastes include antifreeze, petroleum wastes, and any toxic chemicals that may be attractants to bears or other wildlife.)
- Schedule regular garbage collection, or as often as needed, to prevent accumulation of bear attractants on-site.
- Place garbage cans in habitats least used by bears, and avoid placing disposal sites in traditional movement routes, seasonal concentration areas (such as fish spawning areas, productive berry patches) and areas of dense cover preferred by bears.
- Store food (including lunches) indoors or in vehicles. Do not leave food outside unattended.
- Keep work sites clean of potential physical hazards to bears such as wire, cable, tubing, plastic, or other materials that they could become entangled in.
- Store petroleum products and all toxic chemicals in bear-proof containment areas.
- Clean up spills of petroleum products and other potentially toxic bear attractants immediately.

6.0 Incident Response Planning

Despite proper implementation of the recommendations in this plan, a bear/human interaction may occur. A bear may wander through the work site, take food from a lunch left unattended, or physically attack a human. The human response is critical, as it can affect the safety of others working in the bear-affected area. A poorly-chosen response could escalate the situation into something extremely dangerous to humans and bears. For this reason, the project must have a protocol for dealing with these various levels of bear encounters. The protocol recommendations given here draw on the work of previous industry

plans (ConocoPhillips, 2006; ExxonMobil, 2009) as well as bear experts at the ADF&G (Shideler, Manning, 2011).

A site safety supervisor will be designated. This individual will be responsible for final implementation of this plan and will be available to direct the handling of bear/human interactions. Should this supervisor be unavailable, an alternate should be on-site to take over this responsibility. This person(s) should have advanced training and the necessary tools to perform bear hazing duties that other employees are not trained to handle. These duties could range from using bear-spray or even a vehicle to scare away a problem bear to, in defense of human life, shooting and destroying a bear (see Alaska regulation 5 AAC 92.410).

For ARRC personnel, having weapons of any kind in the workplace, or on any ARRC owned or leased property violates the ARRC Code of Conduct. Only the ARRC Chief Special Agent may authorize employees to have weapons for the performance of their duties. Should it be decided that safety personnel need advanced training in hazing techniques and other bear interaction scenarios, a professional trainer may be employed with consultation from the ADF&G (See Appendix for ADF&G contacts).

The following recommendations apply to the possible event of a bear/human interaction. They may be built upon or adjusted at the discretion of site safety personnel and according to the needs of the specific worksite.

- Report bear sightings, encounters and interactions of any other kind to the site safety personnel immediately. If the designated safety personnel are not available, employees should notify their supervisor immediately.
- If bears come into the immediate vicinity of the work site, stop work and notify site safety personnel. Safety personnel should monitor the situation and decide on the best course of action.
- Conduct bear hazing activities using only trained personnel following proper procedures.
- Notify ADF&G immediately of any bear attack, close interactions, or problem bears (e.g., bears showing unusual or aggressive behavior). Also notify ADF&G immediately if a bear is killed by vehicle collision or under any other scenario (See Appendix for contact information).
- Follow safe speed limits with vehicles and equipment and yield the right-of-way to bears and other wildlife to minimize the possibility of collisions with animals (ConocoPhillips Canada, 2006).
- Hold bear awareness meetings scheduled by site safety personnel on an as-needed basis to inform workers about previous or potential interactions and any changes to the bear safety plan.
- In the event of a bear attack on human(s), implement emergency procedures to deal with the situation quickly and efficiently. Know the location of and have access to first-aid supplies, and know how to reach professional emergency personnel at all times (see Appendix for nearby emergency medical facilities).
- All bear interactions should be recorded by site safety personnel with as much detail on the bears involved and the incident chain-of-events as possible. This information may assist ADF&G in tracking down and dealing with problem bears and may be used to further refine bear/human interaction practices within the project.

7.0 Conclusions

Site supervisors and managers should implement the recommendations, and look for ways to improve the plan and adapt it to their work environment. All workers have a role in keeping the work site safe and

minimizing the potential for bear/human interactions. Supervisors should remain receptive to employee concerns about bear interactions, and bear safety should be treated with the same seriousness as other safety issues. Employees should provide feedback about bear safety policies and procedures without fear of negative repercussions. Should situations arise that are outside the scope of this plan, revisions may be made to keep the plan applicable and effective at minimizing the potential for bear/human interactions.

Additional educational resources, local ADF&G contacts and bear safety professional contacts can be found in the appendix.

8.0 References

Alaska Administrative Code. 5 AAC 92.410. Taking game in defense of life or property.

ConocoPhillips Canada. 2006. Grizzly Bear and Wolverine Protection Plan for the Parsons Lake Field Development.

ExxonMobil Corporation. 2009. Polar Bear and Wildlife Interaction Plan, Point Thomson Project, North Slope, Alaska.

Manning, E. Personal Communication. Education Specialist, Alaska Department of Fish and Game, Anchorage, Alaska. Telephone: 907-267-2168. Email: elizabeth.manning@alaska.gov

Peltier, T. Personal Communication. Wildlife Biologist, Alaska Department of Fish and Game, Palmer, Alaska. Telephone: 907-746-6327. Email: tim.peltier@alaska.gov

Safety in Bear Country Society. 2001. Staying Safe in Bear Country DVD. Prepared by the Safety in Bear Country Society in cooperation with the International Association for Bear Research and Management. Distributed by Kodiak Wildlife Products (macecanada.com)

Shideler, R. Personal Communication. Wildlife Biologist, Alaska Department of Fish and Game, Fairbanks, Alaska. Telephone: 907-459-7283. Email: richard.shideler@alaska.gov

Appendix – Further Information

ARRC Contacts

ARRC Special Agent

907-265-2462

Local Emergency Medical Centers

Call 911 for all emergency medical situations.

Urgent Care at Lake Lucille

185 E Parks Hwy

Wasilla, AK 99654

907-373-4200

Mat-Su Regional Urgent Care

950 E Bogard Rd Ste 103

Wasilla, AK 99654

907-352-2880

Mat-Su Regional Medical Center

2500 S. Woodworth Loop

Palmer, AK 99645

907-861-6000

ADF&G Contacts

Alaska Department of Fish and Game – Main Palmer Office

1800 Glenn Highway, Suite 2

Palmer, AK 99645

907-746-6300

Tim Peltier, Wildlife Biologist - Bear Incident Reporting, Bear Safety Training

ADF&G; Palmer, AK

907-746-6327

tim.peltier@alaska.gov

Elizabeth Manning, Education Specialist – Bear Safety Training

ADF&G; Anchorage, AK

907-267-2168

elizabeth.manning@alaska.gov

Additional Bear Safety Resources

Kodiak Wildlife Products: Online suppliers of the educational bear safety videos, *Staying Safe in Bear Country* (P51414-004 PPR-U) and *Working in Bear Country* (P51414-005 PPR-U). Both videos are available in Public Performance Rights versions for use by business, industry and government as an employee training aid. Online at <http://www.macecanada.com/unitedstates/video.htm>

Alaska Department of Fish and Game: *Policy on Human Food and Solid Waste Management and Bears in Alaska.* Online at <https://secure.wildlife.alaska.gov/index.cfm?adfg=bears.bearpolicy>

Environment Yukon: *How you can stay safe in bear country.*

Online at <http://www.env.gov.yk.ca/pdf/howyoucanstaysafe.pdf>



Reclamation Plan

Port MacKenzie Rail Extension Project

1.0 Purpose

On November 21, 2011 the Surface Transportation Board (STB) issued a final decision (Docket No. FD 35095) authorizing the Alaska Railroad Corporation (ARRC) to construct and operate approximately 35 miles of new rail line connecting Port MacKenzie to ARRC's existing main line near Houston, Alaska. In that decision, the STB required ARRC to prepare and implement a Reclamation Plan that identifies measures to restore sensitive habitat areas that are temporarily disturbed by construction. The specific mitigation measure is included below.

Mitigation Measure 39: *In conjunction with developing a final engineering design for the project, the Applicant shall consult with the USFWS and the ADF&G to locate project-related facilities to minimize the size and degree of impacts to highly sensitive habitat areas. Disturbed areas shall be restored in accordance with a reclamation plan developed by the Applicant in cooperation with the USFWS, ADF&G, and/or other appropriate agency staff. The Applicant shall submit the reclamation plan for areas to be disturbed by project construction to the Surface Transportation Board's (Board) Office of Environmental Analysis (OEA), USFWS, and ADF&G. The reclamation plan shall be developed in conjunction with final engineering design and clearly designate: (1) areas to be reclaimed; (2) reclamation materials, methods, and timing; and (3) monitoring schedule and contingency plans.*

Implementation of this plan is intended to minimize the impacts of construction activities to areas adjacent to the project and ensure that all areas temporarily disturbed during construction are returned to their natural conditions. ARRC's selected contractor for each construction segment will be required to develop a Storm Water Pollution Prevention Plan (SWPPP), which will provide detailed, site-specific steps to minimize construction impacts to the natural environment. Preparation of a SWPPP is required for compliance with the Alaska Department of Environmental Conservation (ADEC) Alaska Pollutant Discharge Elimination System (APDES) General Permit for Discharges from Large and Small Construction Activities (referred to as the Construction General Permit (CPG)).

The recommendations outlined in this plan are considered to be a starting point for contractors, specific best management practices will be established in each segment's SWPPP. These may include regular site inspections to monitor storm water runoff, thresholds for acceptable sediment discharges, and erosion and sediment controls. Concepts included here have been developed in consultation with the Alaska Department of Natural Resources, Alaska Department of Fish & Game, and the U.S. Army Corps of Engineers (USACE).

2.0 Reclamation areas

Three primary areas may be temporarily impacted by construction activities, and may therefore require reclamation: (1) areas within 20-feet of and adjacent to placement of fill, (2) areas within a 50-foot radius of all stream crossings, and (3) potential additional access roads and staging areas as needed by the contractor to facilitate construction.

2.1 Temporary Impacts to Areas Adjacent to the Project Footprint

Land up to 20 feet beyond the designated cut and fill limits may be temporarily impacted due to construction activities, and therefore, may need to be reclaimed to its natural state. Undeveloped areas outside these construction limits, yet still within the ARRC right-of-way, will not be directly impacted by project construction and will not require reclamation.

Prior to beginning construction of each segment, both the embankment footprint limits and the construction work limits (land within 20 feet of the footprint limits) will be clearly staked or flagged. This entire area will be cleared, which will consist of the felling and removing of trees and undergrowth from the area with no ground disturbance. Pursuant to the U.S. Fish and Wildlife Service's recommended timing guidelines for protecting nesting migratory birds, this clearing activity may occur several months prior to commencing ground disturbing construction. Upon start of construction, the footprint area will be grubbed by removing roots and other vegetation. This task will be accomplished using bulldozers, loaders and excavators.

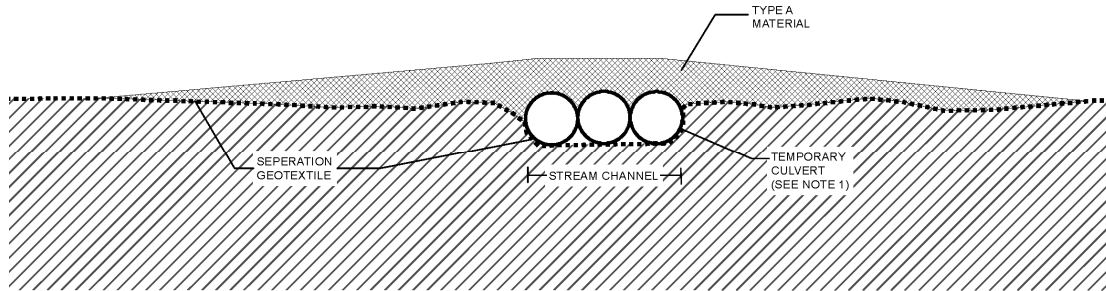
Areas adjacent to the fill footprint will have the vegetation cleared, but the ground will not be disturbed through removal of soil or vegetative roots. These areas will be allowed to revegetate naturally. If reseeding is necessary to stabilize the substrate, appropriate native species will be selected from the Alaska Plant Material Center Revegetation Manual for Alaska (<http://www.dnr.state.ak.us/ag/pmcweb/TitlePageManualdwt.htm>). The source of any native plants used for rehabilitation efforts will be selected from the Plant Material Center Directory of Native Plant Sources (http://www.dnr.state.ak.us/ag/NEWnative_directory.htm).

2.2 Temporary Impacts to Areas Adjacent to Stream Crossings

Temporary disturbances that occur during the installation of fish passage culverts and bridges will be limited to 50 feet beyond the project footprint at each crossing. Temporary fill, mats and work platforms may be necessary at some bridge locations to provide a more viable working environment or to temporarily cross a stream to support construction. In areas where temporary fill is required, ARRC will require the contractor to place the fill on geotextile mats or other suitable materials of sufficient thickness to facilitate the removal of the fill to the maximum extent practicable when it is no longer needed for construction. Although some organic soil compaction may occur due to the weight of the equipment placed on the geotextile mats, no natural earthen material will be removed from under the mat. The contractor will stabilize the area against erosion once construction equipment and protective mats are removed by reseeding and revegetating the disturbed areas as necessary.

The contractor will be required to adhere to all project provided permits and the stipulations identified by resource agencies, obtain any construction specific permits and submit site specific plans to the ARRC for review and approval prior to working in a designated wetland area. Exhibit 1 shows two common methods used for either the installation of temporary culverts (Exhibit 1a) or a temporary bridge (Exhibit 1b) to cross a stream. The contractor will ultimately decide which method is most practicable, subject to approval by the ARRC. Stream crossing work, temporary or permanent, will adhere to fish timing windows and stipulations laid out in the Title 16 permits for each crossing.

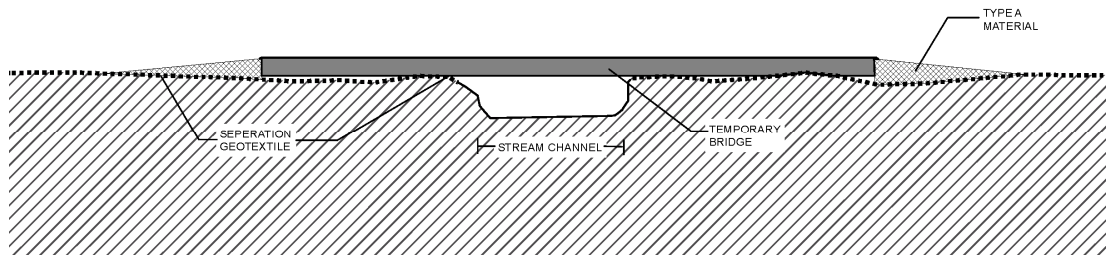
a. Temporary Culvert



NOTES:

1. ACTUAL CULVERT SIZE AND NUMBER OF CULVERTS WILL BE DEPENDENT ON THE SIZE AND DEPTH OF CHANNEL.
2. ACTUAL CONSTRUCTION METHODS WILL BE BASED ON ACTUAL FIELD CONDITIONS AN CONTRACTOR SUBMITTED AND APPROVED PLAN.
3. TEMPORARY CHANNEL CROSSING WILL BE DONE DURING RECOGNIZED FISH TIMING WORK WINDOWS.

b. Temporary Bridge



NOTES:

1. ACTUAL TEMPORARY BRIDGE SIZE WILL BE DEPENDENT ON THE SIZE AND DEPTH OF CHANNEL.
2. ACTUAL CONSTRUCTION METHODS WILL BE BASED ON ACTUAL FIELD CONDITIONS AN CONTRACTOR SUBMITTED AND APPROVED PLAN.
3. TEMPORARY CHANNEL CROSSING WILL BE DONE DURING RECOGNIZED FISH TIMING WORK WINDOWS.

Exhibit 1: Examples of Commonly Used Temporary Crossing Structures.

During excavation and backfilling for culverts, if water is present in the bottom of the excavation the contractor may need to divert the water. This will be necessary in order to provide an adequate surface to place and compact backfill and to keep water from intruding into the backfill material and causing the loss of compaction. Exhibit 2 shows the likely method used for diverting water associated with installation of a culvert. The contractor will decide the actual construction method that is most practicable, subject to approval by the ARRC.

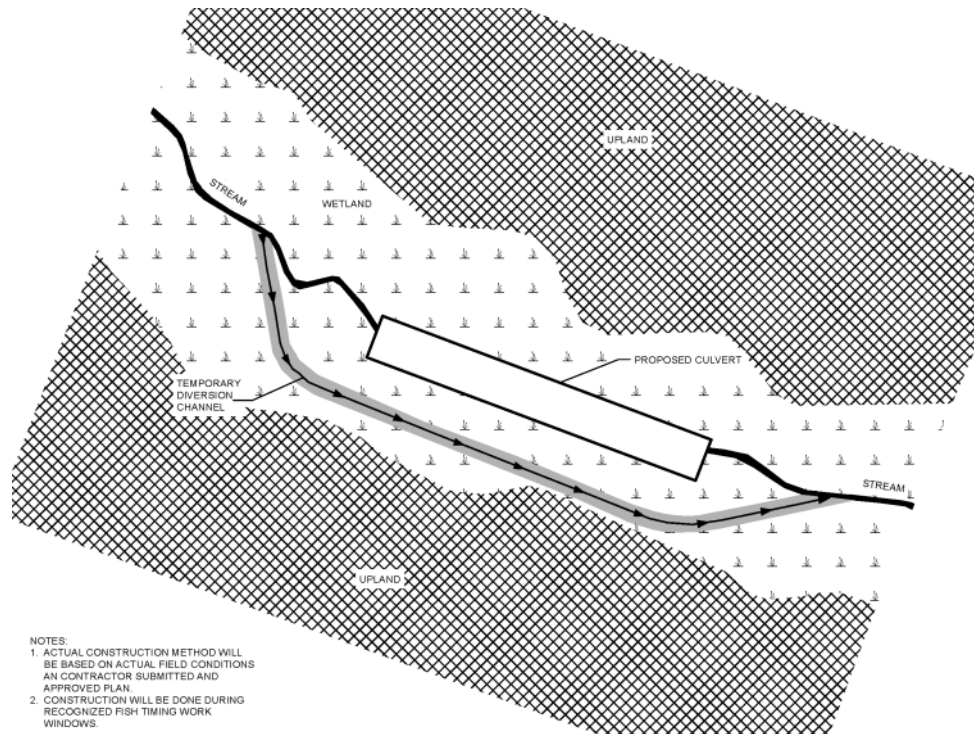


Exhibit 2. Temporary Stream Diversion at Culvert Installations

Wetlands areas that are temporarily disturbed, but not filled by the project will be recontoured and seeded as necessary to protect their functional integrity. It is anticipated and preferred that revegetation will occur naturally within areas of temporary ground disturbance. If reseeding is necessary for the stabilization of substrate, appropriate native species will be selected from the Alaska Plant Material Center Revegetation Manual for Alaska. The source of any native plants used for rehabilitation efforts will be selected from the Plant Material Center Directory of Native Plant Sources.

2.3 Potential Additional Construction Access Roads and Staging Areas

To the extent possible, the right-of-way and construction embankment will be used as a haul route to transport fill. When this is not feasible, existing paved or unpaved roads will be used as necessary and utilized as alternate haul routes. These roads will be restored to pre-construction conditions subsequent to project completion. At this time additional access roads are not anticipated for this project; however, it is possible that new roads may be necessary in certain areas to shorten haul distances for fill or track material.

If new roads are necessary, construction of steep hillside roads will be avoided. Construction of new access roads or use of existing roads shall be subject to approval by the ARRC or landowner and will be required to be built and permitted in accordance with regulatory requirements as necessary. Temporary access roads shall be rehabilitated upon termination of the use of the road. The roads shall be graded to conform to original topography to the degree possible. Cut slopes shall be reduced to a grade consistent with the adjacent topography, protected from erosion, and revegetated.

Staging areas and temporary construction roads must be approved by the ARRC and will be located in upland areas to the extent practicable. If the contractor believes it is necessary to place temporary fill in wetlands, a detailed, comprehensive plan is required to be submitted to ARRC for review; if the work is outside of the scope of the project's Section 404 permit, the activity will be subject to USACE approval. At a minimum, the plan must include the following:

- A typical section drawing showing fill being placed on geotextile mats or other materials designed to facilitate the removal of the fill and the materials when they are no longer needed for construction.
- Acknowledgement that no natural earthen material will be removed from under the geotextile mat when the temporary fill is removed.
- Acknowledgement that the contractor will stabilize the area against erosion once construction equipment and protective mats are removed by reseeding and revegetating the disturbed areas as necessary (Type and amount of seed needed will be determined by ARRC).
- Preparation of a SWPPP to minimize impacts to nearby wetlands.

The contractor's belief that temporary fill is necessary and/or submission of a plan as outlined above does not grant or guarantee the contractor's request.

The contractor shall work within the area permitted under the PMRE Section 404 Permit. Any permit modifications or additional areas of wetland impact resulting from work conducted outside of the permitted area are subject to Section 404 regulations and will likely require the contractor obtain a permit from the USACE.

3.0 Monitoring Schedule and Contingency Plans

Pursuant to Mitigation Measure No. 98, which dictates the terms of the implementation and reporting of mitigation compliance, reclamation activities will be monitored throughout and for one year after the completion of construction. Areas of temporary disturbance during construction will be monitored for natural revegetation progression. If these areas are progressing with native vegetation species, reclamation will be considered successfully completed. If any area is still devoid of vegetation, exhibits traces of temporary fill, or has not been returned to its natural contours, corrective measures such as recontouring the ground surface, removing fill, or reseeding/replanting with native vegetation will be made. Protocols outlined in the Invasive Species and Control Plan should be followed to limit the spread of invasive plant species in reclaimed areas.



Invasive Species Control and Management Plan

Port MacKenzie Rail Extension Project

1.0 Purpose

On November 21, 2011 the Surface Transportation Board (STB) issued a final decision (Docket No. FD 35095) authorizing the Alaska Railroad Corporation (ARRC) to construct and operate approximately 35 miles of new rail line connecting Port MacKenzie to ARRC's existing main line near Houston, Alaska. In that decision, STB requires that ARRC prepare and implement an Invasive Species Control and Management Plan prior to construction. The specific mitigation measure is included below.

Mitigation Measure No. 42: Prior to any project-related construction, the Applicant shall consult with the Alaska Department of Natural Resources (ADNR) and develop and implement a mitigation plan to address the spread and control of nonnative invasive plants during project-related construction. The Applicant shall submit this plan to STB Office of Environmental Analysis and ADNR. This plan shall designate appropriate: (1) planned seed mixes; (2) weed prevention and eradication procedures; (3) equipment cleaning protocols; (4) revegetation methods; and (5) protocols for monitoring revegetation.

Implementation of this plan minimizes the inadvertent introduction of invasive plant species along the project corridor through the movement of construction equipment, embankment fill, or topsoil. This plan ensures STB's compliance with Invasive Species Executive Order 13112 which requires all federal agencies to prevent the introduction of invasive species, provide for their control, and minimize their impacts.

This plan proposes specific strategies that can be employed during construction of the new rail line. Implementation of these is intended to help prevent an introduction of, or an increase in the presence of, invasive plant species in and adjacent to the areas permanently or temporarily disturbed by construction activities. Together these strategies are intended to reduce, to the extent feasible, the potential environmental impacts from the new rail line.

For the purposes of this plan an invasive plant species is defined as a species that is (1) non-native (or alien) to the Susitna Valley and (2) whose introduction causes or is likely to cause economic or environmental harm or harm to human health.

2.0 Best Management Practices for Invasive Species

The Project will connect Port MacKenzie to the existing ARRC main line near Houston, Alaska. The route is primarily undisturbed, consisting of native species of flora and fauna. In order to reduce the

possible introduction of invasive species to project corridor, the following strategies are recommended for use during construction. They are divided into the three following categories:

- **Prevention** – Strategies designed to help prevent the introduction of invasive species
- **Monitoring** – Strategies created to monitor for the presence of invasive species in and around construction areas
- **Control and Management** – Strategies to help control and manage the spread of invasive species should they be introduced to the project area

2.1 Prevention

There are typically three primary sources of invasive species seed to a construction jobsite: seed mixes purchased for revegetation, gravel and fill embankment sources, and construction equipment which has been operated at a previously contaminated site. The following prevention strategies are intended to address these sources:

- **Strategy 1:** Only native seed mixes purchased from the Alaska Plant Materials Center will be used for any revegetation efforts along the new rail line. The recommended plant seed mix will comprise any of the following cultivars:
 - ‘Norcoast’ Bering hairgrass
 - ‘Egan’ American sloughgrass
 - ‘Kenai’ polargrass
 - ‘Sourdough’ bluejoint reedgrass
 - ‘Alyeska’ polargrass
 - ‘Gruening’ alpine bluegrass
 - ‘Arctared’ red fescue
 - ‘Nortran’ tufted hairgrass
 - ‘Boreal’ red fescue
 - ‘Caiggluk’ Tilesy sagebrush
 - Wainwright slender wheatgrass
- **Strategy 2:** Efforts will be made to obtain gravel and fill from weed free sources. Transportation of weed-infested gravel, rock, or other fill materials to relatively weed-free locations should be avoided.
- **Strategy 3:** Efforts will be made to identify and control existing invasive plants along access roads before construction equipment moves into the area. A current list of non-native plant species occurring in Alaska is available from the University of Alaska Anchorage Alaska Natural Heritage Programs website at: <http://aknhp.uaa.alaska.edu/botany/akepic/non-native-plants-alaska/>.
- **Strategy 4:** Prior to entering the work site, all earthmoving and excavation equipment will be inspected and cleaned of any extraneous soil and debris. A high-pressure or power washer will be used to clean all equipment of mud, dirt, and plant parts as necessary.
- **Strategy 5:** Revegetation efforts will follow the guidelines established in “A Revegetation Manual for Alaska”, which can be found at: <http://dnr.alaska.gov/ag/RevegManual.pdf>.
- **Strategy 6:** Only weed-free straw and mulch will be used for erosion control projects.
- **Strategy 7:** The planting of invasive species in revegetation efforts will be avoided.

2.2 Monitoring

The following monitoring strategy will determine if any control and management action will be needed.

- **Strategy 8:** Routine monitoring of the construction site for invasive plant species will occur annually until one year after construction. The monitoring will involve assessing the character, extent, and location of invasive species in the project corridor. If invasive plant infestations are found, ARRC will develop corrective measures or future management practices to reduce their spread, as necessary.

All monitoring efforts should be performed by botanist or someone trained in identifying invasive species in the region.

2.3 *Control and Management*

If invasive species are detected in locations disturbed during the construction of the project, immediate action will be taken to remove the invasive species from the affected area and to prevent them from spreading.

3.0 *Conclusions and Performance Criteria*

These strategies are intended to minimize the introduction of invasive species to the project corridor. All site supervisors and managers should read and follow these measures to limit the unintentional consequences of an invasive plant infestation. Together, these strategies form the basis of an adaptive plan that considers the introduction, spread, and elimination of invasive species during construction.



Moose Mitigation Strategy

Port MacKenzie Rail Extension Project

1.0 Purpose

The Port MacKenzie Rail Extension (PMRE) project is situated in the Alaska Department of Fish and Game's (ADF&G) Game Management Unit 14A; an area that provides widespread habitat for approximately 6,600 moose (per ADF&G estimates). The new rail line would cross areas used by moose for both fall migration and winter congregation. While specific migration corridors and concentration areas have not been mapped, the Alaska Railroad Corporation (ARRC) has been working proactively with regulatory agencies to develop strategies that reduce the potential for moose-train collisions along the new rail line. On September 29, 2010, ARRC held a meeting with the U.S. Fish and Wildlife Service (USFWS) and ADF&G to consider engineering design concepts, adaptive mitigation measures, and train operation protocols that could help meet this goal. Discussions from that meeting, subsequent permitting meetings, and concepts from the PMRE Environmental Impact Statement (EIS) are the basis for the strategies outlined in this document.

ARRC's preparation of this moose mitigation strategy is required by the Surface Transportation Board's Office of Environmental Analysis (OEA) as outlined in the November 21, 2011 PMRE Record of Decision (ROD) (Docket No. FD 35095) authorizing ARRC to construct and operate the new rail line. The ROD mitigation measures related to moose are included below; followed by ARRC's proposal to comply with each. ARRC's voluntary mitigation measures are presented as well. Further information on expected impacts to moose populations and moose-train collision mortality can be found in Appendix E of the PMRE Final EIS.

2.0 Moose-Train Collision Mitigation Measures

The following mitigation measures, as presented in the PMRE ROD, address various aspects of what should be included in this moose mitigation strategy. Compliance metrics or explicit directives are generally not given by OEA; as such, ARRC proposed strategies for complying with each measure are discussed below. Many of the strategies presented here have been agreed upon, at least in concept, by the relevant resource agencies during the permitting stage of the project. The overall approach of this plan is considered adaptive; initially using concepts and management practices that have been proven successful along the existing main line and offering ARRC the flexibility to modify the strategies in the future if needed.

2.1 Requirement for a Moose Mitigation Strategy Plan

Mitigation Measure No. 47 requires that ARRC develop a moose-train collision mitigation strategy plan. The specific measure, as presented in the ROD is included below.

Mitigation Measure No. 47: *The Applicant, in consultation with the ADF&G, ADNR and other appropriate stakeholders shall evaluate, implement, and monitor various aspects of project-related rail design, maintenance, and operation to document moose mortality from collisions with trains, and to develop a strategy to reduce the moose-train collision mortality rate. The Applicant shall document the strategy in a Moose Mitigation Strategy Plan. A draft of the plan shall be prepared and submitted to ADF&G, ADNR and OEA for review and comment prior to completing final design and before the start of project-related construction. The strategy could include:*

- *Maintaining vegetation along the right-of-way in primary (e.g., grasses/sedges) or late (e.g., old-growth spruce) successional (developmental) stages. If vegetation is allowed to progress to the secondary successional stage (i.e., shrubs), maintaining it at the shortest possible height, not to exceed 0.5 meter, encouraging shrubs of non-preferred moose browse species (e.g., alder, dwarf birch), and minimizing re-growth of willow, paper birch, and aspen*
- *Mowing vegetation in late summer before energy stores are transferred to the roots*
- *In winter, plowing snow back from the track to the outer edge of the trackside clearing to allow moose easy access away from the tracks when a train approaches*
- *Developing a plan in conjunction with the ADF&G to catalog all strikes (not just confirmed or suspected deaths) in a timely manner that shall include, but is not necessarily limited to: precise location (latitude and longitude), date and time; weather and other environmental conditions at the time and location of strike; and attributes associated with the train, such as horn use, speed, and track characteristics*
- *Designing, constructing, and operating all aspects of the rail line to minimize significant alteration of moose and other wildlife movement and migration patterns*

ARRC, in consultation with ADF&G and USFWS have developed a number of strategies to comply with this measure. Initially, on September 29, 2010, ARRC facilitated a workshop with ADF&G and USFWS intended to develop a framework for addressing moose-train collisions. As a result of that meeting, ARRC agreed to implement an adaptive management strategy; requiring a moose-train collision maximum threshold, that if reached, would trigger reevaluation. The following strategies were agreed upon as reasonable, routine measures that ARRC would implement during PMRE operations:

- **Strategy 1:** ARRC will discourage growth of moose browse along the new rail line to avoid attracting moose. ARRC will attempt to cut vegetation back 20-25 ft on each side of track using a brush cutter as needed.
- **Strategy 2:** ARRC will construct and maintain an embankment wide enough to allow moose a place to retreat to one side when a train passes. ARRC has proposed to construct an approximately 40-foot wide embankment top for the length of the rail line.
- **Strategy 3:** Following construction, ARRC will replant temporarily impacted areas on the embankment with vegetation species undesirable to moose. Proposed species are included in the PMRE Reclamation Plan; further consultation with ADF&G and USFWS may be required to determine if the species proposed are compatible with this strategy.
- **Strategy 4:** During winter months the embankment will be plowed as practicable to allow sufficient space for moose to retreat. ARRC has proposed to construct a 40-foot wide embankment top for the length of the rail line allowing for wider swath to be cleared of snow.
- **Strategy 5:** Portions of the new rail, including segments in the agricultural district and across the Miller Reach burn, will be constructed using a low-profile embankment as practicable and will be

situated along flat open areas which allow for a good line of sight for both moose and the train operators.

- **Strategy 6:** ARRC will use train horns to haze moose off of the tracks (anecdotal information suggests that this is successful up to 50-75% of the time).
- **Strategy 7:** ARRC has proposed to construct bridge crossings that are of sufficient height to allow moose passage underneath.
- **Strategy 8:** ARRC train operators will report incidents where moose are struck. Field salvage crews will report specific information (see below) on the moose if practicable. ARRC's Maintenance of Way Department will track this data in a database and report it to ARRC management and ADF&G on a quarterly basis. It should be noted that this reporting process is currently being used by ARRC on the main line. Incident reports submitted to ADF&G generally include the following information:
 - number of animals hit
 - sex of the animal
 - whether the animal was a calf, juvenile or adult
 - location where the animal was struck (ARRC milepost)
 - whether the meat was salvageable
 - date and time of the strike
 - whether the animals were killed in the incident

As part of an adaptive strategy, a maximum acceptable limit of moose-train collisions will be determined in consultation with ADF&G and USFWS, that if exceeded, would require that ARRC re-engage ADF&G and USFWS to assess the moose mortality data and develop additional mitigation strategies, if warranted. Additional strategies could include the following:

- **Strategy 9:** ARRC developing and implementing a plan to create alternative browse opportunities for moose away from the rail line. This could involve planting, periodic clearing, or modifying seed mixes used for erosion control.
- **Strategy 10:** ARRC employing strategic planting scenarios to discourage moose in problem areas, as defined through consultation with ADF&G and USFWS.
- **Strategy 11:** ARRC expanding areas of brushing, beyond the 20-25 feet (Strategy 1), around the rail line to discourage browsing immediately adjacent the track.

2.2 Avoidance of Moose Browse Species in Revegetation

Mitigation Measures No. 41 and 96 both have components that encourage ARRC to avoid areas of preferred moose browse, effectively limiting the extent of moose browse along the new rail line. The specific measures, as presented in the ROD are included below.

Mitigation Measure No. 41: *To the extent practicable, the Applicant shall minimize project-related ground disturbance, clearing of established vegetation and removal of wildlife habitats and riparian vegetation during project-related construction. **The Applicant shall also minimize the reestablishment of vegetation near the rail bed that would be attractive to moose.***

Mitigation Measure No. 96: *Where practicable to reduce visual impact in areas of high visibility (such as residential areas, road and trail crossings, crossings of the Little Susitna River, and the areas surrounding the terminal reserve) without increasing the project footprint and when appropriate given maintenance, access, safety considerations, and natural vegetation patterns, the Applicant shall:*

- *Plant native vegetation along the right-of-way and perimeter of the terminal reserve to reduce the contrast with line, color, and texture. **Plant species that are preferred by moose as browse shall be avoided to the extent practicable.***
- *Plant native trees and bushes around the base of bridge supports located on land to reduce the visual prominence of such features and break up the uniform lines, colors, and smooth textures of the bridge supports. A variety of plant types native and indigenous to the project area shall be used to provide multiple layers, seasonality, and reduced susceptibility to disease. **Plant species that are preferred by moose as browse shall be avoided to the extent practicable.***
- *In areas with hill cuts, shape slopes to reflect the natural landscape, where practicable, and plant with native materials to provide an amorphous and irregular form and rough texture.*
- *Dispose of excess material in a suitable fill location and not cast on downhill slopes.*

As presented in Section 2.1, ARRC's proposed strategies include clearing of moose browse from the rail corridor and replanting disturbed areas with vegetation that is typically undesirable to moose. Strategic plantings intended to minimize moose from using the rail line as a movement corridor are also proposed, however, these may not be implemented until problem areas are defined. The ARRC will avoid using browse species (e.g. willow, birch) in their revegetation efforts.

2.3 ARRC Voluntary Mitigation Measures

During preparation of the EIS, ARRC also proposed the following two voluntary mitigation measures that were intended to lessen the project's impact on moose.

*Mitigation Measure No. 32: The Applicant shall restrict its project-related workers from (1) hunting or fishing while stationed at work camps; (2) **harassing wildlife, including winter or calving concentrations of moose (cows with yearling calves can be particularly defensive);** (3) approaching known occupied bear dens; and (4) **feeding wildlife.***

Mitigation Measure No. 37: Subject to consultation with the ADF&G and ADNR, the Applicant shall work with adjacent land managers to develop alternative preferred habitat away from the rail line and construct a widened embankment to allow moose a place to retreat on one side when a train passes in an effort to reduce the potential for moose strikes.

In reference to measure No. 32, ARRC is proposing the following strategies:

- **Strategy 12:** During construction, all employees or contractors will be briefed on relevant mitigation measures prior to the start of construction or other field related activities. Harassing, feeding or otherwise disturbing any wildlife will not be tolerated.
- **Strategy 13:** During construction, all vehicles and equipment will follow safe speed limits and will yield the right-of-way to wildlife.
- **Strategy 14:** During construction, all employees or contractors should report direct wildlife encounters and interactions of any other kind to the site safety personnel immediately. If the designated safety personnel are not available, employees should notify their supervisor immediately.
- **Strategy 15:** If moose or other wildlife travel into the active work site, all work should stop and site safety personnel should be notified. Safety personnel should monitor the situation and decide on the best course of action.

In reference to measure No. 37, ARRC has had success with and recognizes the value of developing alternative preferred moose habitat, specifically browse habitat, away from the rail line. This technique has proven successful on several previous Alaska rail projects; effectively lowering moose collisions by more than 60 percent on an annual basis. As of January 2012, ARRC is still developing design criteria and concepts for creating preferred browse habitat. These concepts will be submitted to ADF&G and USFWS upon completion.

Historic ARRC main line moose-train collision data indicates that strikes are most abundant in the lower Susitna Valley during winter when moose frequent the rail embankment to escape deep snow. Existing trends and experience also indicate that areas with a widened rail embankment tend to result in far fewer moose-train collisions in the winter. The wider embankment offers a greater opportunity for moose to avoid train collisions by giving them room to escape to the side of the track.

3.0 Conclusion

Moose-train collisions on ARRC railroads are an ongoing issue. Proactive management strategies, design criteria, operational procedures, and consultation with resource experts are tools already used by ARRC to reduce the number of collisions. Environmental variables (snow, vegetation succession, fires) continually challenge ARRC's ability to achieve that goal. ARRC has consulted with relevant resource agencies in an attempt to define specific known migration corridors or concentration areas for moose in the project corridor, but no detailed mapping currently exists to identify such areas. Further, certain environmental variables may influence or change such locations from year to year. To minimize the potential for collisions along the new rail line, ARRC proposes the strategies presented above. In addition, ARRC proposes to implement an adaptive strategy mechanism, whereby ARRC would follow-up with ADF&G and USFWS if moose-train collisions exceed acceptable limits, the parties would discuss the need for additional mitigation measures.



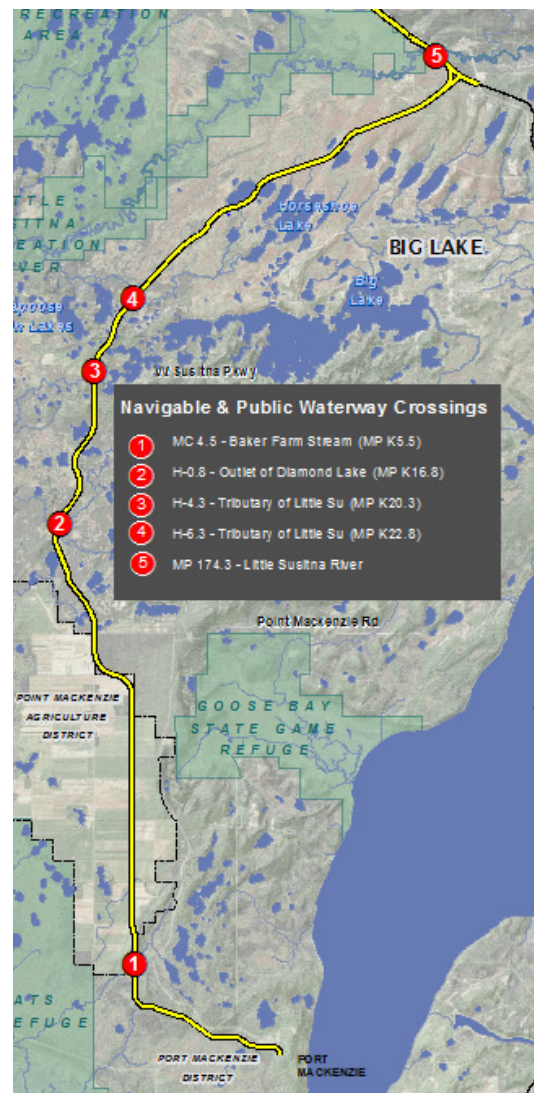
Maintenance of Navigable and Public Waterway Rights

Port MacKenzie Rail Extension Project

1.0 Introduction and Purpose

Construction and operation of the Port MacKenzie Rail Extension (PMRE) Project will include crossing three streams considered to be navigable waterways, or potentially navigable waterways by the State of Alaska and two additional streams that are identified as public waters. As such, each stream is protected by the State of Alaska's Constitution, which states that *"Free access to the navigable or public waters of the State, as defined by the legislature, shall not be denied any citizen of the United States or resident of the State..."* Pursuant to this requirement, the Surface Transportation Board's Office of Environmental Analysis (OEA) included navigability mitigation measures to their November 21, 2011 PMRE final decision (Docket No. FD 35095) authorizing the Alaska Railroad Corporation (ARRC) to construct and operate the new rail line extension. These measures, included in Section 2.0 below, outline ARRC's responsibilities for maintaining navigability at each stream crossing.

The purpose of this document is to demonstrate the project's compliance with these measures; ensuring that navigability of these waterways, as well as public access to and along these waterways, is not impeded by the PMRE Project. Mitigation measures related to navigable waters are discussed below. The figure on the right shows the crossings in context with the entire project alignment; the exhibits at the end of this document provide site-specific details (crossing design, aerial photography, and site photograph) at each crossing.



2.0 Mitigation Measures

Specific OEA mitigation measures relevant to navigable and public waters are included below. Information intending to demonstrate ARRC's compliance with each measure is included as well. Further details, including the engineering design for each crossing are included at the end of this document.

2.1 Mitigation Measure No. 68

Mitigation Measure No. 68: *In conjunction with final engineering design, the Applicant shall consult with the ADNR and the ADF&G and develop and implement a plan to ensure that project-related bridges and culverts placed on navigable or public waters are designed and installed to accommodate: (1) navigation by recreational boat users in a manner that shall not impede existing uses, to the extent practicable, and (2) public access and use of the statutory easements as established by the reasonable requirements of Alaska Statute (Alaska Stat. § 38.05.127, Access to Navigable or Public Water). The Applicant shall submit the plan to OEA, ADNR, and ADF&G.*

ARRC has proposed clear span bridges over the three navigable and two public non-navigable waterways in an effort to fully comply with Alaska Statute § 38.05.127¹. These bridges have been designed to include additional spans and widened areas adjacent to streams to accommodate winter modes of transportation, which may include snowmachining, dog mushing, and skiing. All crossings have been designed of sufficient height to allow for continued summer and winter access, see attached crossing details. The Project will not impede access to and along the relevant waterways, except in cases of brief temporary closures associated with bridge construction. Any temporary closures will be done in accordance with Mitigation Measure 76 (see below).

2.2 Mitigation Measure No. 76

Mitigation Measure No. 76: *During construction of the crossings over navigable rivers, some short-term temporary restrictions of watercraft traffic could occur for safety purposes. In that event, the Applicant shall install warning devices to notify boaters of project-related bridge construction activities. The Applicant also shall display signs providing the name, address, and telephone number of a contact person onsite to help waterway users obtain immediate responses to questions and concerns about project activities.*

Temporary closures or changes in transportation patterns over navigable and public use waterways during construction may occur depending on the contractor's method of construction or the timing of bridge work. A navigational opening accommodating local boating traffic will be maintained when there is sufficient flow for the three navigable waterways, including the Little Susitna River. Access will be provided to maintain access to and along the public waterway crossings at Houston 0.8 and Houston 6.3. Notices will be posted at local and state owned boat launches in the immediate area to notify vessels and public waterway users of times and dates when construction will be occurring over each stream. Additional signage shall be posted as appropriate to signify any new travel patterns within the river.

During active bridge construction, it may be necessary to have intermittent closures of the navigable and public use waterways to avoid a potentially dangerous working and travel environment. These closures will be planned to not significantly impact seasonal fishing or hunting activities. Intermittent closures

¹ Alaska Statute §38.05.127(a)(2) states that "upon finding that the body of water or waterway is navigable or public water, provide for the specific easements or rights-of-way necessary to ensure free access to and along the body of water, unless the commissioner finds that regulating or limiting access is necessary for other beneficial uses or public purposes."

will last no more than 17 days and will not be for a period of time greater than 24 hours at a time, with closures generally lasting for 12 hour periods. All closures and time schedules will be posted a minimum of two weeks in advance by public notice in area newspapers, on the project website, and at local boat launches to increase public knowledge and awareness.

2.3 Mitigation Measure No. 83

Mitigation Measure 83: *The Applicant shall consult with the appropriate management agencies, including the ADNR and the ADF&G to ensure that project-related bridges and culverts are designed, constructed, and maintained to accommodate travel by winter modes of transportation (snow machine, dog sled, etc.) on streams and rivers used for recreational access and subject to the provisions of Alaska Statute (Alaska Stat. § 38.05.127, Access to Navigable or Public Water).*

Following the release of the May 2010 PMRE Draft Environmental Impact Statement, ARRC began consulting with ADNR, ADF&G, and recreational trail users to ensure that crossing structures are designed to accommodate both summer and winter recreational uses; including boating, snow machining, and dog sledding. Additionally, in conjunction with the PMRE Section 106 consultation process, several workshops were conducted that addressed maintaining continued access for all trail users. Three workshops were held specifically for the dog sledding community and one larger public open house was held for multiple user groups. The MSB Trail User Open House was held on October 27, 2011, at the Houston High School in Houston, Alaska, and included 41 participants, including members of local trail groups and ADNR. The goals of the open house were to:

- Demonstrate the proposed design concepts for bridge crossings
- Present trail network connections for continued connectivity and use
- Listen and gain feedback from trail users

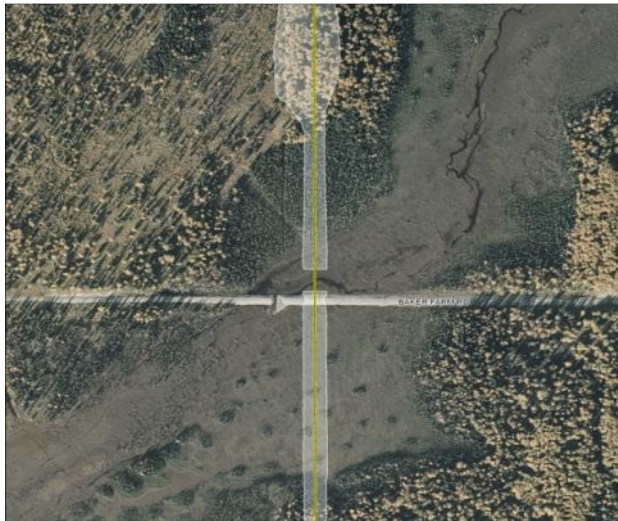
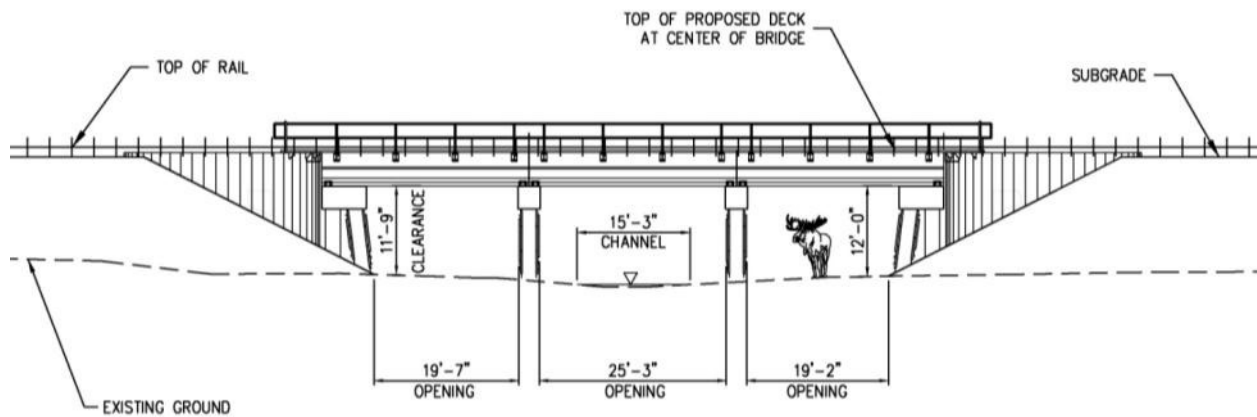
The open house included stations for use areas within the project area (e.g., Willow, Big Lake, and Point MacKenzie) as well as stations dedicated to MSB trail designation and Section 106 activities. The use area stations were staffed by local users. Project Team members and SHPO circulated between stations to answer participants' questions. Stemming from the agency and public comments and Section 106 consultation process, ARRC has implemented the following measures for all crossing locations:

- Design bridges/crossings with a vertical clearance of a minimum of 14 feet, whenever possible
- Develop standards for sight distance needs and crossing approaches to accommodate a 100 foot-long vehicle/dog team (minimum 60 foot turn radius)
- Design bridges/crossings with minimum of three spans that will generally provide a minimum of 20 feet of horizontal clearance and providing relatively straight trail approaches
- Design at-grade crossings to include parallel trails separated from the road with separated crossing panels on either side of the roadway
- Work with trail users and agencies to obtain easements for existing trails in the project area that do not currently have legal easements or recognized trails that are proposed to be rerouted as part of the project
- Reroute trails when crossings cannot be provided at current locations
- Work with trail users to identify trails/crossings to maintain east-west connectivity
- Work with trail users to develop signage and trail kiosks

To ensure the safety of trail and waterway users, there may also be periodic, temporary closures or detours to trails during the construction period. Notice would be provided to users at each crossing indicating the closures, construction schedule, and alternate access points. The following exhibits show the engineering details on the horizontal and vertical openings for each structure.

Crossing 1
MC 4.5 Baker Farm Stream Crossing
MP K5.5

ARRC proposes to construct, operate, and maintain a three-span bridge over an unnamed stream, AKA Baker Farm Stream, at approximate milepost K5.5 of the PMRE project. The central 25-foot span accommodates the approximate 15-foot stream channel. The first and third spans of this crossing structure allow for multiple user groups to have access to and along the waterway both north and south of the channel. A profile of the crossing structure and aerial views of the area are included below.



Aerial View of Proposed Crossing

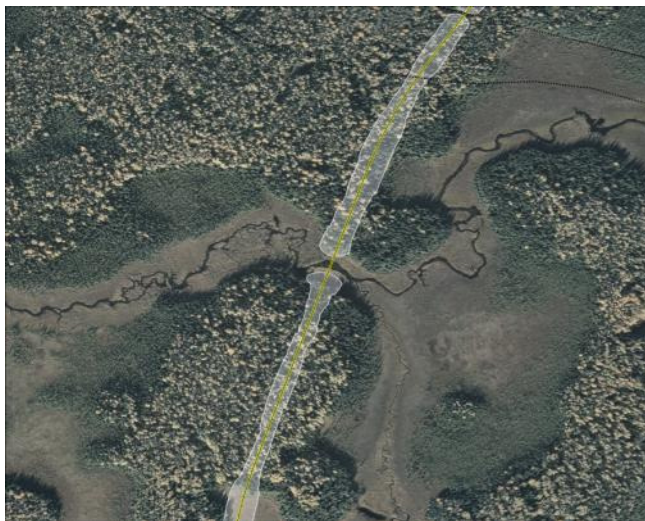
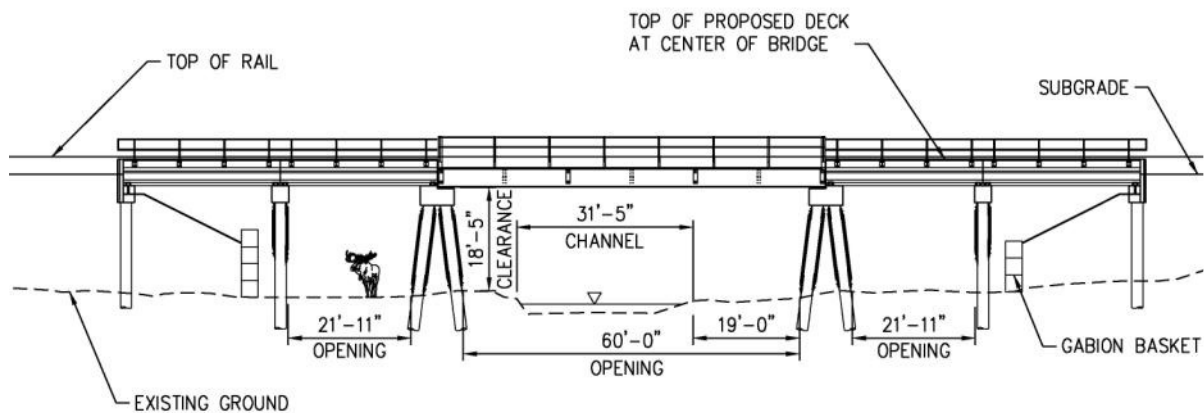


Approximate Crossing Location

Crossing 2
Houston 0.8 - Outlet of Diamond Lake Crossing
MP K16.8

ARRC proposes to construct, operate, and maintain a five-span bridge over the outlet of Diamond Lake, at approximate milepost K16.8 of the PMRE project. The center section of this bridge will span the approximate 31-foot wide stream channel and allow over 20-feet of area adjacent to the stream for access. The center span will have a horizontal clearance of approximately 60-feet and a vertical clearance of over 18-feet. The second and forth spans of this crossing structure allow for multiple user groups to have access to and along the waterway both north and south of the channel. Together the three central spans of this crossing structure will allow for traditional boat use of the waterway as well as winter recreational passage for snowmachining, dog mushing, skiing or other traditional recreational uses.

The following engineering drawing details the dimensions of the proposed crossing structure including the vertical and horizontal clearances for each span. An aerial view of the proposed crossing and a photograph of the approximate crossing location are also included below.



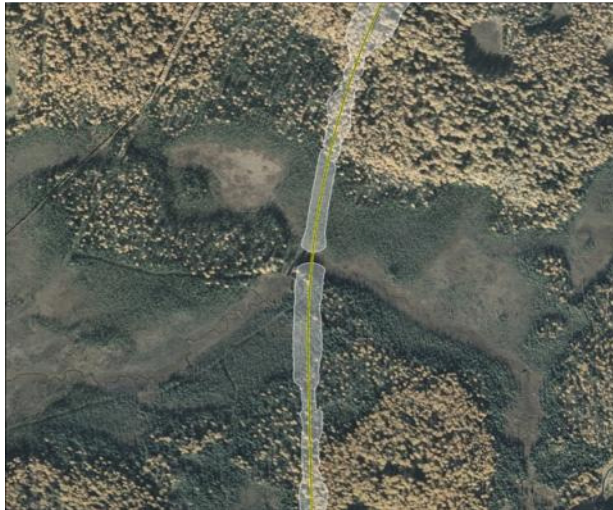
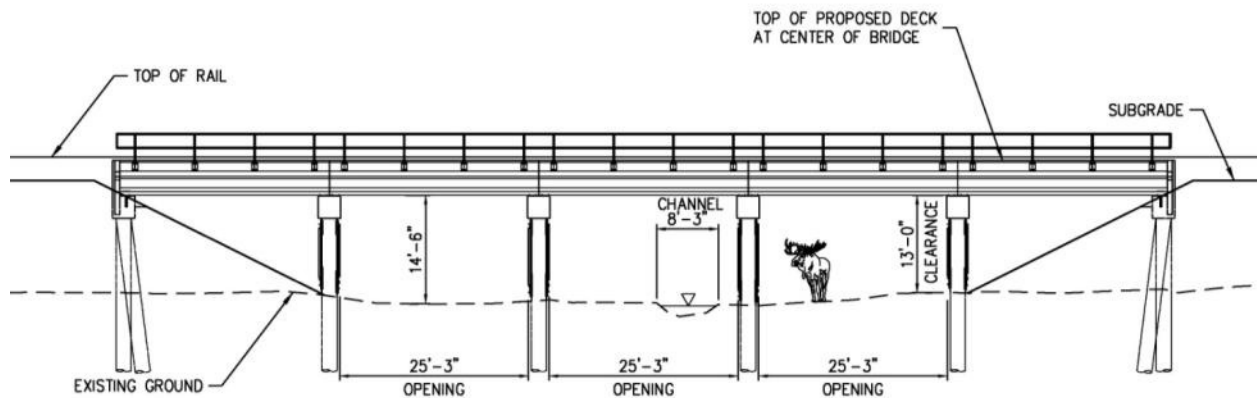
Aerial View of Proposed Crossing



Approximate Crossing Location

Crossing 3
Houston 4.3 Crossing
MP K20.3

ARRC proposes to construct, operate, and maintain a five-span bridge over the outflow of Crooked Lake, at approximate milepost K20.3 of the PMRE project. The central 25-foot span accommodates the approximate 8-foot stream channel and allows additional space immediately adjacent to the waterway for access. The second and fourth spans of this crossing structure allow for multiple user groups to have access to and along the waterway both north and south of the channel. A profile of the crossing structure and aerial views of the crossing location are included below.



Aerial View of Proposed Crossing

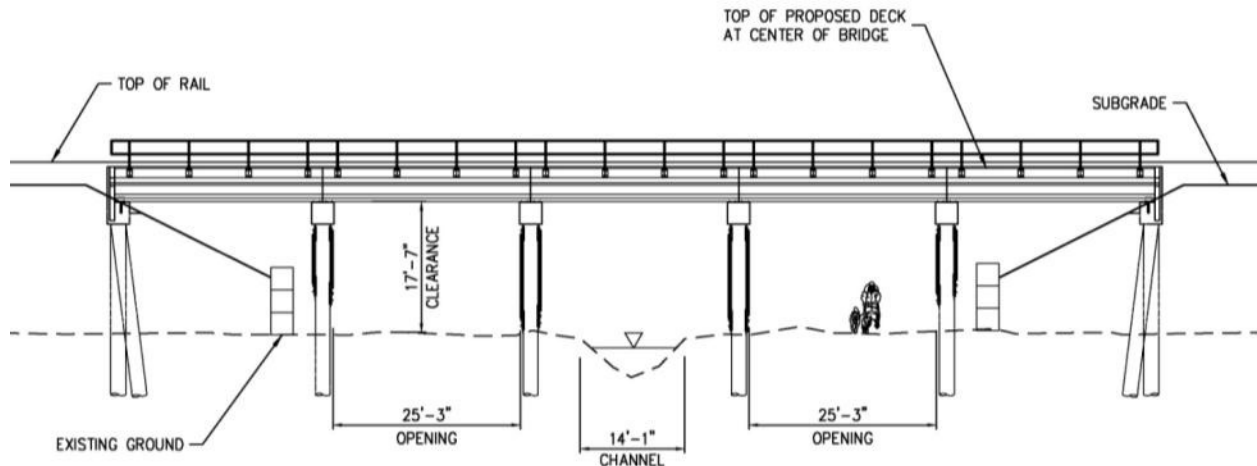


Approximate Crossing Location

Crossing 4
Houston 6.3 - Tributary of Little Susitna Crossing
MP K22.8

ARRC proposes to construct, operate, and maintain a five-span bridge over the outlet of Little Horseshoe Lake, at approximate milepost K22.8 of the PMRE project. The crossing structure includes three central spans which allow for multiple user groups as identified for Crossing 3 above. The central span will provide over 25-feet of horizontal clearance and over 17-feet of vertical clearance for the approximately 14-foot channel, allowing ample space for traditional boat use in the area and access to and along the waterway. Both the second and fourth spans of this crossing include rerouted sections of officially recognized trails, Iron Dog Connector Trail (north) and the Flat Lake Connector Trail (south). Additional information on area trails is located in the *Recreational Trails Plan*.

The following engineering drawing details the dimensions of the proposed crossing structure including the vertical and horizontal clearances for each span. Aerial views of the proposed crossing location are also included below.



Aerial View of Crossing

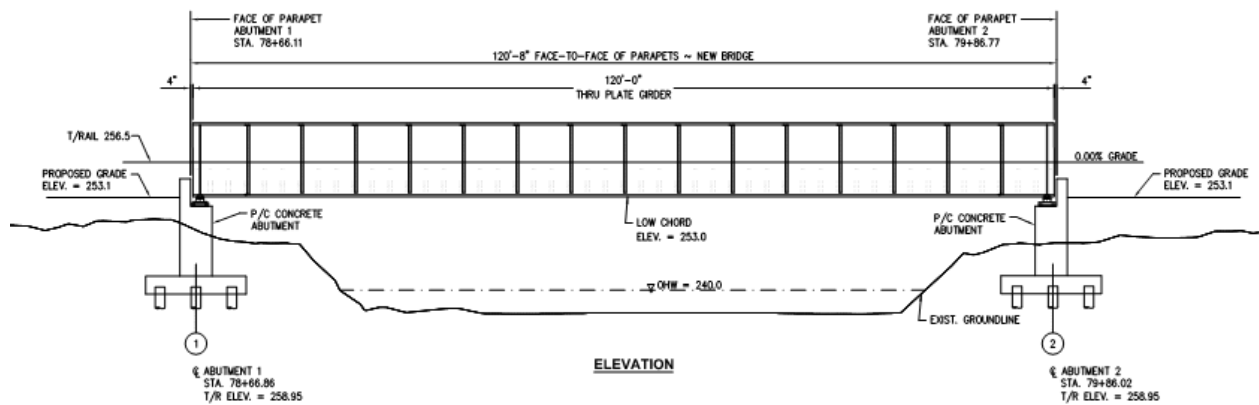


Approximate Crossing Location

Crossing 5 Little Susitna River Crossing MP 174.3

ARRC proposes to construct, operate, and maintain a single 120-foot span bridge over the Little Susitna River adjacent to and upstream of the existing main line rail bridge crossing of the Little Susitna River. Both bridge crossings are located within the existing railroad right-of-way (ROW). The existing bridge will remain in place and both bridges will be used to support the ARRC's operations. As the current bridge structure does not support trail users or access along the waterway, the new bridge structure is not intended for use by trail users or for access along the river. The river will continue to support traditional vessel access under both crossing locations. The Little Susitna River is a federally navigable waterway and a Section 9 Bridge Permit application for the crossing of federally navigable waterways has been submitted and is currently being reviewed by the United States Coast Guard.

The following bridge profile details the dimensions of the proposed crossing structure, there will an approximately 59-foot horizontal by 13-foot vertical navigational channel. Aerial views of the proposed crossing location are included below.



Aerial View of Crossing



Approximate Crossing Location



Proposed At-grade Crossings of Officially Recognized Trails

Port MacKenzie Rail Extension Project

1.0 Introduction

On November 21, 2011 the Surface Transportation Board (STB) issued a final decision (Docket No. FD 35095) authorizing the Alaska Railroad Corporation (ARRC) to construct and operate approximately 35 miles of new rail line connecting Port MacKenzie to ARRC's existing main line near Houston, Alaska. That decision required ARRC to comply with Mitigation Measure 84, which requires submittal of a report providing specific information for any at-grade crossings that are proposed. This report is submitted in compliance with that mitigation measure.

2.0 Officially Recognized Trails – Mitigation Measure 84

The following trails have been identified in Mitigation Measure 84A as officially recognized:

- Crooked Lake Trail – West Papoose Twins Road (Crossing 7)
- Iditarod National Historic Trail (Crossing 10)
- Flat Lake Connector Trail – Iron Dog Trail (Crossing 5)
- Houston Lake Loop Trail (Crossing 4)
- Big Lake Trail #1 (Crossing 2)
- Big Lake Trail #2 (Crossing 3)
- Big Lake Trail #5 – Iron Dog Connector Trail (Crossing 5)
- Big Lake Trail #14 – Iditarod Race Trail (Crossing 9)

All proposed crossing locations are shown on attached Figure 1. Two trails identified above, Flat Lake Connector Trail and Big Lake Trail #5, are planned to be rerouted under a 5-span bridge at Crossing 5 as discussed in the Iditarod Dog Sledding Historic District (IDSHD) Workshop Summary and Implementation Plan. All other officially recognized trails identified in Mitigation Measure 84A have planned crossing structures.

At-grade crossings are provided for roads and utility corridors currently crossing the alignment, and three share the same alignment as officially recognized trails identified in 84A: Big Lake Trail #1, Big Lake Trail #2, and the Crooked Lake Trail. The crossing specific information below details these crossings per Mitigation Measure 84D.

Most of the comments and recommendations received from trail users for crossings 2 and 3 came from Big Lake Trails, a group consisting primarily of snowmachine users. Crossing 7 is an existing Matanuska-Susitna Borough (MSB) maintained road that also supports dog mushers and snowmachine traffic. No comments were received that specifically addressed the dual usage of this roadway.

Coordination with trail users on all crossing locations within the project corridor occurred at three IDSHD Dog Mushing Workshops and at a MSB trails open house. Comment summaries from these events are included in the IDSHD Workshop Summary and Implementation Plan. No parties provided substantive objections to proposed safety measures, which will be refined by a Diagnostic Team consistent with Mitigation Measure 60.

3.0 Crossing 2 – Big Lake Trail #1

Big Lake Trail #1 is located in an existing Matanuska Electric Association (MEA) power line license on Knikatnu Corporation lands (Cook Inlet Regional Incorporated [CIRI] owns subsurface rights). An approximately 14-foot wide at-grade crossing with 20-foot crossing panels for the existing access road is planned at this location (refer to Exhibit 1 below). Grade separation is not feasible due to the relatively short distance to Millers Reach Road at-grade crossing and the need for the MEA power lines to cross.

ARRC and MSB (Project Team) has conveyed to trail users and agencies that this is a utility corridor and maintaining access may be challenging. Earlier in the process, the Project Team proposed relocating the trail to cross at the Millers Reach Road location, thereby leaving a gated crossing for MEA's use. The trails community disapproved with this solution due to the heavy use that the trail currently handles. The Project Team has since committed to an at-grade crossing for both trails and MEA use; however, the access will be gated if MEA or the property owner(s) chooses. Trails users will be required to work with MEA or the property owner(s) to ensure continued use and access. The Project Team proposes a reroute to Millers Reach Road in the event this trail access cannot be maintained at the current location. If access is allowed at this location, appropriate signage or signals will be placed on approaches to the crossing consistent with Mitigation Measure 60.

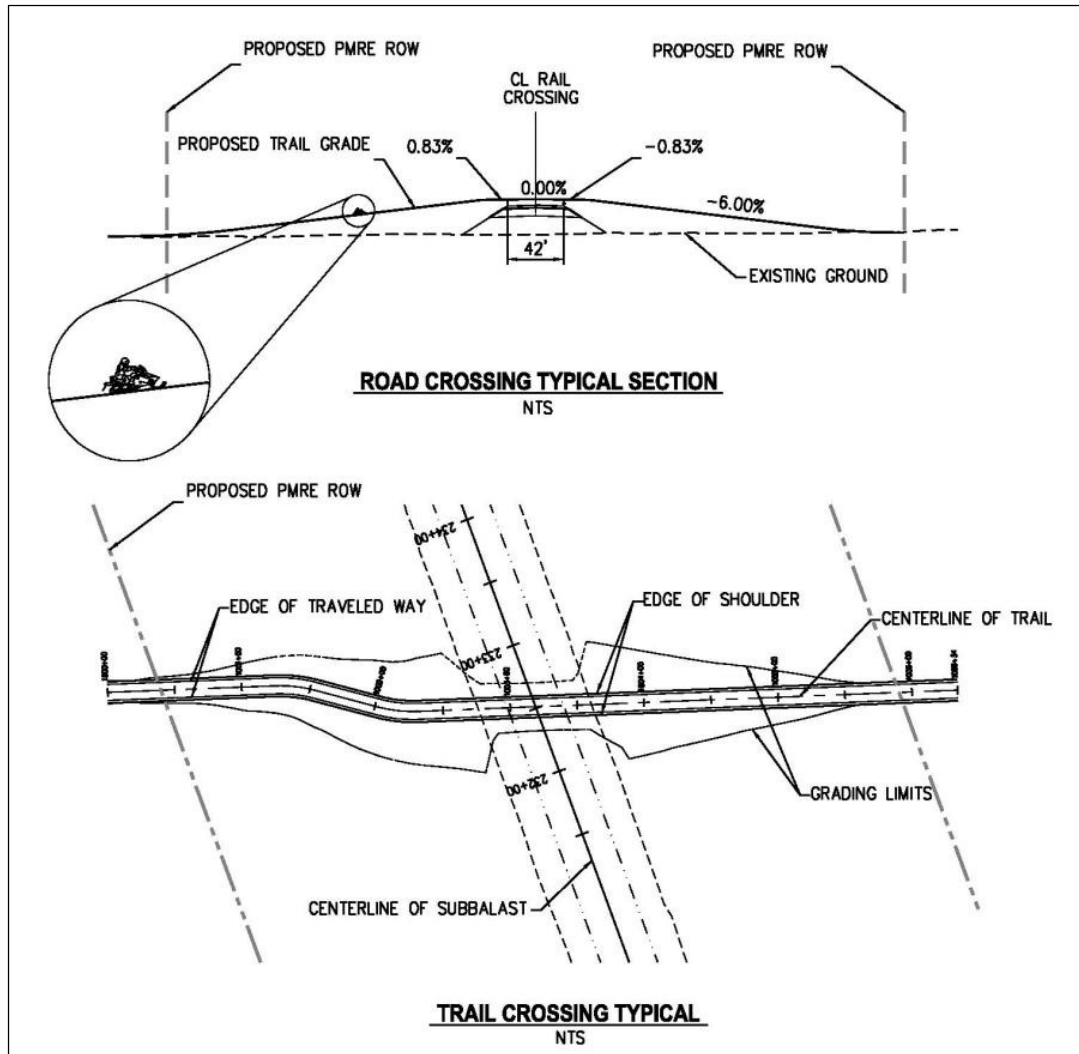


Exhibit 1: Typical at-grade crossing (trail/gravel road)

4.0 Crossing 3 – Big Lake Trail #2

Crossing 3 will include an approximately 32-foot wide at-grade crossing of an unnamed access road to a gravel pad that is currently leased from the Alaska Mental Health Lands Trust (MHLT). The Project Team is working with the MHLT to establish an easement for Big Lake Trail #2 at this existing crossing location; however, trails users will be required to work with easement/property owner(s) to ensure continued use and access. Grade separation is not practicable as the embankment footprint of the raised grade would substantially increase the wetlands fill and associated impact to the large wetland complexes in the area. Exhibit 1 represents a typical crossing for a trail or undeveloped roadway. Exhibit 2 illustrates the existing development at this crossing location. Appropriate signage or signals will be placed on approaches to the crossing consistent with Mitigation Measure 60.

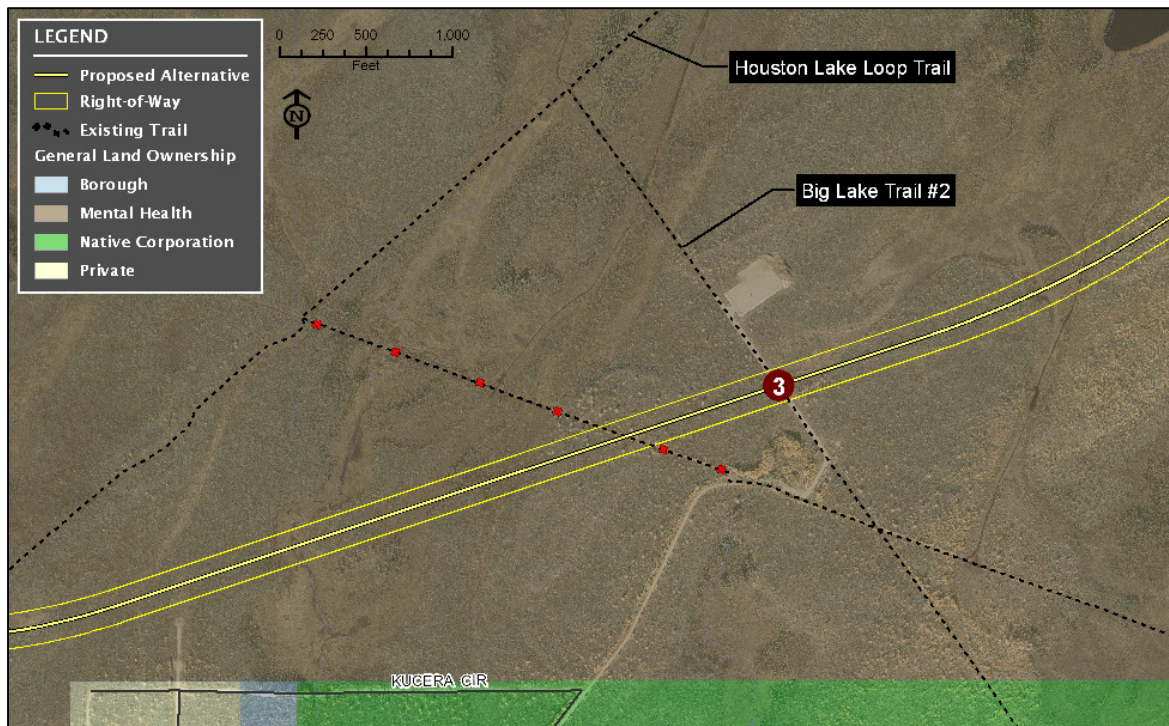


Exhibit 2: Aerial of existing developed gravel drive at Big Lake Trail #2.

5.0 Crossing 7 – West Papoose Twins Road (Crooked Lake Trail)

The crossing of West Papoose Twins Road will be an at-grade crossing with signage or warning devices. This road is frequently used by trail vehicles as it is an extension of the Crooked Lake Trail and access across the tracks would be retained. Exhibit 3 below reflects the proposed at-grade crossing structure including trails both north and south of the roadway, and Exhibit 4 is an aerial view of the crossing location. Currently, trail users and vehicles share the existing road corridor; the Project Team has proposed to provide trails both north and south of West Papoose Twins Road to accommodate trail users. Appropriate signage or signals will be placed on approaches to the crossing consistent with Mitigation Measure 60

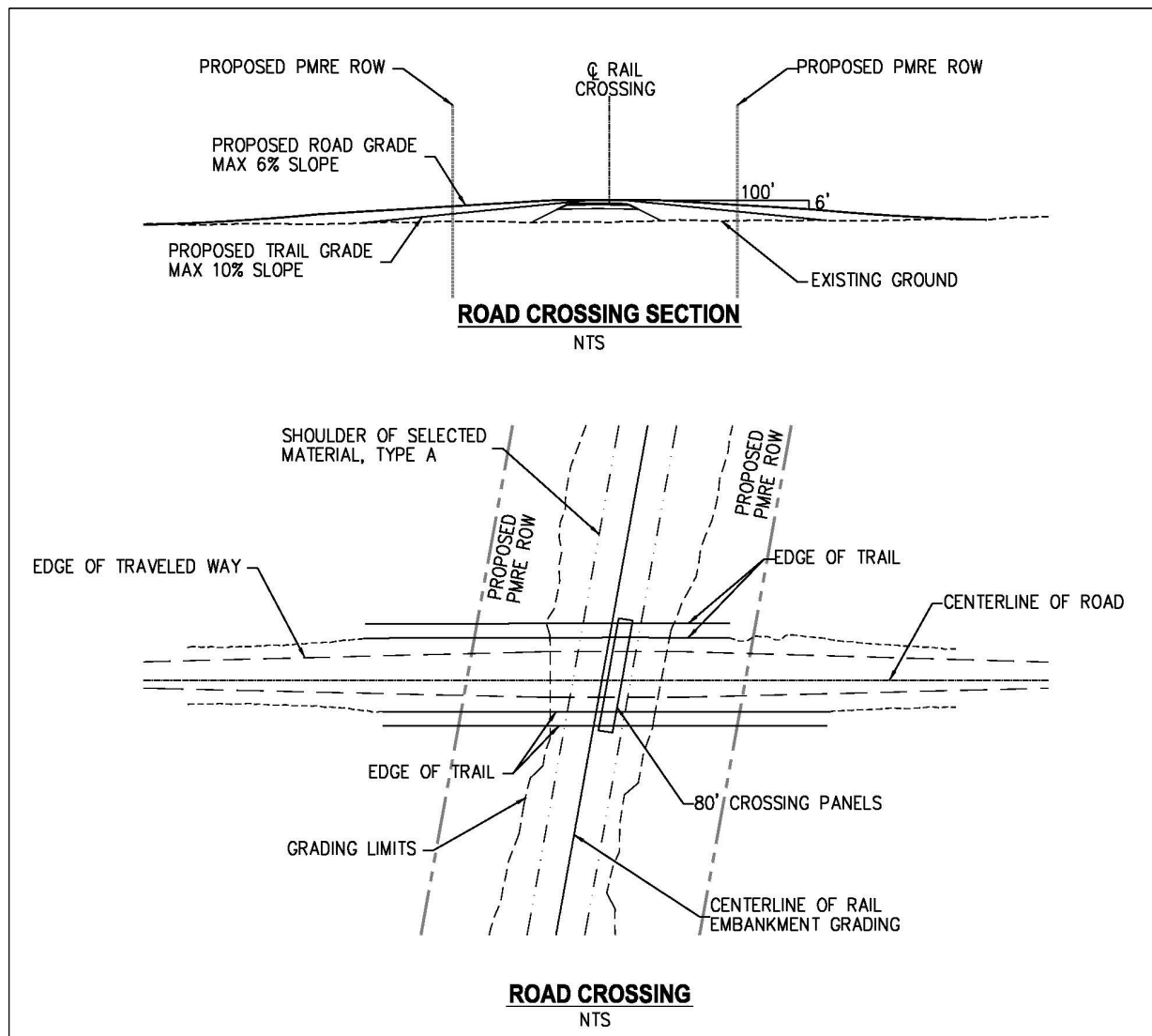


Exhibit 3: Typical at-grade road crossing (parallel trails)



Exhibit 4: Aerial view of West Papoose Twins Road crossing location.

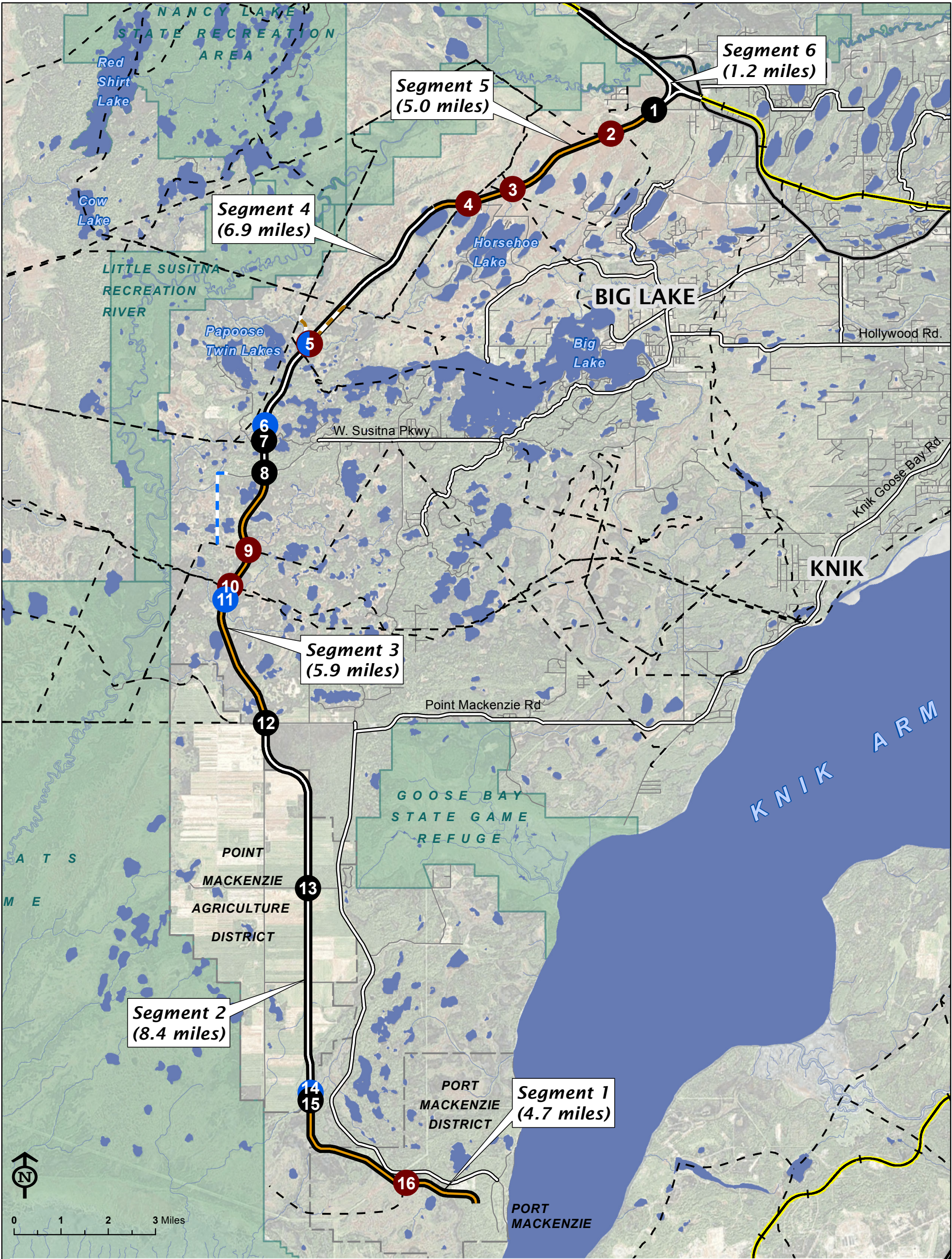


Figure 1: Crossing Locations

- Proposed Alternative
- ARRC Track
- Existing Trail
- New Trail Reroute
- New Trail Connection
- Crossing Types
- Road/Trail
- Trail
- Stream
- Stream/Trail

Crossing Type Summary

1	Millers Reach Rd.	At-Grade	9	Iditarod Race Trail	Bridge
2	Unnamed Big Lake Rec.Trail* <i>Utility Easement (contingent on utility approval)</i>	At-Grade	10	Historic Iditarod Trail	Bridge
3	Unnamed Big Lake Rec.Trail* <i>Private Drive (contingent on owner approval)</i>	At-Grade	11	H-0.8 - outlet of Diamond Lake	Bridge
4	Houston Lake Loop Trail (Crossing)	Bridge	12	W Ayrshire Avenue	At-Grade
5	H-6.3 - Tributary of Little Su	Bridge	13	W Holstein Avenue	At-Grade
6	H-4.3 - Tributary of Little Su	Bridge	14	MC-4.5 - Unnamed Stream	Bridge
7	W Papoose Twins Rd.	At-Grade	15	Baker Farm Road	At-Grade
8	W Susitna Parkway	At-Grade	16	Figure 8 Lake Loop Trail	Oversized Culvert

*If crossing 2 or 3 are not approved by landowner/easement holder, reroutes will be provided to the nearest crossing