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Projects, Engineering, and Grants
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RE: Response to Agency Comments, Northern Rail Extension Phase 1; POA-2008-53

Dear Col. Koenig:

The Northern Rail Extension (NRE) project has been under formal environmental review at the direction of the Surface Transportation Board (STB) since 2005. The STB, consistent with the National Environmental Policy Act (NEPA), prepared an Environmental Impact Statement (EIS) in cooperation with the US Army Corps of Engineers (USACE, or "the Corps") and five other federal and state agencies[1]. The result of this process was an EIS published in the fall of 2009, and a subsequent Record of Decision (ROD) dated January 2010. Subsequently, other federal agencies have undertaken the process to adopt the Final EIS in the adjudication of their regulatory authority and the issuance of their own ROD(s).

Under the STB's guidelines and procedures, the Corps has had input and access to the information gathered, developed and analyzed in the development of the EIS. Additionally, USACE was provided several drafts of the documents and provided direct input through agency meetings and opportunity to review and comment. In contrast, under the STB's guidelines, the Alaska Railroad Corporation (ARRC) was not privy to the meetings and communications in the development of the EIS document. ARRC's contribution was limited to responding to requests for technical information when formally asked by the STB. ARRC in fact had little or no direct input to the authoring of the EIS document or the weighing of environmental impacts. ARRC did not receive a copy of the Draft or Final EIS until it was made available to the public.

Since the publishing of the Final EIS, ARRC has meet with USACE, the Environmental Protection Agency (EPA), and other agencies more than nine times to discuss the project development and to seek agency input. We have additionally submitted draft and final permit applications, the draft 404(b)(1) analysis, Conditional Letter of Map Revision (CLOMR, required for the FEMA flood plain permit), and other state and federal permit applications on numerous occasions. It was our belief and intention that working with USACE and other regulatory agencies in a collaborative effort to weigh all environmental concerns and further avoid and minimize impacts identified in the EIS, that we could achieve a thorough and consistent project understanding such that said agencies could effectively and efficiently respond to comments in the adjudication of their regulatory responsibility to the public. Clearly, that has not been the result as the majority of

[1] Other cooperating agencies included the Alaska Department of Natural Resources, the Federal Railroad Administration, the Federal Transit Administration, the US Coast Guard, and the Bureau of Land Management.

the comments relate directly to items discussed in those meetings, and are requesting information that has been incorporated into the permit application and supporting analysis at the request of USACE or one of the other commenting agencies present at the meetings.

At the request of Ms. Ellen Lyons of the USACE Fairbanks Regulatory Field Office (e-mail November 17th and December 16th), this correspondence addresses letters sent to the Corps of Engineers in response to ARRC's permit application by EPA (two separate letters), U.S. Fish and Wildlife Service (USFWS), State of Alaska Department of Natural Resources (ADNR), and National Oceanic and Atmospheric Administration/National Marine Fisheries Service (NOAA and NMFS, respectively)[2]. While ARRC has provided specific responses to each of these queries listed below, you will not find significantly new information in those responses. Upon review of the comments received by USACE, ARRC has found that nearly all information requested has been previously submitted to the USACE and other agencies either as a formal submission, or specifically discussed in meetings.

We also note that EPA has had ample opportunity to review and comment on the project and the NEPA process. Though EPA formally supported the findings of the EIS as late as February 2009, stating in a letter to STB:

> *"Overall, EPA believes that the ARRC preferred route represent the alternatives which cause the least impact to a variety of environmental resources, and supports the selection of these alternatives by STB as preferred alternative(s)."*

EPA has suddenly reversed that position and has elected to impede the adjudication of the Corp's permit process by challenging fundamental findings resulting from the four-year-long environmental analysis. ARRC has made every attempt to develop collaboratively the project within the context defined by the NEPA process and in concert with 404(b)(1) guidelines. ARRC does not understand why the Corps has asked ARRC to provide responses to EPA's clear attempt to subvert NEPA. As the EPA concurred with the weighing of environmental impacts and subsequent route selection to which the Corps was a party (and the ARRC was not), we implore USACE to disregard EPA's recent capricious, obstructionist tactics.

EPA's contention, as stated in their letter of November 15, 2010, is that the Northern Rail Extension (NRE) project "may have substantial and unacceptable impacts to the Tanana River." The second letter, dated December 10, 2010, concludes that such impacts will occur and that the Tanana River qualifies as an Aquatic Resource of National Importance (ARNI). As project sponsor, Alaska Railroad Corporation (ARRC) respectfully has the following responses to these unfounded, and generally unsupported, allegations.

The Potential Impacts Of The NRE Were Fully Evaluated In The EIS.

[2] A comment letter was submitted by the Fairbanks North Star Borough (FNSB). However, upon reading the comments, we find no objection or query to which a formal response is warranted.

As EPA acknowledges, the entire NRE project "was the subject of an Environmental Impact Statement (EIS) on which EPA provided detailed comments." That EIS was prepared by the Surface Transportation Board—which has jurisdiction over the proposed 80-mile rail extension—over the course of nearly four years. The Corps signed a Memorandum of Understanding (MOU) with STB at the outset of the EIS process, and worked as a cooperating agency throughout the environmental review. The MOU contemplates that the Corps would rely on the EIS prepared by STB "to fulfill its NEPA requirements in its consideration of ARRC's Section 404 and/or Section 10 permit application . . . ." To that end, the MOU provided the Corps with numerous avenues to participate in preparation of the EIS, including development of mitigation measures and responses to public comments.

In its decision approving the project, STB observed that its "Section of Environmental Analysis (SEA), working with the assistance of several state and Federal agencies, has completed a thorough environmental analysis that carefully compared potential alternatives to identify the environmentally preferable rail alternatives." In addition, SEA[3] "recommended extensive environmental conditions to avoid, minimize, or mitigate the potential environmental impacts." STB accordingly approved the NRE project on the condition that ARRC implement the recommended environmental mitigation measures and construct the environmentally-preferable alternative selected by STB. These measures were based in part on written comments from the Corps, which SEA "thoroughly considered" and addressed in a response letter.

STB also took into account comments and criticisms from EPA, which did not serve as a cooperating agency. Indeed, STB's decision specifically addresses a number of EPA's comments on the Final EIS, including some that are raised again in the agency's recent letters to the Corps. ***Notably, EPA's February 2, 2009 comment letter on the Draft EIS specifically supported the preferred routes as identified in the Final EIS.***

Ultimately, however, STB has jurisdiction over the NRE project. And even if EPA persists in disagreeing with STB's decision, the EIS prepared by STB thoroughly addresses the potential environmental effects of the NRE. ARRC accordingly urges the Corps to continue relying on the EIS and STB's ruling, and to issue the CWA Section 404 permit for Phase I of the NRE project.

The Preferred Alternative In The EIS Is The Least Environmentally Damaging Practicable Alternative.

EPA's primary objection to the NRE project is essentially a claim that the preferred alternative selected by STB is not the least environmentally damaging practicable alternative (LEDPA) under the Section 404(b)(1) Guidelines. That claim is false for several reasons.

First, EPA's December 10, 2010 letter acknowledges the stated three-fold purpose of the NRE: (1) to provide freight and passenger rail service as a safe, reliable and efficient transportation alternative to the Richardson Highway; (2) to allow reliable, year-round access to the training areas used by the U.S. military; and (3) to foster the development of Alaska's economy by expanding ARRC's passenger and freight rail network to an area not currently served by rail. EPA wants the Corps to ignore this statement of purpose

[3] SEA is now known as the Office of Environmental Analysis (OEA).

and need, which was endorsed by the STB decision approving the project. Instead, EPA argues that the "basic project purposes" of the NRE are "to transport cargo and passengers between Fairbanks and Delta Junction," and that such purposes could be satisfied by alternatives that do not involve the construction of a new rail line.

In the course of developing the purpose and need statement that appears in the EIS, the Board—quite properly—gathered information concerning the project from ARRC. "When an agency is asked to sanction a specific plan, the agency should take into account the needs and goals of the parties involved in the application." *Citizens Against Burlington, Inc. v. Busey*, 938 F.2d 190, 196 (D.C. Cir. 1991). Indeed, an agency responsible for project permitting "has a ***duty*** to take into account the objectives of the applicant's project." *Greater Yellowstone Coalition v. Flowers*, 359 F.3d 1257, 1270 (10th Cir. 2004) (emphasis added). The National Environmental Policy Act (NEPA) does not grant agencies discretion to "redefine the goals of the proposal that arouses the call for action" or to "evaluate alternative means" or achieving an agency-defined "general goal." *Citizens Against Burlington*, 938 F.2d at 199.

The statement of purpose and need for the NRE project is also fully consistent with the Corps' own NEPA guidance. That guidance instructs the Corps to "focus[] on the applicant's statement [of purpose and need]," while at the same time exercising "independent judgment" in defining the project's purpose and need. 33 C.F.R. Part 325, App. B § 9.b(4). As the Ninth Circuit has explained, "it would be bizarre if the Corps were to ignore the purpose for which the applicant seeks the permit and to substitute a purpose it deems more suitable." *Sylvester v. United States Army Corps of Eng'rs*, 359 F.3d 407, 409 (9th Cir. 1989) (quoting *Louisiana Wildlife Fed'n, Inc. v. York*, 761 F.2d 1044, 1048 (5th Cir. 1985)). It would be even more bizarre—and completely improper—if the Corps were to revisit a purpose and need statement that has already been fully vetted and approved by the STB as part of a complete EIS.

A key feature of the NRE project's purpose is to provide a ***rail alternative*** to the existing modes of transportation. EPA's effort to redefine the goals of the project by arguing that there is no established "need" for an alternative mode of transportation misses the point. When ARRC, a railroad company, proposed a rail line extension project, it triggered STB's jurisdiction. After a thorough review of environmental impacts, including ARRC's stated purpose and need, STB approved the project. The Corps cannot now turn a blind eye to the essential nature of the proposed project by adopting the overly-expansive notion of "needs" proposed by EPA.

Moreover, contrary to EPA's assertions, the need for the NRE project was thoroughly documented during the EIS process. For example, Gen. Peter W. Chiarelli, the Vice Chief of Staff for the U.S. Army, wrote in October 2009 that

> *"The Army would benefit greatly from improved rail and/or road access to the Tanana Flats and Donnelly Training Area."*

The bridge over the Tanana River to be constructed as part of the NRE project would, according to Gen. Chiarelli, "provide safe and consistent access" to these training grounds—access that currently exists only in winter, when ice bridges are built over the river. While "the Army has not identified construction of a bridge as a formal training requirement shortfall, the Army supports the continued commercial development of the bridge to help ensure ***safe access*** to ***vital training facilities***." (Emphases added.)

In addition to the Army's need for safe access to the existing vital facilities described in Gen. Chiarelli's letter, the NRE project is a key component of the Army's plan to expand the use of the Tanana Flats and Donnelly Training Areas. In December 2010, the Department of Defense announced an environmental study associated with the planned modernization and enhancement of the Joint Alaska Pacific Range Complex, which includes the Tanana Flats and Donnelly Training areas. These improvements clearly depend on the existence of the NRE for the positioning and stating of ground maneuvers, providing access both to the military training areas themselves and to planned Intermediate Staging Bases along the rail line.

EPA's criticisms of the military need for the NRE hinge largely on a 2005 analysis that seems suggest other alternatives could fulfill the purposes of the project that was approved by STB. That argument, however, misunderstands the issue. Indeed, the 2005 study underscores the fact that the Army needs safe, year-round access to the Tanana Flats and Donnelly Training Areas. One part of the purpose for the NRE project is to satisfy that need. Whether there are also other ways to satisfy that need is a question that is answered by the alternatives analysis. Claiming that other alternatives exist does not cast doubt on the Corps' statement of purpose and need, especially when the U.S. Department of Defense Alaskan Command and the U.S. Air Force 354th Fighter Wing Command from Eielson Air Force Base both served as cooperating agencies during the preparation of the EIS.[4]

EPA's criticisms of the stated need for alternative modes of freight and passenger transportation between Fairbanks and Delta Junction are similarly unfounded. Apparently, EPA would require "compelling evidence of current demand, and/or a demonstration that existing capacity is inadequate to meet future demands" before it will accept the STB-approved statement of purpose and need. This would set the bar far higher than the relevant statutes and regulations do.[5] Under Council on Environmental Quality (CEQ) NEPA regulations, the statement of purpose and need must "briefly specify the underlying purpose and need to which the agency is responding in proposing the alternatives, including the proposed action." 40 C.F.R. § 1502.13. If agencies were required to compile data that would provide "compelling evidence" of a need, the statement would be far from brief. Furthermore, the applicable law governing STB approvals of rail projects creates a "statutory presumption . . . favoring rail construction." *Alaska Railroad Corp. – Construction and Operation Exemption – Rail Line Between North Pole and Delta Junction, AK* (Jan 5, 2010) (NRE Decision) at 6 *see* 49 U.S.C §10901 (c). EPA's burdensome purpose and need requirements would reverse that presumption and undermine a statutorily-mandated goal.

In addition, during Section 404 permitting process, the Corps requested ARRC to provide additional information about the purpose and need for the project in the Section 404(b)1 Evaluation. This detailed supplementary information is provided on pages 9 -13 of that document.

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[4] Given that both the Alaskan Command and the 354th Fighter Wing cooperated in the preparation of the EIS, it is completely unnecessary for the military to participate in the subsidiary Corps permitting process, as EPA suggests.

[5] Notably, the Federal Transit Administration, which has authority over passenger rail transportation, also served as a cooperating agency during preparation of the EIS, and did not demand the sort of irrefutable proof of passenger demand that EPA apparently wants to see.

In any case, EPA is misidentifying the key issue. ARRC does not have to state or prove that the current modes of transportation between Fairbanks and Delta Junction are at or above capacity. Rather, a purpose and need for the NRE exists so long as passengers and shippers have interest in using another mode of transportation. Based on that interest, ARRC projects that it will operate an average of four round-trip passenger trains per day on the NRE, as well as one round-trip freight train per day. The demand for passenger train service will stem from the convenience, comfort and predictability offered by rail service as opposed to transport by car or bus. The demand for freight rail service will similarly grow out of the convenience and potential cost savings from shipping through Fairbanks without having to transfer freight to and from trucks. In short, because potential passengers and shippers would benefit from having another transportation option, the purpose and need for an alternative mode of transportation already exists. The project also assists ARRC in meeting its statutory obligation under the Alaska Railroad Corporation Act to foster the development of Alaska's economy by expanding ARRC's rail network to provide safe, economical, and efficient transportation to residents, businesses, visitors, and military installations in the state.

In addition to its purpose and need objections, EPA claims that ARRC "has not provided sufficient information to support a determination that alternative bridge designs and/or crossing locations are not practicable." As with its purpose and need arguments, EPA's practicability objections are based on misreadings of both the relevant law and the facts surrounding the alternatives analysis.

As an initial matter, EPA apparently believes that an alternative may be "practicable" for purposes of the 404(b)(1) Guidelines, but not "reasonable" for purposes of a NEPA analysis. That belief conflicts with the Guidelines themselves, which specifically state that "the analysis of alternatives required for NEPA environmental documents . . . will in most cases provide the information for the evaluation of alternatives under these Guidelines." *Id*. § 230.10(a)(4). The Guidelines further explain that, "[o]n occasion" a NEPA review "may address a ***broader*** range of alternatives than required to be considered" pursuant to the 404(b)(1) Guidelines, "or may not have considered the alternatives in sufficient detail" for purposes of the Guidelines. *Id*. (emphasis added). So, as a general rule, the alternatives evaluation in an EIS is adequate. In rare instances, the NEPA alternatives analysis may include more alternatives than the Guidelines would require, or may fail to provide enough detail about the alternatives. The Guidelines do ***not***, however, contemplate the creation of completely new alternatives, because practicable alternatives are a subset of reasonable alternatives. On this score, EPA is simply wrong as a matter of law.

Given the close relationship between development of the alternatives in the EIS and the practicable alternatives evaluated under the Section 404(b)(1) Guidelines, STB's approval of the NRE project and the associated EIS again takes center stage. When STB's EIS excluded alternatives that were deemed unreasonable, it by definition determined that those same alternatives were also impracticable. EPA is now inappropriately attempting to revisit that determination by claiming that the Corps should evaluate new alternatives that were either explicitly or implicitly rejected by STB. Because nothing in the 404(b)(1) Guidelines requires the Corps to undertake such an evaluation, it should not reopen the alternatives analysis.

EPA's Arguments Do Not Demonstrate the Existence of Other Practicable Alternatives.

Even if there were a legally justifiable reason to consider EPA's substantive arguments concerning practicability—and there is not—the assertions made in the EPA letters would not undermine the practicability determinations in the EIS and the Corps 404(b)(1) evaluation.

Alignment of the NRE Project.

EPA expresses a belief that a crossing south of Flag Hill "represents a potentially sound, practicable, and less damaging alternative than the proposed project." As EPA acknowledges, this alignment would require a "separate, military-controlled bridge and spur line" to reach the Tanana and Donnelly Flats Training Areas. It should go without saying that constructing such a spur would be costly. Moreover, ARRC has explained that the topography south of Flag Hill would make rail line construction in that area substantially more difficult and "prohibitively expensive." EPA insists this is not the case, using as examples the existing Richardson Highway and the Trans Alaska Pipeline System (TAPS) which do not cross the Tanana River.

The Section 404(b)(1) Guidelines' definition of "practicable" specifically instructs the Corps to account for the "cost" of the alternative at issue.[6] EPA contends that the inclusion of cost in the notion of practicability is meant only "to determine whether . . . an alternative is unavailable and/or incapable of being done," which EPA describes as "a very high standard." The preamble to 404(b)(1) Guidelines offers a simpler, more sensible explanation. "If an alleged alternative is ***unreasonably expensive to the applicant, the alternative is not practicable.***" 45 Fed. Reg. 85336, 85343 (Dec. 24, 1980) (emphasis added). Only alternatives that are "reasonable in terms of the overall scope/cost of the proposed project" qualify as practicable under the 404(b)(1) Guidelines. *Id*. at 85339.

EPA's objections to the alignment of the NRE are both inconsistent with the project's purpose and unreasonably expensive. As discussed above in the context of the statement of purpose and need, the scope of the NRE project is a rail route between Fairbanks and Delta Junction that provides access to the Tanana and Donnelly Flats Training Areas. Because an alternative that only accesses the military's training areas if a separate "spur line" is built completely changes the scope and cost of the project, such a proposal is clearly impracticable under the Guidelines.

Moreover, rail routes through this area have been considered for decades. All recent analyses conclude that the proper routing is on the south and west side of the Tanana River between Flag Hill and Delta Junction. The fact is that the geometric restrictions related to railroad design make the routing though the rugged terrain on the north and east side of the Tanana prohibitively difficult and expensive without even regarding the considerable environmental impacts. An alternative that requires ARRC to locate the proposed line in an area where the topography would dramatically increase construction costs is "unreasonably expensive."

[6] The Guidelines define the term "practicable" to mean "available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes." 40 C.F.R. § 230.3(q).

EPA's recent refusal to accept this persistent and consistent conclusion throughout decades of study that a route alternative which does not cross the Tanana River is not practicable simply demonstrates that they are determined to avoid rational consideration of clear technical information which has been available to them. Thus, even if it were legally permissible to address alternatives excluded from the EIS, the Corps would not need to consider the impracticable suggestions in EPA's letter.

Proposed Bridge at Salcha

EPA's letter also asks for information supporting the conclusion that a bridge crossing of the Tanana River at Flag Hill "would result in unacceptable impacts to the aquatic environment, but similar channel modification at Salcha would not." This alternative was considered and rejected in the EIS. Incredibly, EPA's February 2, 2009 comment letter on the DEIS supported the preferred routes identified in the EIS, which included the proposed crossing location at Salcha, not Flag Hill.

> *"Overall, EPA believes that the ARRC preferred routes represent the alternatives which cause the least impact to a variety of environmental resources, and supports the selection of these alternatives by STB as its preferred alternative(s)."*

ARRC is stunned by EPA's reversal of its previously stated support for the Salcha crossing location, which completely undermines the credibility of the agency's new position on the alternatives in its December correspondence.

STB's Final EIS explains in some detail why that agency preferred the Salcha crossing segment to an alignment that would cross the Tanana River at Flag Hill. For example, STB points out that a Flag Hill crossing would encounter soil types with more permafrost and would be more vulnerable to landslides, rockslides and slumps. Final EIS at 1-8. The Flag Hill alignment would require bridges over both the Tanana and Salcha Rivers, and would cross several additional bodies of water than the preferred alternative. *Id.* "Impacts to wetlands and vegetation would also be greater" if the crossing were at Flag Hill. *Id.* The preferred alternative would potentially affect 435 acres of vegetation and 180 acres of wetlands, while the Flag Hill crossing alternative would have 537 acres of vegetation and 232 acres of wetlands within its right-of-way. *Id.* at 1-10. STB's EIS points out several additional ways in which a Flag Hill crossing would be inferior to the preferred alternative, including potentially higher impacts to game mammal habitat, more moose strikes, and a greater number of noise receptors. *See id*. For all of these reasons, the Corps should not revisit the reasons for selecting the preferred alternative over an alignment that would cross the Tanana River at Flag Hill.

The EPA letters contain a number of references to the 2005 study conducted by Paul Metz (the "Metz Study") that support a crossing at Flag Hill. This is surprising, given that the Metz Study is dated and was limited in scope. The engineering was of an extremely conceptual nature, with bridge overall bridge and span lengths significantly shorter than what has been proposed, and an arrangement which is not even technically feasible. Furthermore, the evaluation of environmental impacts in the Metz document was limited to a relative few pages, compared to the volume of information that has been generated and considered since 2005.

For EPA to use a dated conceptual economic study with limited environmental analysis as the basis for objecting to a project that has undergone over five years of

comprehensive regulatory review is absurd. We urge the Corps to rely on the 404(b)(1) analysis which has been developed with guidance from the Corps, and the environmental analysis as provided in STB's EIS for which the Corps had direct input into the development.

Proposed Bridge Type/Length and Levee

With regard to the planned construction of a levee that will protect structures within the Salcha community from flooding, EPA's December 10 correspondence asks that ARRC "consider spanning the entire braid plain of the Tanana River, not just the main, active channel." The only bridge design that would cause no rise in the Tanana River and not require the construction of a levee would be a single-span bridge to span the entire flood plain. An existing comparable bridge design that carries light-rail traffic is the Tsing Ma Bridge in Hong Kong. The main span of this bridge is 4,518 feet long, it stands 675 feet tall and was completed in 1997 at a cost of nearly 1 billion U.S. dollars. While a bridge of this type exists, this alternative is not practicable because of the extremely high cost; logistical concerns relative to the height 675 feet (67 stories); and technological concerns (the Tsing Ma Bridge supports only light-rail service, in comparison, the NRE Project must support heavy-freight rail service). ARRC is not aware of a comparable example of a single span bridge that supports heavy-freight rail service. This is because a suspension bridge would be needed, and this design cannot support the cyclic loading of heavy-freight train service.

The fact is that the Tanana River has been migrating to the east since aerial records have been kept (approximately 70 years), and continues to consistently demonstrate a tendency to meander and cut to the east into an inhabited portion of Salcha. For ARRC to place a fixed asset of this magnitude across the river, it is fundamentally imperative that the river remain under the structure over the long term. Given the recent erosive events which have occurred since the 2008 flood event, the need to prevent the river from out-flanking the bridges and retain the river in its present location is obvious to even the casual observer.

The existing Salcha community throughout the area of the proposed crossing is flooded on a regular basis as the river continues to try to move into the populated area. The fact is that no feasible bridge design of any length will result in negligible impact to these flood waters. ARRC is therefore obligated under 44CFR60.3 and 44CFR65.12 to adequately mitigate for additional floodwater impounded by the project. The Federal Emergency Management Agency (FEMA) is charged with the regulation of development within floodplains.

Though the east bank of the Tanana could be hardened, the bank hardening would not mitigate the backwater effects of the bridge structure. ARRC is obligated under FEMA regulations to mitigate private structures which would be impacted by additional headwater resulting from the project. The only physical means of doing this is the construction of a levee structure.

ARRC considered the relocation of scores of private residences such that river training structures could be constructed entirely in uplands, but the cost of this effort was calculated to be more than the cost of building river training structures where the residents would be allowed to remain. Moreover, the forced relocation of the number of residences which would have to be relocated would certainly yield a percentage of homeowners who refused to relocate. Because ARRC has weak condemnation powers, their eventual relocation through eminent domain is not realistic. Finally, the training

structures would be relocated such that the resultant river trajectory under the bridge would be much less than optimal. Referring back to EPA's February 2009 comments on the DEIS:

> *"EPA recommends…reconsider the design of the levee to ensure that it aligns with the hydrological dynamics of the Tanana River in order to avoid or reduce regular maintenance and repair."*

EPA most recent correspondence again reverses its previous position and now contends that no such levee would be required at Flag Hill. This is also untrue. ARRC and the STB considered carefully the aspects of bridges and associated river training structures at both Flag Hill and Salcha. Both bridge locations would require significant river training structures to keep the even meandering Tanana River under the bridge. The difference is that while the river training structures at Salcha are primarily through uplands, undeveloped private lands, and portions of the Tanana River which merely provide fish passage, the river training (levee system) at Flag Hill would have to be built directly through side sloughs and secondary channels where field data has shown that high value spawning and juvenile rearing fish habitats are located in these areas.. For EPA to imply that these impacts have not been fully weighed is false. The agency's decision to advocate an alternative which clear and compelling analysis demonstrates would have a greater impact on spawning and rearing habitat for anadromous aquatic species is incomprehensible.

Proposed Access Road

EPA's letter briefly takes issue with the location of the proposed access road, arguing that the extension of Howell Road is superior to the preferred Tom Bear Trail Extension. Apparently, EPA would prefer an access road to be located west of the proposed NRE tracks, which would require an at-grade crossing of the track. As the 404(b)(1) Evaluation explains, however, the Howell Road alternative would directly impact over 3 acres of wetlands more that the proposed Tom Bear access road, and also would result in indirect impacts to the Piledriver Slough that the preferred alternative's access road would avoid. In addition, EPA dismisses ARRC's "desire" to avoid additional at-grade track crossings without mentioning that ARRC's desire stems from the safety concerns that accompany such crossings. Finally, an access road at Howell Road would cause considerably more noise and nuisance impacts to nearby residents, which ARRC desires to minimize to the extent possible. EPA again has not provided adequate reason to deviate from the preferred alternative at the expense of additional wetland impacts.

Proposed Infrastructure on the Southwest Side of the Tanana River

EPA questions the need for a permanent road to accommodate rail construction and maintenance equipment along the entire length of the proposed rail alignment, alleging that no such road exists elsewhere along the main rail line. Parallel access roads for the existing rail line do not exist in most locations for the simple reason that constructing a parallel access road in Alaska's terrain at the time of initial railroad construction was logistically and technically impracticable, and there have been no significant rail extension construction projects since the mid 1940s. The lack of an access road on the existing mainline has increased maintenance costs and negatively affected ARRC's ability to respond to emergency situations. In response, permanent access roads have been constructed in selected locations adjacent to the existing mainline track over the past 20+ years, and a permanent access road is now standard practice for new ARRC

rail construction. Not only is the road used during initial construction—which EPA concedes is necessary—it is vital to conducting regular maintenance activities. In addition, the road associated with the NRE project would be used by military vehicles after construction of the rail line is completed. For all of these reasons, the Corps should not alter the preferred alternative with regard to the permanent access road. In the same manner that ADOT&PF cannot design roads to 1920 standards due to a heightened awareness of safety and significant changes in vehicle designs, ARRC cannot be held to the design and construction practices and standards of a facilities constructed over 90 years ago.

EPA comments that "it appears practicable to extend the bi-modal nature of the crossing to, at minimum, Beebee Slough," sighting the Whittier Tunnel as a similar facility. In fact, the Whittier Tunnel is very different. First, the Alaska Department of Transportation and Public Facilities (ADOT&PF) is responsible for the "operation" of the tunnel. It requires many full time staff to operate and maintain the tunnel including the assurance that trains and vehicles do not occupy the tunnel at the same time. ADOT&PF (whose annual budget is in the millions of dollars) can provide this service because they are not compelled to make a profit as a public agency. The ARRC is a self-supporting private corporation wholly owned by the state of Alaska. It is not economically feasible to employ the level of staffing at the proposed Tanana River bridge that ADOT&PF presently employ in Whittier.

Secondly, the Whittier Tunnel is largely protected from snow and ice by the mountain under which it traverses. The maintenance of road crossing flange-ways in the winter time is one of the railroad's larger efforts. ARRC already has grave concerns over the continual maintenance the proposed structure is anticipated to require during the winter months. To add additional structures of this type is highly undesirable and may yield a facility which is not operable for a substantial part of the year.

Finally, the Whittier Tunnel is located on a branch line between two ARRC terminal facilities at Portage and Whittier. Train speed between these two terminals is relatively slow when compared to mainline track speeds. The bridge over the Tanana River will be regulated by the Federal Railroad Administration (FRA) as an at-grade crossing, meaning that it is subject to rigorous design and maintenance standards. While protecting a single bridge structure with adequate warning devices and gates seems feasible at this time, it has not been tried before. In fact, the required fail-safe approach circuitry and detection systems do not currently exist, and ARRC will be working to develop such devices which can work over the long distances required due to the unique nature of the structure. Given the untested nature of these devices, it is infeasible to consider extending this federally mandated system over multiple structures/crossings as EPA suggests.

In sum, though ARRC has reluctantly resolved to use a bi-modal bridge over the Tanana River due to extreme and unique design considerations, extending the length of the area that is bi-modal adds significant safety concerns and would not provide a significant reduction in environmental impacts.

Project Phasing

Finally, EPA's letter argues that the Corps cannot perform an adequate evaluation under the Section 404(b)(1) Guidelines unless it considers the NRE as "a single and complete project." EPA neglects to mention that STB has already spent years examining the environmental impacts of the project as a whole. Taking all of those impacts into consideration, the Board has already designated an environmentally preferred route for

the "complete" NRE project. The Corps fully participated as a cooperating agency in the STB process. The idea that the Section 404 permitting process requires the Corps to somehow reconsider the project as a whole flies in the face of STB's jurisdiction and the years of cooperative work that went into developing and approving the environmentally preferred route for the NRE.

The Corps correctly reached this same conclusion in a letter dated March 26, 2010, stating:

> *"Given the information available to us at this time, we have determined that a supplemental EIS will not be necessary for this project. We have also determined that we can accept an application for Phase 1 only, for your proposed project."*

We encourage the Corps to not to waver from this position.

The NRE Project Will Not Adversely Affect An ARNI

In addition to their criticism of the 404(b)(1) Evaluation, EPA's letters also serve to notify the Corps of EPA's conclusion that the NRE project will have a substantial and adverse impact on an aquatic resource of national importance (ARNI). This notification is part of a complex, agreed-on elevation process, but it amounts to a threat by EPA to veto the Corps' permit pursuant to CWA Section 404(c). ARRC does not agree with EPA's conclusion.

EPA's November 15 letter provides a relatively thin explanation for the agency's decision to call the Tanana River an ARNI. The river is said to produce a quarter of the stock of Yukon River Chinook salmon, which EPA claims is "a stock of international importance . . . ." The Tanana also supports 18 species of fish, and allegedly serves as a "major spawning area for whitefish," an "important subsistence food for rural Alaskans." EPA further states that the Tanana and "adjacent lands" offer "a variety of recreational opportunities." On these grounds, EPA concludes that the Tanana River is an aquatic resource that has national importance.

There is no official regulatory definition of the term ARNI. The CWA Section 404(q) Memorandum signed by the Corps and EPA simply states that EPA's ability to elevate individual permit cases is "limited to" those involving "unacceptable adverse effects" to an ARNI. When a term is not defined by statute or regulation, it should be "construed in accordance with its ordinary and plain meaning." *Stenberg v. Carhart*, 530 U.S. 914, 993 n.9 (2000). Here, there is no question that the Tanana River is an "aquatic resource." ARRC disagrees, however, that the Tanana River has "national importance" as that term is ordinarily understood.

EPA's only semi-explicit effort to demonstrate the "national importance" of the Tanana River consists of its assertion that the stock of Yukon River Chinook salmon has "international importance for commercial, subsistence and sport fisheries in Alaska and Canada." As an initial matter, the term "***national*** importance," as used in a Memorandum signed by federal government agencies, ordinarily references importance to the United States. Accordingly, a resource that is important to Canada does not have "national importance" for purposes of the Section 404(q) Memorandum. In addition, "national importance" plainly connotes value to the United States as a whole, or to the entire country. Saying that a fishery is important to Alaska does not mean that it has "national"

importance. So, even if EPA is right that the stock of Yukon River Chinook salmon is important to Alaska and Canada, that would not qualify the Tanana River as an ARNI.[7] Regardless, the project area does not contain any areas which are known or have been documented to contain, spawning or rearing habitat for Chinook. The Tanana River through this reach provides merely passage to spawning areas well upstream of the Salcha location; and that passage will remain unaffected by the construction of the proposed bridge.

EPA's second argument for designation of the Tanana as an ARNI revolves around the fact that (1) the river supports 18 species of fish and (2) it is a "major spawning area" for whitefish. According to the Alaska Department of Fish and Game (ADF&G), however, "[w]hitefish are the most abundant group of fish north of the Alaska Range, inhabiting almost every type of river and freshwater habitat . . . ." *See* http://www.adfg.state.ak.us/pubs/notebook/fish/whitfish.php. The argument that one spawning area for the most abundant fish population in the region as the justification for an ARNI designation flies in the face of the plain meaning of "national importance."

Last year, humpback whitefish spawning areas were discovered near the deposition areas downstream of the bridge location. Though it has long been known that whitefish were in the lower Tanana, biologists were "surprised" to learn that they were near the project site, farther upstream than previously known. Though the whitefish in the area observed were in a spawning state, the spawning location is well downstream of the bridge site (Durst 2010), and well beyond the hydraulic impacts of the proposed bridge, and beyond the limits of the once proposed in-river gravel source for the project (Durst, 2010).

There are important resident species in the project area, and in response to agency concerns the NRE Phase I Project has been modified to remove the originally-proposed in-river gravel source from the Tanana River. In a meeting on November 9, 2010, ARRC provided draft figures to the USACE, USFWS, ADNR and ADF&G (see Tab 1 showing proposed upland gravel sources) for consideration and comment. This will significantly avoid approximately 101 acres of potential impacts to resident and anadromous fish and the potential for water quality impacts related to sediment deposition, substrate embeddedness and source water composition. The bridge over the main channel of the Tanana River will allow adult salmon and other fish species to continue to migrate past the bridge.

Finally, EPA suggests that because "[t]he Tanana River and its adjacent lands provide residents and tourists with a variety of recreational opportunities," the river qualifies as an ARNI. As part of this argument, EPA notes that the Tanana River flows through Tanana Valley State Forest, and that the Tetlin National Wildlife Refuge "[a]t the headwaters of the Tanana River" is home to numerous species of wildlife. EPA does not explain, however, how a river's mere presence in a park confers "national importance." There is also no attempt to distinguish between local and regional recreational use of the Tanana River from use by tourists or others that might give the river "national importance" for purposes of recreation. Without more, EPA's description falls far short of what should be required to conclude that the Tanana River is an ARNI. Further, it is important to

[7] Moreover, EPA is not claiming that the Tanana River itself is home to a stock of salmon that has international importance, only that the Tanana supplies 25% of the stock in a different river. Supplying part of the stock in a fishery that allegedly has international importance is not enough to elevate the supplying water body to the level of national importance.

> remember that the Tanana River bridge and the bridges over the sloughs on the southwest side of the river are specifically designed to allow recreational activities to continue. For the bridges over the sloughs, this is supported by minimization of impacts to the aquatic environment by offsetting bridge piers to avoid the stream thalweg. Bridges also will be constructed with sufficient height to allow for navigation by recreational boaters as well as egress along the water bodies.
>
> Finally, it is difficult to understand that after five years of environmental review, review and comment of the EIS, and multiple submissions of the 404(b)(1), CLOMR, and other technical analysis, that it suddenly dawned upon EPA that the Tanana River is an ARNI. If EPA was earnest in their concern, this issue would have been raised in scoping, or after the publishing of the DEIS and subsequent information that would support such a designation. It appears that the EPA is using the ARNI designation as attempt to obstruct the project development by continuing the environmental debate on matters which have long since been thoughtfully and legally resolved. ARRC implores the Corps to dismiss the abusive use of the ARNI designation by the EPA in this instance as it is clearly a means to frustrate the regulatory review process.

It is apparent from the formal communication with EPA through the substantial environmental review encompassing the last five years that they provided specific comment and input to the STB during the EIS process which clearly supported the findings of the EIS. Following the publishing of the Final EIS, EPA arbitrarily changed its position on substantive project elements, and has now chosen to raise erroneous challenges to further project development despite glaring inconsistencies in its position. EPA also continues to question matters of fact about which ARRC has been provided extensive explanations on multiple occasions. It appears that the EPA is attempting to supersede the statutorily-designated decision-makers by meddling with the USACE's and STB's regulatory authority. These capricious tactics continue to delay and threaten the development an project with federal support and has been classified by the state as a significant infrastructure priority. We urge the Corps to consider ARRC's application within the context of the EIS which the Corp had had a far more significant input and review into the analysis and conclusions than even we, the applicant.

National Oceanic and Atmospheric Administration (NOAA) and National Marine Fisheries Service (NMFS)

The rail embankment as proposed would fragment thousands of feet of hyporheic and riparian river substrate, restricting the natural lateral channel migration, meander and hydrology.

> Within the general project area, the Tanana River has been steadily eroding its northeast (right) bank since 1938. The stabilization of a portion of the northeast bank of the Tanana River must occur in order to protect the bridge abutment. Flood waters have washed away roads and culverts and have significantly impacted private residences in the area. Federal flood control projects installed in side channels feeding Piledriver Slough since the early 1970s have been minimally successful in restricting flooding on the northeast bank of the Tanana River, primarily because water enters Piledriver Slough through a number of side channels and via overbank flow. Construction of the levee on the northeast side of the river is an integral component of the proposed project and it will unavoidably restrict lateral channel migration in the areas occupied by the levee. This is necessary not only to protect project components, but the levee is required by the Federal Emergency Management Agency (FEMA) to protect local residents, businesses,

local roads and other infrastructure from flood damage and loss associated with the proposed project. The levee supplants and improves the effectiveness of the existing flood control structures originally constructed by the USACE, which are becoming less effective as the river continues to migrate towards Piledriver Slough. On the southwest bank, meander migration will only be restricted by the guide bank and bridge abutment in the immediate vicinity of the bridge. The river will be able to continue to migrate laterally upstream and downstream of this 200-foot section.

Shallow ground water and surface water modeling has been completed for the levee in accordance with (FEMA) requirements. Geotechnical investigations indicate relatively uniform, highly conductive sand and gravel soils on both sides of the river. The project does not include any impermeable subsurface structures that could restrict hyporheic flows. The connection between river substrate and adjacent sands and gravels will be maintained on both sides of the river. During overbank flood events, the levee will eliminate surface flow down Piledriver Slough. However, base flow conditions within Piledriver Slough are presently maintained by ground water inputs from the Tanana, and these will not be altered.

Hydraulic modeling results show that under existing conditions, approximately 96% (123,000 out of 127,900 cfs) of the 100-year flood flows in the 3,600-foot active channel at the bridge site. Of the remaining, about 3,000 cfs spills over the southwest bank and flows through Boundary and Beebee sloughs and surrounding floodplain, while 2,000 cfs spills into Piledriver Slough and the northeasterly floodplain. The project would cut off overbank flow from the NE floodplain, increasing flows in the main channel by 1.5% (to about 124,800 cfs) and the flows in Boundary and Beebee Sloughs by 1% (to about 3200 cfs). The only significant alteration in flood flows would be to Piledriver Slough, which would no longer intercept overland flood flow during flood events. The difference during more frequent events (the 2-year flood) is much less: the main Tanana would increase by the amount restricted from Piledriver Slough (50 cfs out of 74,900 cfs…0.07%), and Boundary and Beebee Sloughs would not be affected.

The rail embankment as proposed will not fragment thousands of feet of hyporheic and riparian river substrate, no significantly restrict the natural lateral channel migration, meander and hydrology.

The rail embankment and shoreline levee would truncate and concentrate the river's hydrologic regime, increasing water velocities and amplify seasonal flood and breakup events.

As described above, the rail embankment and levee would slightly concentrate flow in the main channel and in Boundary and Beebee Sloughs through the bridge (increase of about 1.5% at the 100-year flood in the main channel of the Tanana River and less than 1% Boundary and Beebee Sloughs). This increase is accompanied by a decrease in flows in Piledriver Slough. *The effect of the levee on flow volumes is much less at the mean annual flood (less than 0.01%).* This magnitude of flow concentration will have no measurable effect on the Tanana River or on Beebee or Boundary Sloughs. The proposed structure and levee will not amplify seasonal or breakup events. Break-up (ice)

events have historically occupied a smaller portion of the active braidplain (3600 feet) than late-summer, open-water floods.

The rail embankment and levee would constrict flows in the main Tanana River to 3,300 feet from the current 3,600 feet. This constriction in itself has a minor effect on current velocity through the bridge cross-section during the 2-year flood event (increase from 9 ft/s to 10 ft/s in the main channel). During the 100-year flood event, it is possible that debris will accumulate on bridge piers during the flood, and that some of this debris will not be removable until the flood has receded. ARRC has taken a conservative approach to modeling the 100-year flood event where we have assumed a 25% of the bridge opening assumed blocked by debris. Under this extremely unlikely event, maximum velocities will increase on the Main Tanana from about 9 ft/s to about 12 ft/s in the largest channel immediately downstream of the bridge opening for a relatively short period. This would represent a near cataclysmic event where the piers would not shed debris as designed. Statistically, this could be expected to occur once every 100-years, with peak flows lasting from 1 day to one week. A 25% rise in water velocity over a portion of the braid plain, seven days out of 100 years (36,500 days…0.02%) is a negligible impact on the aquatic environment.

The rail embankment and shoreline levee will not truncate and concentrate the river's hydrologic regime, nor significantly increase water velocities and amplify seasonal flood and breakup events.

The physical alteration would change channel morphology and increase scour and deposition zones in spawning and rearing habitat.

The Tanana River at Salcha is a braided river channel characterized by unvegetated, unstable gravel bars, migrating banks, and multiple channels which indicate a large sediment load in this reach of the river. The braided channel characteristics are maintained by a distribution of scour and depositional environments throughout the braid plain. The influx of debris and breakup of ice also influence scour and deposition.

The capacity of the Tanana River to scour or deposit sediment can be estimated using modeled shear stresses in the reach. Shear stresses are divided into categories corresponding to the percentage of bedload size classes (taken from geotechnical borings) that the flow is competent to move. At shear stresses less than about 0.25 lb/ft2, less than half of the sediment would be in transport, and deposition can be expected. Between 0.25 and 0.54 ft/lb2, between 50-85% of size classes are mobile, and transport and deposition are probably balanced. Over 0.54, flow is competent to move all sediment size classes, and scour is more likely.

The distribution of 100-year flood shear stresses in the proposed condition is very similar to the distribution during the existing condition, with the exception of the cross-sections immediately upstream of the bridge, where velocities and shear stresses are lower. These areas are still competent to transport sediment, thus will still be able to adjust the channel to carry flow downstream through the bridge. The distribution of shear stresses during the 2-year flood is essentially the same under existing and proposed conditions

See Tab 1, Map of Shear Stress Distribution (sediment transport). Based on these results, the effects of increased sour and deposition will be moderate during large flood events and will be limited to within the main channel of the Tanana River just upstream of the Tanana River Bridge. In this area of the main channel shear stress will be reduced from scour competent to move all sediment size classes to transport competent to move more than 50% of sediment size classes (see Tab 1, Map of Shear Stress Distribution).

Furthermore, the nature of the Tanana River immediately up and downstream of the proposed bridge, including those areas with impacts during the 100-year flood event (0.02% of the days over 100 years), do not support spawning or rearing habitat for salmon species, but fish passage. Humpback whitefish spawning areas were recently discovered near the deposition areas downstream of the bridge location, but outside the hydraulic impacts of the proposed bridge, and beyond the limits of the project. These areas would not be affected by the project any more than they would be by naturally occurring changes in the braided channels of the Tanana River.

The physical alteration will not significantly change channel morphology, nor will it increase scour and deposition zones in spawning and rearing habitat.

NMFS has seen no detailed description, analysis or rationale to explain why the rail alignment cannot be located on the north side of the river within the existing Richardson Highway corridor.

A rail corridor remaining on the north/east bank of the Tanana River the entire distance to Delta Junction was considered and dismissed early in the project development process. See the Alternative Analysis Study[8] and Table 2-1 of the Draft EIS. In addition to not being practicable from a cost and engineering perspective (see discussion above), an alignment on the north side of the river within the existing Richardson Highway corridor would not meet the project purpose and need which is to allow reliable, year-round access to the Tanana Flats Training Area used by the United States military, which is south of the river. Also, as already noted, the hilly topography on that side of the river south of Flag Hill is less favorable for rail line construction. Therefore, a rail corridor remaining on the north/east bank of the Tanana River was not analyzed in detail in the EIS.

The current alignment was extensively evaluated as part of the EIS completed by STB. Potential rail alignments were evaluated based on a three phase process:

- Phase One, Study Area Identification – defined the general study area within which the rail line extension could be developed, identified potential Tanana River crossing locations within the study area and identified a number of representative route corridors.
- Phase Two, Corridor Development – included a preliminary screening of the representative routes and Tanana River crossing locations that were identified in Phase One to eliminate any alignment with fatal flaws before continuing.

[8] *Alternatives Analysis Study*. Alaska Railroad Northern Rail Extension Project, July 2006.

Considerations included natural barriers such as rivers and topography, engineering design, cost effectiveness, geology and general land use patterns.

- Phase Three, Corridor Analysis - involved a rigorous comparison of the relative advantages and disadvantages of various alignments. The evaluation of each corridor was based primarily on engineering and environmental considerations, including issues raised by regulatory or resource agencies or the public during agency coordination and public outreach efforts.

A Draft EIS was published on December 12, 2008 and the Final EIS was published September 18, 2009. The DEIS discusses nine segments along the length of the proposed rail line, identifies and evaluates various alternatives within each segment, and identifies the ARRC's preferred alignment. The FEIS contains detailed responses to comments on the DEIS, identifies the STB's recommended alternative(s) for each of the nine segments, and recommends mitigation for potential environmental impacts.

NMFS commented on the Draft EIS stating:

> *"Ideally, rail alignments would be located in upland areas rather than in the watershed floodplain to avoid, minimize or mitigate adverse impacts to rivers, streams and the associated ecosystem processes provided by wetlands, riparian and hyporheic zones…. However, we understand the alternative alignments retained for detailed analysis also are based on technical and practical considerations including natural barriers, engineering design, cost effectiveness, geologic considerations and general land use patterns."*

These issues were in fact considered as part of the NEPA process, and the conclusion of the process yielded the Salcha location as the only route option subsequently approved.

Furthermore other locations discussed in the EIS such as Flag Hill and Little Delta involve transecting the river with shorter spans. For example, the Little Delta alternative would cross the river at a point where the natural topography already restricts the river's ability to laterally migrate. Transecting the river at this location would have minimal impacts to existing real property or to environmental processes supporting EFH and anadromous species.

Unlike the Salcha crossing, the Flag Hill crossing would also require the crossing of the Salcha River in such a manner that requires work within the anadromous water body. As discussed in ARRC's filing before the STB on August 19, 2008, where the Tanana River is substantially within a single braid plain at Salcha, there are three distinct channels at Flag Hill that have wide variations in flow due to the continuing changing morphology of the river. With no feasible means of controlling flow to any single channel, ARRC would have to either construct a single bridge structure over all channels, potentially the length of the Salcha structure, or force the river under a single structure with a series of levees and river training measures that will likely dwarf those proposed at the Salcha location.

Additionally, unlike the Salcha Location, there are a considerable number of side sloughs and channels at the Flag Hill location which are considered spawning and rearing habitat for anadromous fish. Any structure in this location of reasonable size will certainly have a

negative and unavoidable impact to those habitat areas in the vicinity of the crossing. See the above responses to EPA's December 10th letter for more discussion of this issue.

The Flag Hill crossing and its associated Salcha Alternative Segment 2 would also result in considerable impacts to the non-aquatic environment. It would impact more homes or businesses than the proposed crossing location and require relocation of portions of the Richardson Highway, as well as the Salcha Elementary School, to allow adequate space for the rail line and the highway to pass between the Tanana River and the adjacent bluff. Of note, the Salcha School grounds and associated ski trails are considered 4(f) resources. Any feasible alignment to the Flag Hill location would go through the Salchaket historic village site resulting in unavoidable impacts to a Section 106 resource. Present and future funding from the FRA and FTA for the NRE project is subject 4(f) requirements and these resources would be considered a "use" under 4(f).

Of the twenty-five resource impact categories evaluated in the EIS for a bridge crossing at either Salcha or Flag Hill, nine of the impact categories were determined to be equal in magnitude. Of the remaining sixteen impact categories, the proposed crossing location at Salcha was determined to have a fewer impacts in all but one resource category.

In addition to the overwhelming data suggesting that the Salcha crossing has fewer environmental consequences than Flag Hill, ARRC has federal licensure from the STB, and further, funding from FRA, for the construction of a bridge at Salcha, and Salcha only. This same information has been thoughtfully considered by both agencies in their respective Record of Decisions. ARRC has no legal authority to pursue a crossing in another location.

Alaska Department of Natural Resources (ADNR)

Despite efforts by ARRC to call out in section 5.11 of the project description applicable NRE mitigation measures (MM) adopted by the Surface Transportation Board (STB) in their Decision, it remains unclear how the specific work aspects in the project description narrative and figures meet or address specific MM's.

The NRE Phase One Project Description contains mitigation measures (MM) in addition to those listed in Section 5.11. The project description in Section 5.11 states – "In addition to the mitigation measures described above the following avoidance and minimization measures have been incorporated into the design of the NRE Phase One Project". Section 5.11 is only intended to further describe those mitigation measures that are incorporated into the project design features and not to list all of the mitigation measures that the project would comply with. Additionally it should be noted that not all of the mitigation measures listed by the STB are applicable to the permits being applied for or in some cases the Phase One Project.

ARRC is committed to complying with the STB mitigation measures. Once construction begins, ARRC will have a full time Environmental Specialist on site to address specific work aspects and coordinate directly with agency staff and the contractor to ensure compliance with the established mitigation measures.

In instances where the ARRC believes that it is not practicable to meet the specified mitigation measure, they should provide a brief rational for not implementing the measure as specified fully. For example, the road and track of Beebee Slough have a marked skew from perpendicular on Sheet SW- 6.6 despite a statement to the contrary regarding MM31 in section 5.6.1 of the project description.

MM 31 states: <u>During project-related design, ARRC shall align road and track crossings of water bodies perpendicular or near perpendicular thereto, where practicable, to minimize crossing length and potential bank disturbance.</u>

The track crosses Beebee Slough at approximately a 20 degree angle from perpendicular as a direct result of the track crossing Boundary Slough at a perpendicular angle per MM 31. The distance between Boundary Slough and Beebee Slough is too short (approximately 1,100 feet) to accommodate a 1.5 degree curve for a 20 degree deflection in the alignment. Additionally, crossing Beebee Slough at a perpendicular angle would require the rail segment to curve another 20 degrees in the opposite direction within a 950-foot-long rail segment, forming an "s" shaped series of curves in order to meet the end point at the military staging area. Railroad design standards do not allow for this sort of meandering alignment in such a relatively short distance.

The road crossing at Beebee Slough was realigned to minimize crossing length and bank disturbance to the extent practicable. Had the road alignment paralleled the track it would have crossed Beebee Slough at a scoured meander bend. While there would have been less of a skew associated with this alignment, it would have increased the crossing length from 69 feet to approximately 140 feet, likely requiring a pier to be placed in the slough resulting in increased impacts.

ARRC brought forward this specific design during a pre application meeting with agencies on March 3, 2009. In attendance were EPA, ADNR, AKF&G, and USACE regulatory personnel. It was the tenor of the discussion amongst the parties that a skewed roadway bridge in this location would result in fewer impacts than keeping the roadway and railroad parallel. In proceeding with this alignment, ARRC has not only adapted preliminary design details specifically reduce environmental impacts as intended in MM31, but ARRC has worked in a collaborative fashion with regulatory agencies to resolve these issues in advance of permit processes.

We have seen no design information for the temporary bridge(s) including one that would be in place several years (throughout Phase 1). Because this period before the levee is completed would have the greatest potential for overbank flow from the Tanana River, the short-term bridge needs to be designed, installed, and maintained to provide adequate fish passage at expected flows, meet mitigation measures, and to adequately pass expected flood flows without damage to the bed or banks of Piledriver Slough.

ARRC will be working with the construction contractor to develop temporary structures consistent with STB mitigation measures and environmental regulations. These structures will be constructed (and permitted) such that fish passage, habitat, and flood

flows are considered. General arrangements for temporary structures within the braid plain of the Tanana River were provided on August 30, 2010 with the revised project description. It is the Contractor's to remove the superstructure from the temporary work trestles during high water events, and during high-flow times of the year. We would agree to a permit condition that requires submittal of additional information to agencies for review and approval, and permit modification if necessary, prior to initiating construction of temporary structures within the braid plain of the Tanana River.

For construction of the Northeast Rail Embankment the rationale is unclear for ARRC's decision to use ETL 9 riprap above the waterline and AKDOT Class IIA riprap for the self-launching toe of the levee below the waterline.

The design engineers have provided the Contractor the option to use AKDOT Class IIA riprap below the waterline. The exception is based upon requiring a larger mass for those areas subject to "ice plucking" versus pure hydraulic scour.

Tanana River Material Source: What proportion of the material is unusable fine material that then must be filtered out and stored or dealt with in some method?

Tanana River Material Source: Can enough material be mined from the area to supply the needs of the project and remain within ADF&G guidelines?

Tanana River Material Source: Is the material on the site of the proper specifications for construction of the bridge and levee components?

Tanana River Material Source: How will the material excavation be conducted?

Tanana River Material Source: There is concern that once excavated, the remaining depression could potentially pull the thalweg of the main channel to the northeast, thereby affecting the flow of the river in some of the downstream channels and sloughs.

Tanana River Material Source: A related concern is the effect on downstream bank erosion.
The (material source) access road: The channel (crossed by the road) has increased in size substantially since the aerial photos were taken in 2007. (The Channel) has conveyed a large portion of the river's total flow (since the floods of 2009).

The (material source) access road: What timeline is inferred by "temporary?" Seasonally, removing and rebuilding the road each year? Over the 5-7 year period of the project?

The (material source) access road: How does ARRC propose to mitigate the effects caused by blocking a major river channel with a gravel road?

The (material source) access road: The downstream end of the channel will become essentially a dry riverbed once the access road is constructed. Has this loss of wetlands and a navigable waterway, even for a temporary period, been addressed?

The (material source) access road: If the access road is in place for the lifetime of the project (5-7 years), the morphology for this channel will likely be permanently altered. Has this been addressed?

Will construction of the levee and excavation of the material site access road deflect the river's flow towards the far downstream bank? If so, has ARRC addressed the potential scour effects on that bank and alteration of the natural course of the river?

How can ARRC propose that an in-river material site will recharge with deposition from flooding and bed-load migration of sands and silts, if there is little-to-no water to flow over the site to perform the recharge?

It is difficult to evaluate the proposed material source site based on the available geotechnical information, i.e., are the desired materials is present at this location?

How the stripped and reject components from the material source site be stockpiled and reclaimed?

> Based on agency comments and concerns, ARRC has elected to remove the in-river material source from the project and reduce impacts. ARRC is investigating upland locations on both the northeast and southwest sides of the Tanana River. In a meeting on November 9, 2010, ARRC presented the USACE, USFWS, ADNR and ADF&G with draft figures (Please see Tab 1 showing proposed upland gravel sources) for consideration and comment. ARRC is prepared to move forward with permitting these locations as material sources provided the resource agencies agree in concept to these locations in lieu of an in-river material source.

3,300 ft bridge design, ADF&G has previously stated our preference for a bridge that fully spans the Tanana River braided floodplain.

> The construction of a bridge that would fully span the Tanana River (i.e. the right bank of the Tanana River to the left bank of Beebee Slough) would require an approximately 4,900-foot bridge, 10 additional bridge piers and 165-foot-long bridge spans. Each bridge pier and span costs approximately $7 million to construct, which would add a minimum of $70 million to the cost of the proposed bridge. Spanning the entire braid plain would not result in any significant reduction in headwater during flood events, but it would increase the cost of the Tanana River Bridge project by 50% and prohibit the project from being built.

3,300 ft bridge design, we (ADFG) have requested that the bridge have a minimum clearance of 20 feet at OHW to allow airboat passage at stages above OHW, or be no lower above OHW than the existing upstream Salcha River and Tanana River bridges on the Richardson Highway.

> ARRC was directed by the US Coast Guard to provide a minimal navigational clearance that would permit a boat similar to Mahay's River Boat (Talkeetna) to pass. This would require a height of 10-feet above ordinary high water. Based on telephone discussions with the Superintendent of the Salcha River Boat Launch, a local airboat manufacturer

(Panther Airboats), and a local airboat user, a minimum navigation clearance height of 10 to 11 feet will provide a sufficient vertical navigational clearance under the bridge. Meeting minutes with agencies (ADNR, ADF&G, USACE, and others) suggested that something "in excess of 10 feet" would be preferred, with 14-feet being mentioned specifically.

The proposed Tanana River Bridge will have a navigational clearance of 15.5 feet above OHW which represents the highest possible elevation which can be achieved with the current railroad alignment and foundation configuration. Additional height will result in a significant increase in the foundation footprint and cost due to the unusually difficult loading conditions including seismic design, ice and debris loading.

The two landward "excursions" at approximate stations 125+00 and 155+00, which would seem to increase the potential for bank erosion due to french draining through the large riprap toe as well as providing areas of increased shear stress on the levee because of hard turns.

The "excursions" where incorporated into the levee design for several reasons. First, we believe that the Least Environmentally Damaging Practicable Alternative (LEDPA) is the one which would result in the smallest footprint of the levee in the water, while weighing other impacts. There are presently three "channel plugs" constructed more than 30 years ago by the USACE to keep surface flow from the Tanana River from entering Piledriver Slough. These were constructed as part of a federally funded flood control project, and as the ARRC proposes to replace those flood control features with a different structure (a levee), these features must remain in place until the levee adequately performs the same function. The result is that the levee alignment meanders to avoid as much a practicable the relocation of private residences, the placement of fill in the Tanana River, and the removal of the channel plugs without the levee adequately duplicating their flood protection function.

From a technical perspective, the Tanana River is continually moving due to shifting channel braids and erosion or deposition along the channel banks. Well before the beginning of the design phase of this project, the east bank of the Tanana River has been eroding. We anticipate that this bank erosion would continue during and after project construction. The purposes of the landward 'excursions' of the levee are to minimize construction impact on the river and to allow construction of the launching toe out of the river currents.

The in-situ soils are sands and gravels that have a high hydraulic conductivity (and, therefore, create very little resistance to flow). Groundwater modeling performed to evaluate seepage conditions incorporates the properties of the existing soils. The modeling indicates that groundwater elevations in the overbank areas rise and fall in conjunction with changes to river water levels. The high hydraulic conductivity of in-situ soils results in a flat groundwater gradient (the slope of the zone of saturation moving outward from the river in a perpendicular direction).

A sustained 'driving head' would be required in order for particles to move from the land area between the current bank and the levee, and into the more porous launching toe.

While a rapid rise in water surface elevations in the river could theoretically tend to move some soil particles into the launching toe, the high hydraulic conductivity of in-situ sands and gravels prevents the build-up of a sustained driving head through the subsurface region in a direction perpendicular to the river. Since velocity of subsurface flow is proportional to the gradient, we expect the shallow gradient in the native geologic materials would severely limit the amount of particle movement that could occur from the native materials into the launching toe.

Even if migration of some soil did occur over time, the migration of soils would tend to be a self limiting phenomenon. Any particles that migrated into the launching toe would serve to plug the launching toe void spaces as the movement progressed since the water velocities in the launching toe would not be significant enough to move particles in a downstream direction for the length of the launching toe.

Any flow that occurs in parallel to the launching toe would be of low velocity due to the interlocking nature of riprap. It should also be noted that the hydraulic conductivity is high enough in the sands and gravels that the launching toe will not provide any sort of driving head into the land mass between the launching toe and the existing channel bank. The groundwater level will be relatively constant in this area, and particles will not be 'pushed' into the river due to pressure from flows in the launching toe.

Although it is likely that some bank erosion would occur in post-project conditions, the launching toe will not do anything to change or speed this process other than preventing landward migration beyond the location of the proposed levee alignment. Shear stress on the levee has been taken into account. The riprap was sized assuming the worst case flow angle of attack could occur, since flow angle depends on both launching toe alignment and the configuration of islands and braids in the Tanana. The curved portions of the proposed levee will be protected appropriately form erosion.

It is unclear how the upstream end of the levee will interact with the proposed new channel between the upstream end of Piledriver Slough and the Tanana River.

During overbank flood events, water from the Tanana enters the right overbank in the Boondox Area, and follows the remnant channel of Piledriver Slough through the Benerth and Brannan residences. Currently, this water drains through the main Piledriver Slough channel, which will be blocked by the levee. The constructed channel at the upstream end of the levee will direct flood water from the Benerth property back into the Tanana see Tab 3 showing surface water inundation at the Benerth and Brannan residences.

Regarding the Southwest Access Road and Rail Components: It is unclear why ARRC intends to block rather than accommodate natural bank full flows through the numerous channels within the embankment across the island, including at stations 825+00, 826+50, and 843+00. When state agencies walked this alignment, the mentioned channels appeared to be just higher than OHW (as shown on SW-6.0 rather than as shown on SW-6.2), and likely within bank full flow. We believe that the ARRC has not provided reasons these channels cannot be passed through the embankment with appropriate thalweg control.

The southwest bridge abutment and guide bank are located above OHW to the extent practicable. The channels at stations 825+00 and 826+00 are, as mentioned by ADF&G, are located above OHW and are blocked from receiving water during OHW conditions (OHW = surface water surface elevation 591) by localized topography, see Tab 4 Figure SW-7.1A showing the 594 foot contour line which isolates the remnant channel from OHW flows. The channels likely receive flow during the 100-year flood event but, as evident by encroaching vegetation, they do not receive flow during yearly ordinary high water conditions, which is the reason for not constructing water conveyance structures in these areas.

The upstream side of the embankment would be heavily armored with a series of spurs that would restrict the ability of the Tanana River to attack the railroad embankment directly. This design was based on significant agency consultation relative to developing river training measures that limit the amount of in-water work. Providing small drainages through the embankment may promote the river to continue to confront the railroad embankment rather than encourage surface water under the main bridge structure, defeating the purpose of the spurs.

For the Boundary Slough Bridges, why were large 2.5:1 riprap blankets shown adjacent to the abutments? Is significant erosion of the channel banks expecting during flood events because of floodplain restrictions caused by the bridges and embankment?

Levee slopes, bridge abutment revetment, spurs, and guide banks were designed based on current professionally accepted and adopted design standards. Design standards included:

- US Department of Transportation Federal Highway Administration Bridge Scour and Stream Instability Countermeasures Experience, Selection, and Design Guidance, Hydraulic Engineering Circular No. 23 (HEC-23);
- U.S. Army Corps of Engineers Hydraulic Design of Flood Control Channels, Engineer Manual 1110-2-1601 (EM-1601);
- National Cooperative Highway Research Program Riprap Design Criteria, Recommended Specifications, and Quality Control (NCHRP 598);
- Alaska Department of Transportation and Public Facilities Tanana River Erosion Areas Along the Richardson Highway-Alaska (Alaska Department of Transportation and Public Facilities Tanana River Erosion Areas Along the Richardson Highway-Alaska ERDC-CRREL, February 2001).

Page 3-12 of EM-1601 states, “Riprap deterioration from debris impacts is usually more extensive on bank lines with steep slopes. Therefore riprapped slopes on streams with heavy debris loads should be no steeper than 1V on 2.5H.” NCHRP 598 reiterates these EM-1601 findings. Investigations into debris on the Tanana River indicated potential for “heavy” loading. Both the HEC-23 and Tanana River Erosion reports indicate the need for an increased factor of safety when ice and debris conditions exist. Sizing equations in both of these reports utilize the revetment slope as a variable for increasing the factor of safety.

Ultimately, it is the duty of the project design engineers to use the best available professional practices to create a scour mitigation design for the Tanana River Bridge system. Standard professional practice stipulates that the design follow these current guidelines unless significant defensible alternatives exist that could be used in their place. Given the highly dynamic and complicated nature of the braided Tanana River system, HDR engineers have deemed it necessary to follow the aforementioned guidelines for this Project.

The bridge piers for both the road and rail bridges minimize impacts to aquatic habitat by being offset from the stream thalweg and encroach only slightly within the OHW level. Since the current abutment and the western pier are approximately 138 feet apart, the new span would also have to be 138 feet to maintain the current opening and the current location of scour protection. The use of a 138-foot long bridge span would require a significant increase in the structure depth (low chord to top of tie or roadway) and also increase the pier size to something closer to that being used for the 165-foot spans on the Tanana River. These spans were recently raised to the maximum extent practicable by ARRC at the request of ADF&G to provide better access for moose to use the structures as under-crossings. The increase in span length would not only prohibit this allowance, but would also restrict navigational uses.

The guide bank cross sections SW-7.2, SW-7.3, and SW-7.4 do not appear consistent with the plan view in SW-7.1. All need to be consistent, particularly regarding OHW elevation and location, riprap extent, and filled channel location and configuration.

Figures SW-7.2, SW-7.3, and SW-7.4 have been updated to be consistent with Figure SW-7.1 and address inconsistencies related to OWH elevations, rip rap extent, and filled channel location and configuration. Please see Tab 5 showing updated SW Figures.

It remains unclear how the proposed causeway(s) and trestle(s) will be able to withstand multiple annual cycles of ice and high flows, and how all riprap and steel temporarily placed within OHW will be accounted for and removed at the end of temporary use. We recommend that all temporary structures be removed from within the limits of OHW of the main Tanana River braid plain during seasons without planned in water construction activities. If that is not feasible, then assurances will be needed from the ARRC that the structures intended to be left will be useable after a season of high water or breakup, and that leaving such structures within OHW will not cause significant changes to the bed or banks of the Tanana River.

ARRC and its contractor are focused on minimizing channel impacts by completing the work as quickly as possible, monitoring temporary infrastructure and quickly repairing any problems that may occur and/or modifying temporary structures to ensure their integrity. Removal and replacement of the temporary causeway and trestle every season would increase impacts to the Tanana River because it would lengthen the timeframe and frequency of in-water work and expand the duration of in-water disturbance activities associated with filling and excavating for seasonal installation and removal of the causeway and trestle. This includes pile driving in open water.

Minor changes to the bed and banks, including channel bed scour, will likely occur during construction of the temporary causeway and trestle. Estimates of existing condition scour suggest scour depths of 50 feet based on convergence of braid plain channels. Scour at the permanent bridge structure is calculated to be 56 feet. Construction of the temporary crossing is not expected to change the scour depths from existing or permanent conditions.

To proactively address problems that may occur, the causeway and trestle will be monitored as part of the Surface Water Pollution Prevention Plan (SWPPP) monitoring program. Formal inspections will occur, at a minimum, on a weekly basis during the open water season. ARRC will notify and coordinate with ADF&G and the USACE on any proposed repair options and methods that may be needed to help ensure the integrity of the causeway and trestle.

In order to help reduce costs, ARRC intends to reuse the materials making up the causeway and trestle. Any items that are not recovered and reused will contribute to undesirable project costs. Thus, in addition to environmental considerations, it is in the best interest of the ARRC and its contractor to ensure to the extent practicable that the causeway and trestle withstand the ice and high flow events.

The causeway and trestle will be removed as soon as the permanent bridge is functional and it is safe to do so. To the extent possible, ARRC will remove all materials used to construct the temporary structure that are visible during low flow periods and that can be safely removed. If riprap becomes too deeply buried due to scour that it cannot be located, then the material may not be recovered.

No figures or specifications were noted for the planned temporary dikes discussed in section 5.9.2 of the project description, so we are unable to concur with the request for a permit for these features at this time.

> The dimensions of isolation berms will vary based on water flow conditions at the time they are needed and will not be constructed to a pre-established length, width or height. Isolation berms and activities to construct them will be located within the 100-foot temporary disturbance zone as shown in the permit applications and will be kept as small as possible only large enough to safely protect work areas. Temporary berms for building the levee will be constructed of local in-situ river material and will be removed as soon as they are no longer needed.

The state requests that the guide bank on the southwest side of the Tanana River be designed to accommodate pedestrian access along the river bank. DNR also requests that the northeast bridge abutment along Boundary Slough be built so as not to obstruct continued pedestrian access along the northeast bank of Boundary Slough.

> The guide bank on the southwest side of the river will accommodate pedestrian access when the water level is at or below elevation 588 ft. When the water level is above 588 or at OHW (elevation 591) access along the Tanana River will be provided on the east side of Boundary Slough. The railway bridge at Boundary Slough will have a vertical clearance that varies from 11.7 ft. to 13.1 above ground surface and a horizontal clearance of 25 feet 5 inches to accommodate pedestrian access. The roadway bridge at Boundary Slough will have a vertical clearance that varies from 12.2 feet to 13.1 feet above ground surface and a horizontal clearance of 28 feet 2 inches to accommodate pedestrian access. The above referenced access-ways vary in height because of localized ground surface elevations and are located above the OHW elevation of 592 ft. See Tab 6 - Figures showing vertical and horizontal clearances for pedestrian access along the Tanana River and Boundary Slough.

Please note that any planning for compensatory mitigation that involves state land should be coordinated with the State of Alaska DNR.

> ARRC will coordinate with ADNR regarding compensatory mitigation where appropriate.

US Fish and Wildlife Service (USFWS)

A Bald Eagle nest was identified during the planning process about 840 feet from the proposed spur dikes on the left bank of the Tanana River. Since the proposed construction activities may disturb nesting eagles we recommend the applicant review our eagle permit website and contact our Regional Office for additional guidance.

> Although no construction activities are planned within the federally regulated 660 feet of the Bald Eagle nest, ARRC intends to obtain the proper permit from USFWS for the NRE Phase One Project as a precautionary measure.

What the CLOMR does not address is the benefits of floodwaters maintaining braided channel and riparian habitat function. We also recognize that ARRC would like to manage channel migration at the proposed bridge crossing, but encroaching into the active braid channel will likely decrease the braided channel width up and down river as well as promote upland vegetation encroachment into the adjacent floodplain. The bridge length should be wide enough to allow reasonable channel migration within the 100 year floodplain.

The braided channel characteristics are maintained by the influx and accumulation of sediment, debris, bed load, and ice, and the distribution of channel shear stresses. The first three items (i.e. sediment, debris, bed load, and ice) will be unaffected by the project. During large floods, the distribution of shear stresses changes upstream of the bridge (see Tab 1, Map of Shear Stress Distribution). The majority of channel migration occurs after large flood events, with the smaller channels attempt to re-establish equilibrium once sediment, bed load, and debris have been re-allocated. The average main channel braid is 600-1000 feet in width in this reach, with numerous smaller braids. The 3,300-foot bridge width is sufficient to encompass a main channel braid, several smaller braids and intervening gravel bars and islands. Engineering analysis indicates that braided channel characteristics will not be compromised by the proposed project.

Migration must be stopped at the bridge cross-section and along the east bank for the extent of the proposed levee. This is necessary to protect the bridge abutments and levee. Migration has already been halted on the east bank upstream of the project area to protect the Richardson Highway. Migration will continue unabated on the SW bank in all areas upstream and downstream of the proposed bridge crossing. The combination of continued channel migration and braid formation processes will maintain main channel habitats in a similar condition to what they are today.

The 3,300-foot bridge length that would encroach into the River can be pulled back to the right bank and have less impact on Piledriver Slough than the 4,050-foot bridge alignment. This alignment would not encroach into the Tanana River but it would impact Piledriver Slough. Rerouting Piledriver Slough is an acceptable alternative, since fish habitat in this area will likely be greatly diminished or nonexistent after the levee blocks periodic surface water inputs, effectively making this area of the Slough simply a water collection system for fish habitat downstream.

and…

It may be possible to keep the alignment out of Piledriver Slough by slowing the train slightly or engineering an approach to the bridge that can cope with additional stress caused by a slightly tighter curve radius for the rail alignment.

Piledriver Slough, throughout the reach near the bridge location, does serve as habitat for arctic grayling, but not spawning or rearing habitat for salmon. Although flood flow conditions in Piledriver will be reduced, aquatic habitat in the upper reaches of Piledriver Slough will remain fed by groundwater upwelling as they are today. Throughout the project area there has been an ongoing program to replace culvert structures with bridge structures for the enhancement of aquatic habitat. The statement that the habitat will be

diminished or non-existent after the levee is in place is not accurate. The habitat as it presently exists in defined by ground water upwelling, the volume of which is directly related to stage elevation on the Tanana River. Piledriver presently receives surface water from the Tanana during flood events when the river overflows its bank, and surface water run-off during rain events.

Though the project will shut off the surface water connection during extreme flood events as the USACE slough blocks were originally designed to do, the proposed condition will not change the typical hydrologic regime related to ground water recharge. The prevention of surface flooding from the Tanana, and the related run-off from developed properties being flooded and pollutants washed into Piledriver Slough should represent a benefit in water quality.

As the EIS was being developed, a bridge length of 2400-3600 feet in length was proposed nearly four years ago. The engineering development continued on the basis that the alignment approaching the Tanana River (from Fairbanks) would follow the upland west bank of Piledriver Slough, and then turning right at the maximum curvature possible to cross the Tanana River braid plain at nearly a right angle (consistent with MM 31) immediately downstream of a prevalent island (locally known as “Pig Island”). The degree of separation between Piledriver Slough and the approaches is a function of bridge height; the roadbed is climbing from general flood plain elevation to nearly 30 feet in the air to cross the bridge structure; and the desire to leave a 100-foot vegetated buffer along Piledriver Slough (STB MM#33).

It was established early in the process that the Tanana River Bridge will have to accommodate both railway and roadway vehicles, and the least environmentally damaging means of doing this would be the design of a single structure for both. Research did not provide any other contemporary examples where this concept has even been attempted for freight railroads. Considerations of the climate and operating environment have lead to the development of an unusually complex fixed deck arrangement. For roadway vehicles to enter the bridge, they must approach the bridge along the railroad approach which is accomplished through a grade crossing approximately 200-feet long on either end of the bridge.

Considerations for navigation required that ARRC provide a structure as high as possible, and the need to make span length as long as possible in order to reduce the number of piers in the water have resulted in a structure which cannot withstand lateral forces resulting from a horizontally or vertically curved railroad track.

The American Railway Engineering and Maintenance Association (AREMA) recommended practice, and subsequent enforcement regulations by the FRA, dictate the amount of superelevation required for curves, with upper limits for extreme cases. The design of the project has resulted in the maximum amount of curvature being 1°30’ (radius 3820-feet). Additionally, a vertical curve is required to connect the flat grade across the bridge with the gradient along pile driver slough approaching the bridge. It is not possible to properly install the required 200-foot grade crossing off the end of the bridge within the limits of the vertical curve. Furthermore, AREMA specifically

recommends against placing vertical curves within the limits of spiral curves, requiring additional tangent to fit the alignment in place.

The gradient along Piledriver Slough to reach the bridge elevation is limited to 1 percent. The vertical curve required to connect this grade would be 1400 feet in length such that the spiral curve for the approach curve, when constructed off the end of the grade crossing, could not start until 1600 feet from the end of the bridge. This resulted in a maximum bridge length over the braid plain of only 2300 feet.

ARRC investigated leaving the approach curve at the bridge elevation through the approach curve, thereby reducing the required tangent length between the curve and the bridge such that the bridge could be extended. However, this resulted in the grade not meeting the elevations required to cross Piledriver Slough and the Old Richardson Highway before the approach gradient. A hybrid solution was developed where the gradient between the Piledriver Slough bridge and the Tanana Bridge was optimized to about ½ percent. This reduced the vertical curve off the Tanana Bridge to only 700 feet. The bridge length was increased to 3000 feet, which would encroach 500 feet on the east side of the braid plain. These concepts were presented at meetings with ADF&G, USACE, and ADNR during several meetings in September of 2009.

Based upon feedback in the meeting that braid plain encroachment was undesirable, and recent field data demonstrating the extent to which the Tanana River was moving as a result of the 2008 flood event, ARRC revisited the issue and made several changes to reduce the impacts. First, the approach curve was modified so that the crossing of the braid plain was slightly skewed (approx. 10°), and moved upstream 200-600 feet. This allowed for the bridge to be lengthened 300 feet. More importantly, it has allowed for the east abutment construction to be completed on the prevalent Pig Island. The result is that despite the abutment remaining 550 feet from the east bank, the braid plain portion is only 250-300 feet in length, the remainder being on the upland portion of the island. This change was presented during a meeting with USACE, USF&W, ADNR, ADF&G, and EPA on March 3, 2010. The only remaining option would be to significantly impact Piledriver Slough.

Additionally, there is no practical location to which Piledriver Slough can be moved. As proposed, Piledriver will exist between the railroad and the Old Richardson Highway. With the railroad and the roadway bounded by private residences, there is no place to move it without significant effects on private property, and the relocation would represent an impact that would not otherwise be justified.

ARRC has already committed to an additional project cost of $14 million by relocating the bridge upstream of the originally proposed location. In doing so, ARRC has reduced the east bank impacts by nearly 50% through incorporating Pig Island as the east abutment location. What ARRC has proposed is consistent with the EIS, and has been further refined to minimize impacts even further.

To be consistent with Executive Order 11988, we recommend that the bridge length be extended across much if not all, the floodplain toward Beebee Slough.

> As presently defined by the Federal Emergency Management Agency (FEMA), the first 25-miles of the NRE project (including the proposed Tanana River Crossing), is within the 100-year floodplain. It is ***not feasible*** to avoid it, nor practicable to construct a bridge structure for the entire length.
>
> Notably, EO 11988 does not required bridges in floodplains to fully span the floodplain. Consistent with EO 11988, ARRC has considered alternatives to avoid adverse effects and incompatible development in the floodplains, and has undertaken all necessary studies to ensure the bridge will minimize potential harm to or within the floodplain. Constructing a bridge that would span the right bank of the Tanana River to the left bank of Beebee Slough would extend the bridge length by approximately 4,900 feet, requiring 10 additional bridge piers and corresponding 165-foot-long bridge spans. This would cost approximately $70 million to design and construct. Such a cost-prohibitive option is by definition, impracticable.

Our recommendation [is] to avoid placing fill in the isolated channel (e.g. Figure LV-5.0.1in the August 2010 Project Description). Parts of the Tanana River bed isolated from the River by the Flood Control Project, such as the groin cell at South Cushman Street in Fairbanks have become excellent shorebird stopover habitat with clear shallow water.

> Though no specific plans for filling this area have been made, this area had originally been considered to be filled to be conservative in the representation of impacts. Per your request, the project design has been modified to avoid placing fill behind the levee that is not associated with the access road and northeast rail approach. This will decrease overall impacts to the Tanana River by 7.5 acres.

A practicable alternative to routing Tom Bear Trail down the middle of a Tanana River Channel exists on the uplands only a few feet to the east on the right bank. This would add about 600 feet to the bimodal portion of the combined rail and motorized vehicle portion of the project.

> ARRC examined locating Tom Bear Trail on the uplands of the right bank. The height of the fill required to reach the bridge elevation above the Tanana River is such that the entire properties would have to be acquired (and the residents relocated). Private property owners (C. Bradbury and Zehner) were not willing to sell their properties. In fact, the Bradbury site has another displaced land owner moving their residence to that location. While ARRC might in theory attempt to acquire these properties through legal condemnation, its weak eminent domain powers leave it legally unable to proceed with private property condemnation where other options exist. The proposed Tom Bear Trail access road prevents any additional private property impacts and allows those private properties that would otherwise be impacted to be maintained by their current owners.

If the [southwest] embankment is constructed as proposed, we recommend extending the bimodal portion of the project to at least past Beebee Slough. This would eliminate two redundant slough crossings (Boundary and Beebee Slough) required by a separate motorized-vehicle road along side the rail road.

ARRC has chosen a bimodal arrangement for the main channel crossing of the Tanana River based on technical, practicability, and environmental considerations primarily related to scour and debris flow. The conditions of the Tanana River in this general location, specifically related to surface water conditions, combined with the design requirements related to scour, debris, and lateral forces, significantly contributed to the decision to use a bimodal bridge.

Extending the shared running surface to Beebee Slough is highly undesirable. As discussed above, federally-mandated traffic control systems would have to be specially designed, and their maintenance and operation would be labor and resource intensive. Further, such traffic control systems are unproven in subarctic environments and pose a concern for the overall safe operation of the railroad. For safety reasons, a shared running surface should therefore generally be avoided, and the extension from the Tanana River beyond Beebee slough infeasible.

Southwest Drainages 1 and 2 will be blocked by the proposed southwest embankment (Figure SW6.0 in the August 2010 Project Description). We recommend providing culverts for these two drainages.

The Southwest Drainages 1 and 2 (Figure SW 6.0) are relict channels that are classified as jurisdictional wetlands (not a waterway), and they do not convey surface water flow under normal seasonal flow conditions. As such, installing culverts in these locations would do little to maintain surface water connectivity. See ADNR response above for further discussion.

We appreciate ARRC's recent effort to locate and use an off-channel material site and recommend an off-channel site be used as a material source for the project.

Based on agency comments and concerns, the NRE Phase One Project has been modified to remove the in-river material source area from the project and reduce impacts. ARRC is investigating upland locations on both the northeast and southwest sides of the Tanana River. In a meeting on November 9, 2010, ARRC presented the USACE, USFWS, ADNR and ADF&G with draft figures (see Tab 4) for consideration and comment. ARRC is prepared to move forward with permitting these locations as material sources provided the resource agencies agree in concept to these locations in lieu of an in-river material source.

The Service recommends that clearing, excavation and fill activities in potentially suitable nesting habitats be completed prior to May 1 or after July 15 to avoid impacts to breeding migratory birds.

> The NRE Phase One Project will conduct clearing activities in accordance with this recommendation. Once the vegetation has been cleared, no suitable nesting habitat would remain, thereby removing any restrictions for excavation and fill activities.

Based on comments like, "the Piledriver 36 inch diameter culvert (Figures NE 1.8 – NE 1.9) is not located with a jurisdictional wetland. The Service finds it hard to believe that a slough requiring a culvert is not also a wetland. We also believe that ADF&G has walked the southwest "upland" and observed numerous small sloughs that are likely wetlands that have not been included in the current delineation.

> A preliminary jurisdictional determination based on field data collected by Professional Wetland Scientists determined that the drainage for the 36-inch culvert did not meet the three parameters (soil, vegetation and hydrology) needed for this area to qualify as a jurisdictional wetland. A drainage culvert is being placed at this location only for the purpose to convey seasonal surface water run-off.

The Service requests that we be consulted during the design, credit evaluation and acceptance of any Permittee-responsible projects.

> ARRC will coordinate with USFWS during the design, credit evaluation and acceptance of any Permittee-responsible projects at the direction of the USACE.

Environmental Protection Agency (EPA)

The precise acreage of waters of the U.S., including wetlands, to be impacted by the footprint of the proposed project is unclear, due to a discrepancy in the figures provided. The Public Notice indicates there would be 145.5 acres of permanent and 21.5 acres of temporary impacts, whereas the applicant's Table of Wetland Impacts states there would be 58 acres of permanent and 109.1 acres of temporary impacts.

> This was a clerical error in the contained with the Public Notice. Please note that as a result of recent design refinements and completion of the 90% design, a reevaluation of permanent and temporary impacts wetlands and waters has been completed. Based on these design refinements, overall wetland impacts have been further reduced to 43.5 acres of permanent impacts and 16 acres of temporary impacts. See Tab 7: Wetland Impact Maps.

The proposed 3,300-foot long bridge, 11,065-foot long levee and solid fill rail embankment on the left bank associated with both Phase 1 and 3, would constrict this flood zone by approximately 86%. The constriction of the flood zone would impound water behind the solid fill and increase velocity beneath the bridge (from 8 fps to ~10fps which) a 25% increase in velocity. The contraction and pier scour would likely result in deepening of the main channels and head-cuts that propagate upstream.

Although the comment did not specify where the 86% figure came from, we assume that it represents the decrease in width between the approximate Zone A mapped by FEMA and the proposed bridge opening. The FEMA Zone A was not based on a hydraulic model or flood observations, but on aerial photography interpretation of vegetation and topographic features. Although the definition of "floodplain" can encompass many things, this comment seems to focus on the capacity of the floodplain to convey floodwaters.

Hydraulic models were developed for this reach with the specific aim of calculating the amount of flow that leaves the main channel during flood events and is conveyed by the floodplain and side channel sloughs. Approximately 96% of the 100-year flood is conveyed in the 3,600-ft wide main channel under existing conditions, and 97% of the 2-year flood. Approximately 90% of the 100-year flood is conveyed in the 3,300 feet spanned by the proposed bridge and the 280 feet spanned by the slough bridges. The forested floodplain itself conveys very little water downstream. In terms of conveyance, the project only constricts the 100-year floodplain by about 10%.

The permit application provided constitutes Phase 1 of the project only. It is recognized that future project phases 2 and 3 also traverse the flood plain. However, these areas are not areas of primary conveyance and generally represent flood water storage areas. As the designs progress through those areas, the effects, avoidance of impacts, and the mitigation of those effects will be considered.

The bridge piers have been designed to shed woody debris as it is transported by the Tanana River. However, to be conservative, ARRC has analyzed the extremely unlikely event that debris may accumulate on bridge piers during an extreme flood event (100-year return period, or 1% probability), and some cannot be safely removed until the flood has receded. Debris accumulations on half of the piers would block an additional 25% of the channel were modeled as the design scenario.

Under this design scenario, water upstream of the bridge would be slowed, but not impounded (i.e., floodwaters would still be moving downstream). Maximum modeled velocity through the bridge site during this extreme event would increase from 9 ft/s under the existing condition to 12 ft/s in the main channels. It should be noted that velocities of 12 ft/s are not uncommon through this reach of the Tanana and modeled in other parts of the main channel under both existing and proposed conditions.

Contraction and pier scour are anticipated to deepen the main channel underneath the bridge during flood events. Channels deepen during higher flows in the summer, and become shallower in the fall when flow recedes. This has been seen on all bridges over glacial rivers monitored by the USGS Bridge Scour Program (Conaway,

http://ak.water.usgs.gov/usgs_scour/index.php?siteId=7&pageId=2). Therefore, there will be no meaningful impact resulting from the bridge structure on channel scour, deposition, or morphology within the braid plain.

Upstream head-cutting is limited by two factors – the first is the distribution of shear stress upstream, the second is the backfilling of the scour holes while the sediment-charged floodwaters recede. During the 100-year flood, modeled shear stresses upstream of the bridge are competent to move over 50-80% of the size classes in the sediment load (See Tab 1, Maps of Shear Stress Distribution). This is lower than shear stresses under the bridge, which are higher than necessary to move all of the existing sediment size classes. Scour typically occurs when shear stresses are over competent to move all size classes. It is important to note that this is a fixed bed model – shear stresses, thus scour and deposition, are distributed spatially throughout the braid plain of the Tanana, and also change seasonally as channels shift and new bars are deposited.

The main channels would be destabilized, and naturally-occurring lateral channel migration would be substantially altered. Outside of the main channels, the impoundment of water would cause sediment to drop out. Side channels and sloughs now providing shallow, low velocity refugia for fish spawning, rearing and overwintering would disappear at the site and possibly for some distance upstream and downstream because of the combined effect of impoundment and scour.

Since 2008, the main channels in the Tanana have continued to shift from one side of the braid plain to the other and back. This suggests that there is little in the way of channel stability under the existing conditions, which is typical of any braided river. This is because there is a heavy influx of sediment, debris, and ice, and seasonally variable flow. The river is continually scouring and depositing sediment in complex micro-environments within the braid plain. The distribution of shear stresses determines where sediment accumulation and scour are likely to occur. These were modeled for the 2, 10, 50, and 100-year return intervals, for existing and proposed conditions. Although the distribution of stresses changes under proposed conditions at the 100-year flood level (less during more frequent events), a range of depositional and scour conditions are would still be present across the braid plain (see Tab 1 maps). Thus, it is anticipated that the main channel will continue to migrate upstream and downstream of the bridge, and within the 3,300-foot opening created by the bridge.

Naturally-occurring lateral channel migration would be altered for the area of the footprint of the levee. This is an unavoidable impact that is necessary to protect the bridge abutment from the effects of surface water flooding or damage that could be caused by ice sour. The channel will continue to migrate naturally upstream and downstream of the levee, and toward the SW bank upstream and downstream of the bridge abutment. This project feature does have the benefit of protecting the existing development on the east bank, and significantly attenuating the frequent flood events in the immediate area.

Side channels include stable floodplain sloughs (Beebee, Boundary, and Piledriver) and small channels at the margins of the main braid plain that persist for a few seasons or a few years until the braid plain is rearranged. The project will alter flow in and access to

Piledriver Slough during flood events as the existing USACE flood control project was designed. However, the proposed river training structures will have little effect on Boundary or Beebee Sloughs or the presence of ephemeral side channels. During frequent events, such as the 2-year flood, the project will not affect flow into Beebee and Boundary Sloughs, nor will it affect shear stresses (the ability of the river to transport sediment) at the confluence of these sloughs with the main Tanana River. During the 100-year flood, under the design scenario with debris accumulated on half of the bridge piers, there will be a slight increase in water surface elevation at the confluence of Boundary Slough and the main Tanana, and flows into the sloughs will increase. The distribution of velocities in these sloughs will not be affected (see velocity maps), thus, there should be no affect on fish habitat upstream and downstream of the slough bridges.

Ephemeral side channels are created and destroyed by the distribution of shear stresses, debris, and ice events. Shear stress distribution is affected immediately upstream of the bridge during the 100-year flood with debris accumulations. The decrease in shear stress upstream of the bridge is conducive to the deposition of bars outside of the main channel, and thus would encourage side channel formation. Ice and debris will continue to move through the reach. Debris accumulations especially will continue to create locally complex hydraulic environments conducive to rearing, refuge, and channel avulsion.

The consequent reduction in biodiversity and extent of early successional habitats as well as spawning habitats would adversely impact the sustainability of various fisheries and would negatively affect both human use and wildlife habitat.

It is not clear why EPA believes the project would cause a reduction in biodiversity and extent of early successional habitats, as no support for this assertion is provided. The bridge over the main channel of the Tanana River will allow adult salmon and other fish species to continue to migrate past the bridge and project will not prevent juvenile rearing. The bridges over the sloughs on the southwest side of the Tanana River are designed to allow human and wildlife passage, including fish passage, to continue. This is supported by minimization of impacts to the aquatic environment by offsetting bridge piers to avoid the stream thalweg and allowing continued boat navigation. Bridges that will be constructed sufficient height (greater than 10-12 feet) to allow for boat, moose and other wildlife passage.

The wide braid plain and channel morphology at this location increase the risk that the bridge will capture woody debris and increase ice jamming.

Woody debris and ice are prevalent through the entire project area irrespective of project location. A Debris Analysis and an Ice Analysis (see Tab 8) were completed for the NRE Phase 1 project and a discussion of the modeling and results were provided to both USACE and EPA along with the other permit application materials. The results from both of these reports have been used to the design the project to decrease the risk associated with the capture of woody debris and ice jamming. As a matter of design conservatism, and to be consistent with applicable FEMA guidelines required for the requisite flood plain permit, we have designed the project for the highly unusual event of a 100-year flood

event occurring in conjunction with a high debris loading on the bridge structure. This represents a rare and temporary condition that would be corrected through maintenance activities.

In addition to increasing flow velocity, the channel constriction is also predicted to increase the river's stage elevation. The proposed levee is intended to mitigate the affect of this stage increase on the community of Salcha. Salcha currently experiences nearly annual flooding from groundwater upwelling during high river states and overbank flow when ice jams form. The levee may reduce overbank flooding and stabilize the right bank of the Tanana River but it will not reduce flooding from ground water upwelling. The stage increase caused by the project may actually lead to increased groundwater upwelling (in Salcha).

Under existing normal flow conditions (flows contained within banks), localized depressions tend to fill with groundwater flows. Once flows exceed top of bank elevations, the rate at which water can be freely transmitted overland and through the Piledriver Slough channel (1-4 ft/s) vastly exceeds the spreading rate of subsurface flows away from the river (0.01 ft/s). Thus, once the river is out of bank, groundwater upwelling no longer contributes significantly to inundation.

Under proposed conditions, elevated water levels will be contained on the river side of the levee. We agree that 'groundwater upwelling' will occur because of the high hydraulic conductivity of the sands and gravels used to build the levee and in the ground beneath the levee. While elevated river flows would tend to cause upwelling (and inundation) on the land side of the levee, the levee prevents floodwaters from spilling freely over the top of bank and prevents Tanana River flows from directly entering Piledriver Slough.

Groundwater modeling was performed in support of the inundation mapping for areas landward of the levee. While our modeling confirms that some upwelling would occur, the net effect of the project is that inundation behind the levee is greatly reduced compared to existing conditions. The disconnection of surface water inputs to Piledriver Slough from the main Tanana River will allow the slough to serve as a conveyance for any upwelling flows and therefore not contribute to increased groundwater upwelling conditions.

The proposed filling of approximately 50 acres of channel for levee construction would:

- *eliminate fish habitat,*
- *cut off a substantial amount of flow north of the island where the proposed access road and bridge would join, and*
- *alter the interaction between surface and groundwater*

The construction of the levee will unavoidably result in the placement of fill in the river channel. ARRC has gone to great lengths to make every reasonable effort to locate the levee as far away from the active braid plain as possible. Some of the areas proposed to be filled are active braid plain. No active spawning or juvenile rearing has been observed over the past five years of environmental analysis, and the extent of the braid plain in the area of the levee does not contain habitat conducive to such activities.

The volume of flow north of the island has varied considerably over the last 80 years, from no channel and no flow to the significant amount of flow seen in 2010. The channel between the island and the east bank carried relatively little conveyance until 2009. In 2009 there was a major early season ice jam (November) in the main thalwag resulting in the braid plain changing immediately upstream of the island and producing in greater flow through the channel. Historically, this channel area has not been always been used to convey flow and the concentration of flow to the south of the island will not alter the river beyond historical natural channel constrictions (in 1938, the active braid plain was entirely under the proposed bridge and less than 3000 feet wide). This channel may no longer exist by spring of 2011 through the nature of the river system. The blockage of this channel represents a 7% unavoidable constriction of the braid plain, and an even smaller percentage of the overall channel conveyance.

As described in the CLOMR completed for FEMA, impact to the ground water condition of Piledriver Slough will be minimal. The reduction of surface water flow to Piledriver Slough as a result of constructing the levee is an unavoidable impact that is necessary to protect the northeast bridge abutment and private properties.

Geologic conditions on the southwest side of the river are similar to the northeast side of the river and there are no reasons to believe that the southwest embankment will impede prevent hyporheic flow or groundwater and surface water interactions. It should also be noted that the southwest fill embankment unavoidably impacts less than one acre (0.8 acre) of wetlands.

We also found that there was insufficient information regarding the purpose and need for the project, and requested data be provided to support project utility and need identified, to include discussion of the interest of the US Army and US Air Force, or private industry (tourism, agriculture, mining and petrochemical) to utilize the proposed service.

As already discussed, the project purpose and need is clearly supported by the military, and demonstrates that a need exists for an alternative to the existing transportation modes. In August 2002, the United States Army (USARAK) agreed that a need existed to evaluate reliable transportation alternatives to access the Tanana Flats Training Area. Subsequently, USARAK awarded the University of Alaska Fairbanks (UAF) a contract in 2003 to study potential means of transporting Stryker Combat Teams to and from the Tanana Flats Training Area. In 2004 and 2006 the ARRC received federal grant funding from the Department of Defense (DoD) to evaluate the feasibility of an extension of the ARRC system to the Delta Junction Area. In 2008 and 2009 DoD appropriated additional funding to the Northern Rail project.

On April 17, 2006, Lt. General Fraser (ALCOM) sent a letter to the STB responding to an inquiry relating to the military's need for the project. The response was positive further stating:

> *"Preliminary studies show that a rail-vehicle bridge across the Tanana River to access the Tanana Flats Training Area (TFTA) and the Donnelly Training Area*

> *(DTA) would substantially enable increased use of the area for joint military training."*

In a letter dated October 13th, 2009 from General Peter W. Chiarelli, Vice Chief of Staff to Lt. General Atkins (ALCOM), Gen. Chiarelli states:

> *"The Army position is that the Army would benefit greatly from improved rail and/or road access to the Tanana Flats and Donnelly training areas."*

On April 8, 2010 General Joseph Ralston, Supreme Allied Commander, Europe, 2000-2003, and current member of the Alaska Military Force Advocacy Structure Team (AMFAST), provided testimony to the Alaska State Legislature, Joint Armed Forces Committee, supporting the [NRE] bridge project to access the Tanana Flats training area. The military needs related to surface transportation and access are clearly defined in the 404(b)(1) evaluation and the EIS completed for the NRE Project. The existing road system does not provide access across the Tanana River, which is needed to access the Tanana Flats Training and Donnelly Training Areas. The existing transportation mode is an unreliable and arguably dangerous ice bridge during a narrow seasonal window of use that does not meet the purpose of the NRE Project to provide safe reliable access to the Tanana Flats Training Area and Donnelly Training Areas.

On December 10, 2010 ALCOM released for public scoping the Joint Pacific Range Complex (JPARC) EIS. In the materials supplied are detailed exhibits showing the proposed rail extension and proposed "Intermediate Staging Bases" at specific points along the proposed extension. The rail extension and the year-round surface access it will provide is specifically mentioned under the section titled "Proposed Enhanced Access to Ground Maneuver Space."

The speculation regarding the interest and benefit to the military regarding this project for the continued service and development of the substantial training ranges south and west of the Tanana River should not continue.

Additional support by potential users of the proposed rail service by means of written comment can be found in the EIS. Most of these advocates will not be provided service until phases 3 and 4 of the project and are beyond the scope of this phase.

We are concerned that that applicant has not fully demonstrated that the proposed project is the least environmentally damaging practicable alternative, and would not result in significant degradation to the Tanana River as required by the Guideline.

ARRC provided the 404(b)(1) analysis to USACE at the end of August 2010. USACE found the application package to be complete and moved to the public comment part of the process.

A preliminary draft 404(b)(1) Evaluation was provided to EPA on February 24, 2010 and an updated Draft 404(b)(1) Evaluation was provided to EPA on September 24, 2010, which demonstrates that, based on cost, logistics, and existing technology the proposed

project is the Least Environmentally Damaging Practicable Alternative. The updated Draft 404(b)(1) Evaluation addresses EPA's comments on the preliminary draft. To date, ARRC has not received comments from EPA on the Draft 404(b)(1) Evaluation.

EPA's legally flawed arguments concerning the purpose and need for the NRE project and the LEDPA determination are addressed in detail above.

EPA believes there may be practicable alternatives—such as crossing at Flag Hill or the Little Delta River—that would not substantially constrict the flood zone, would not require construction of a levee, and would have less adverse effect on the aquatic environment.

This comment directly contradicts formal comments made to the STB in a letter Dated February 2, 2009. In the evaluation of the EIS, EPA states:

> *"Overall, EPA believes that the ARRC preferred route represent the alternatives which cause the least impact to a variety of environmental resources, and supports the selection of these alternatives by STB as preferred alternative(s)."*

Specifically about Salcha Segment 1, Option 1 (the crossing of the Tanana River at Salcha):

> *"…EPA supports the selection of Option 1 for the Salcha Alternative Segment 1…"*

Further:

> *"EPA recommends that the STB further explain the design of the levee or, if not practical, reconsider the design of the levee to ensure that it aligns with the hydrological dynamics of the Tanana River in order to reduce maintenance and repair."*

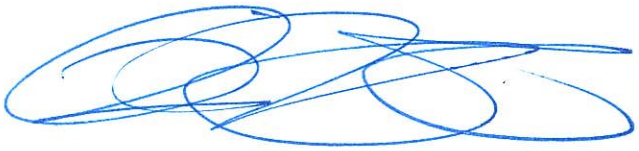
EPA has formally and clearly provided specific direction to the lead federal agency responsible for the preparation of the EIS which supports the action before the USACE. For reasons discussed in greater detail above, ARRC recommends that continued capricious comments by the same agency are without merit and should be dismissed.

ARRC believes that the information summarized herein, and subsequently re-stated and re-submitted to USACE substantially responds to all comments and concerns brought forth during the public comment period. ARRC has been exceptionally patient as the extensive and thorough environmental review was independently completed by a contingent of six federal and state agencies over a period of five years, ending with a Record of Decision January 5, 2010.

In the past several years, ARRC has expended considerable effort and resources, developing the project in a collaborative manner with those same cooperating agencies specifically based upon the findings and conclusions of the Final EIS. The application submitted is consistent with that EIS document that the Corps, as a cooperating agency, had a significant role in the development, and where ARRC did not. Further, ARRC believes the that the project as proposed complies

with the Section 404(b)(1) Guidelines and request that USACE issue a Clean Water Act (CWA) Section 404 permit for Phase 1 of the NRE project in a timely manner.

Sincerely,



Brian A. Lindamood, PE
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Alaska Railroad Corporation

Enclosures:

- Tab 1 Proposed Upland Gravel Sources
- Tab 2 Hydraulic Conditions Maps
- Tab 3 Surface Water Inundation at Benerth and Brannon Residences
- Tab 4 Topography at Southwest Bridge Abutment
- Tab 5 Updated Figures SW 7.1 thru SW 7.4
- Tab 6 Access Clearances under the Tanana River Bridge and Boundary Slough
- Tab 7 Revised Wetland Impact Maps
- Tab 8 Debris and Ice Analyses
- Tab 9 Military Support Documentation

cc: Ellen Lyons (USACE)
Thomas Brooks, PE (ARRC)
Donald J. Perrin (ADNR)