

From: Bennett, John D (DOT) johnd.bennett@alaska.gov

Subject: RE: Burma Pit Road culvert

Date: March 10, 2017 at 3:29 PM

To: Kristin Carpenter kristin@copperriver.org

Cc: Stutzke, Jeff P (DOT) jeff.stutzke@alaska.gov, Boles, Luke J (DOT) luke.boles@alaska.gov, Sakalaskas, Jason (DOT) jason.sakalaskas@alaska.gov, Adamczak, Daniel S (DOT) daniel.adamczak@alaska.gov, Marx, Elmer E (DOT) elmer.marx@alaska.gov, Knapp, Michael W (DOT) michael.knapp@alaska.gov



USGS released a new report and regression equation in 2016 that, for this area, no longer takes into account the percent of the basin area covered by forest, and the percentage occupied by lakes and ponds. The 2 percent Exceedance (Q_{50}) discharge increased from 2,310 cfs using the 2003 equation, to 3,070 cfs using the 2016 equation. A discharge of this magnitude will either require a bridge, or a long-span, corrugated steel structure that is classified as a bridge.

I found old emails and a computations sheet that size the culvert, which washed out during the 2006 flood event, as an 11-foot diameter round pipe. Also, found a damage report by DOT that stated a 14-foot diameter culvert was washed away. After reviewing the attached plans sets from previous projects, I can find no indication when an 11-foot or a 14-foot diameter culvert was installed. There may be another plan-set somewhere, or it is possible that Alyeska or DOT M&O installed the culvert(s) that washed out.

1953 Plans show the reroute of the Little Tonsina channel into its current location with no material site access road shown.

1967 As-Builts show a "Timber Bridge" label crossed out and lists two pipes: 60" and 48" with gravel road to access rock quarry

1974 As-Builts show two existing pipes of unknown size and an 72"x44"x70' Pipe Arch installed

2007 attached photo shows pipe that was transported downstream during flood event

2009 Email (below) from Dennis Gnath states that two culverts washed out

The DOT Hydraulics Section did not perform the survey, and the survey was not used to decide to use two culverts, instead of a bridge, in the 2009 draft design,. The survey was conducted by DOT Emergency Response Construction personnel in April/May of 2009 while the was still snow on the ground and ice on the stream. The survey focused more on the Richardson Highway and the access road to the material site, than the stream thalweg and cross sections. The survey was used to determine what size culverts would fit in the existing embankment. One email stated that the embankment was restored to a lower than pre-flood elevation, with both the upstream and downstream embankment foreslopes protected with riprap, to allow overtopping without loss of the access road.

The 2003 USGS Regression Equation was used to size the 2009 pipes, using the Q_{50} discharge. For Tier I fish-passage culverts, we generally design for a headwater to culvert diameter ratio of 1 ($H_w/D=1$) so the Q_{50} design discharge is at the crown of the culvert. The Burma Pit files contain computer runs of both FishPass and FishXing, so the 2009 design was likely Tier II design, as defined in the DOT/F&G MOA.

From: Kristin Carpenter [mailto:kristin@copperriver.org]

Sent: Monday, March 06, 2017 1:39 PM

To: Bennett, John D (DOT)

Subject: Burma Pit Road culvert

Subject: Burma Pit Road culverts

Hi John,

We're putting together an application to go to NOAA requesting funds for A/E work on a single lane bridge for the Burma Pit Road crossing of the Little Tonsina River. I've talked to Jason Sakalaskas and Dan Adamczak about this so they are in the loop. And Heather Hanson, from USFWS, has also talked with Elmer Marx and a woman whose name I am forgetting from Bridge Design in Juneau to ask about what would be acceptable to ADOT.

Can you tell me what size the original culvert was that got blown out in 2006? Did your group do a survey of the Little Tonsina River after the flood for the purpose of re-designing that crossing? I have a message from you from 2012 that talks about how and why you put together the replacement design from 2009 - 2010 and it seems like you must have done a survey to be able to put that design together. (I'm in the midst of making a transition from one computer to another so now I can't lay my hands on that message or I'd forward it to you. Argh.)

I'm asking about the survey because it must have been what indicated that a bridge would be more appropriate for that crossing, yes? In your 2012 e-mail you mentioned a Q50 of 2,300 cfs, I think. And Q50 is the standard design parameter for hydraulic capacity? Or are you now using a higher Q interval, Q100?

I guess what I'm asking is: when was the stream survey done? what parameters did it identify that called for a bridge rather than culverts?

thanks very much, let me know what questions you might have for me,

Kristin

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Upriver and down, salmon are common ground

From: Bennett, John D (DOT)

Sent: Friday, August 03, 2012 10:55 AM

To: Kristin Carpenter; Sakalaskas, Jason (DOT); Durst, James D (DFG); Somerville, Mark A (DFG); Hoffman, John R (DOT); Stutzke, Jeff P (DOT); Currey, Jeff L (DOT); Morris, William A (DFG); McKinley, Lee (PCO); O'Doherty, Gillian M (DFG); Bill Rice

Cc: Carey, Maureen J (DOT); Boles, Luke J (DOT); Knapp, Michael W (DOT); Alex Lai

Subject: RE: Burma Road, bridge vs. culverts

The Q50 is roughly 2,300 cfs, which is well above the normal design discharge for culverts. The only reason we designed the culverts referenced below, was an attempt to shoehorn a culvert design into the FEMA restrictions on betterments. A culvert design without those restrictions, and based on the design and the Qfish flows, would be much different. Since there are relatively shallow fills, we would probably look at a larger metal box with full invert or a concrete box, in combination with an overflow pipe(s).

Any culvert design would be classified as a bridge since the width would exceed 20 feet at centerline. This would require review or design by Statewide Hydraulics.

Basically, we have a low-priority access road, crossing a high-priority fish stream, which should be spanned with a bridge. Since this crossing is outside of the Richardson Highway right-of-way, the odds of getting funding for an actual bridge are probably very low.

From: Dennis Gnath [mailto:DGNATH@jpo.doi.gov]
Sent: Tuesday, March 10, 2009 11:07 AM
To: Kristin Smith
Cc: Durst, James D (DFG); McLean, Robert F (DFG); Somerville, Mark A (DFG)
Subject: Re: Fwd: Little Tonsina River bridge/culvert

Hi Kristin,

The Burma Road culverts across the Little Tonsina River do not provide efficient fish passage and have been a concern to the ADF&G for several years. The Alaska Department of Transportation and Public Facilities maintains the road for access to their material site, and for several local residents (Alyeska uses the road for access to a remote gate valve). In late 2005, the twin culverts blew out during a flood event. DOT abandoned the blown out culverts instream and installed two temporary arched pipes culverts (brought down from Tok) under an emergency declaration so they could continue to access their material site to complete flood damage repairs.

It is my understanding that Don Carlson, ADOT&PF Hydrologist (Northern Region - Fairbanks) completed a hydraulic evaluation of the temporary culvert structures and should have a new design "ready-to-go". The JPO is not on the State's e-mail system, so I do not have Mr. Carlson's contact information.

Thank you in advance for any assistance you may provide in moving this project forward. The ADF&G appreciates your continued interest in protecting Alaska's valuable fish resources and habitats. Regards, dg

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