Update March 27, 2020:

Hello,

We would like to share the latest developments for the South Fork Nooksack River Fish Camp (Ts'eq) Reach Integrated Design Project:

First, we hope that you are all staying safe and healthy during this COVID-19 crisis. We recognize that many members of our community are experiencing hardships during this time and we send our well wishes to each of you, we are all in this together. We are sending this update to let you know we are continuing our work on this project, with the unified goal of reducing flood risks to the Acme Community and improving salmon habitat in the lower South Fork Nooksack River.

In December and January, our design team modelled a selection of the design concepts that we shared on 11/21/19. As a refresher, you can view those design concept zones and ideas here: **Design Concept Zones & Ideas**

Through this modelling, we looked at how each of these concepts reduce flooding around the Acme Community and the hydraulic changes (decreases and increases in water surface elevations) resulting from each of the concepts. We then selected those concepts that showed the greatest flood benefit potential and combined them into three design Options and then incorporated habitat features to assess potential flood and habitat benefits simultaneously. These three design Options represent a combination of design elements that can be used to assess cumulative hydraulic effects for multiple design elements being considered in design development. Herrera is in the process of modeling the hydraulic effects of Option 1, and Options 2 and 3 will follow shortly thereafter.

Please see the attached document for a summary of these three design options, including a graphic of Option 1.

We anticipate that modelling these design options should take about one month. After it is complete, we will schedule our second public workshop (either in person or via an online platform), to solicit feedback on three design alternatives.

Please note that staff responsible for website updates have been reassigned to emergency duties, so our project website will not be up to date for the foreseeable future. We will upload the attached document when staff are reassigned. In the meantime, we will continue to send pertinent updates and materials via e-mail.

Thank you for staying engaged throughout this process and please reach out with any questions.

Whatcom County River & Flood- Paula J Harris, PE
River and Flood Manager
322 N Commercial Street, Suite 120

Bellingham, WA 98225

pharris@co.whatcom.wa.us
Phone: (360) 778-6285

Nooksack Indian Tribe- Lindsie Fratus-Thomas
Watershed Restoration Coordinator
Natural Resources Department
P.O. Box 157
Deming, WA 98244
lfratus@nooksack-nsn.gov
Phone: 360.592.5140 Ext 3135

Veda Environmental
1155 N. State St. Suite 400
Bellingham, WA 98225Phone: (360) 812-0321
hello@vedaenv.com

Summary of Design Options for Hydraulic Modeling and Analysis for Alternatives Design Development

The options described below were formed as potential solutions for addressing negative impacts from flooding in the Lower South Fork Valley (Acme) and degraded habitat that strongly limits the productivity of wild Nooksack spring Chinook salmon. The options represent a combination of design elements that can be used to assess cumulative hydraulic effects for multiple design elements being considered in the SF Nooksack Fish Camp Integrated Design Project's Alternatives Design development. Many of the concepts were brought to our Design Team at the Community Workshop that was held on June 27th, 2019 in Acme and later incorporated into our Concept Zones Handout.

The Options below should be viewed as draft design alternatives that will allow the Design Team to be prepared for questions regarding potential cumulative hydraulic effects and will help guide the development of the Design Alternatives. The design elements have not yet been adjusted or optimized to minimize flood impacts or maximize habitat benefits as this will occur after the hydraulic modeling results for Options 1-3 have been analyzed by the Design Team and reviewed by potential key landowners.

This is a working document and may be updated as we continue to conduct modeling. Any updates will be added into this document with the corresponding date that they were added.

Option 1: *See Figure 1*
Concept Zones B and C Areas
Design Elements Include:
- BNSF Trestle Rock: Remove the riprap rock located under the BNSF trestle, just south of the BNSF bridge. The rock is located on the on the south side of the river and on the east side of the BNSF trestle and is currently blocking flood conveyance under the BNSF trestle.
- BNSF Trestle Extension: Extend the BNSF trestle by removing a portion of the BNSF track fill prism and replacing it with a bridge or trestle that would increase flood conveyance and floodplain storage in this area.
- Acme Farms Levee: Remove the levee along the Acme Farms property downstream (west) of the BNSF bridge and trestle to increase flood storage and floodplain connectivity.
- SR9 Bank: Increase conveyance under the SR9/Acme bridge by setting the bank on the south side of the bridge back. The bank would be set back from just east of the south end of the bridge, under and to the west of the bridge.

- Whatcom County Box Culvert: Currently the culvert creates a grade control and causes a backwater, it also requires maintenance to remove woody debris that blocks the upstream end of the culvert. Remove the existing box culvert and associated fill located on the Whatcom County Flood Property (formally known as the Betty Lou Property).
- Acme Berm: Construct a berm between the town of Acme and the river to convey water under the SR9 bridge more efficiently and protect the town of Acme from hydraulic increases as a result of other design elements.

Habitat Features are not included in this Option so we can better evaluate the hydraulic effects of the flood-reduction design elements alone.

Option 2: *Figure to come*
Concept Zones B, C, and D
Design Elements Include*: Combine Option 1 (above) with the following additions:
- SF Park Levee (downstream of Williams Pipeline): Remove a portion of the riprap rock levee along Whatcom County's South Fork Park to reduce pressure on the left bank and increase floodplain storage and connectivity. The removal would begin approximately 160' downstream from the Williams Pipeline to ensure continued protection of the pipeline.
- SF Park Levee (upstream of Williams Pipeline): Lower the SF Park levee upstream of Williams pipeline to allow water to over-top during floods, increasing flood storage and floodplain connectivity.
- Add habitat features including: small habitat engineered log jams (ELJ's) in and along the channel in the Acme Farms/BNSF bridge area, along the riprap rock along the BNSF railway south of the bridge, and along SR9 (river mile (RM) 7.3-8.4), add wood to roughen and increase habitat diversity to the riprap rock upstream of the BNSF bridge on the right bank side of the river (north/east) (RM 7.7-8.4), strategically place ELJ's to create deep pools throughout the project area (RM 7.4-9.6).

*Design Elements may be modified after reviewing the Option 1 hydraulic modeling results.

Option 3: *Figure to come*
Concept Zones B, C, and D
Design Elements Include*: Combine Option 2 (above) with the following additions:
- Rothenbuhler Fish Pond: Remove the downstream portion of the Rothenbuhler fish pond to increase flood storage capacity and reconnect the historical active channel that continues onto the Whatcom Land Trust (WLT)property.
- Habitat features included in Option 2 with the additional: Add wood to roughen and increase habitat diversity to the riprap rock along the SF Park levee upstream of the Williams Pipeline, add ELJ's and excavate pilot channels within the left bank floodplain on the WLT property, add in-stream ELJ's with placement similar to the Tribe's Downstream of Hutchinson Project to create deep pools and habitat diversity within the reach from RM 9-9.2.

Figure 1: Map of Concept Option 1

Concept Option 1 (3/2020)

South Fork Nooksack River Fish Camp Restoration Project.
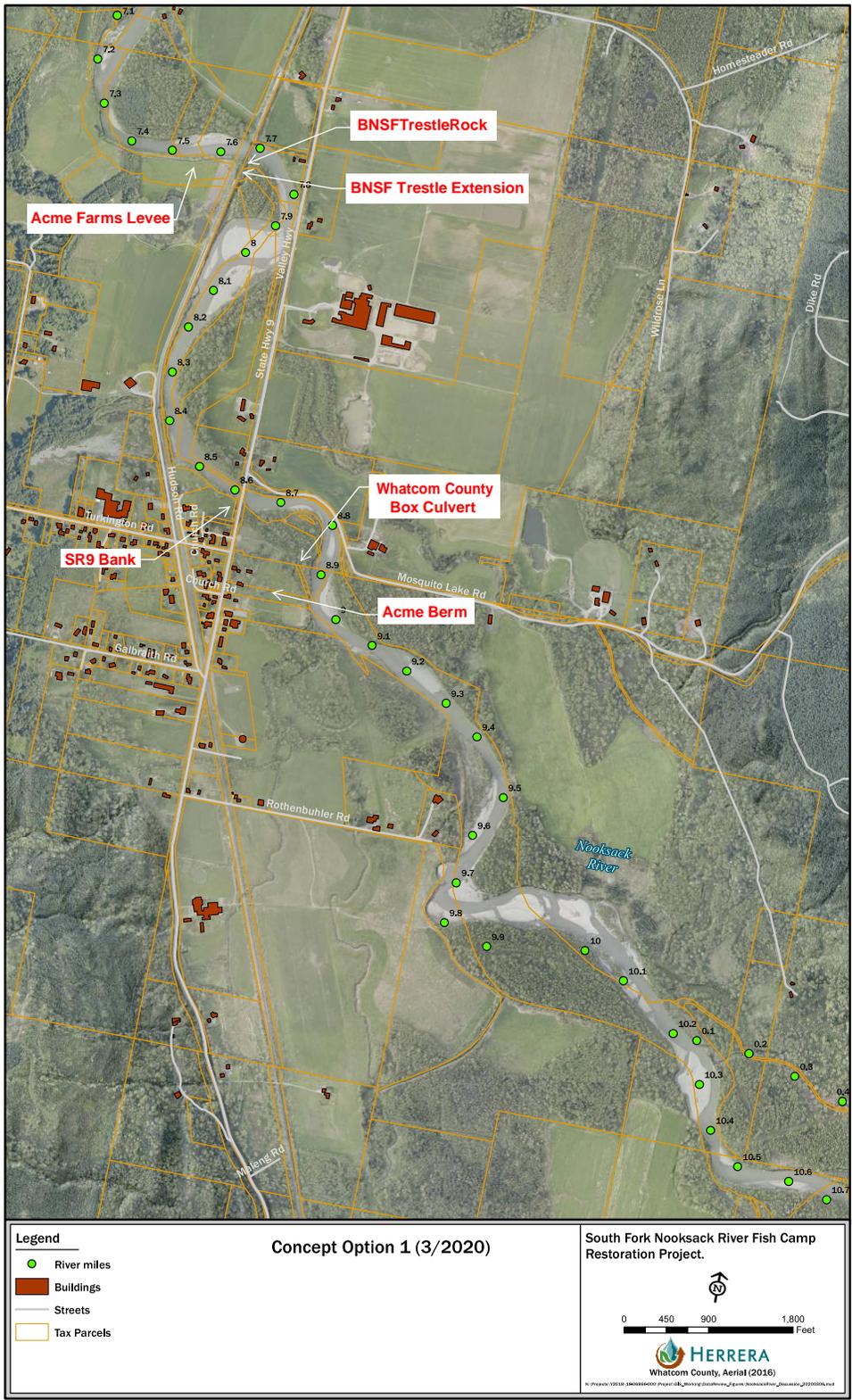
* Maps of Concept Option 2 & Concept Option 3 will be added as soon as they are finalized