

To: Kristine Hilt (Blaine County Floodplain Manager)

From: Jeff Loomis, PE (Blaine County Engineer)

Date: July 30, 2022

RE: **106 West Channel Lane (Skjonsby) SAP – County Engineer Comments**

Kristine –

Per your request, I have reviewed the Skjonsby Stream Alteration Permit (SAP) application documents you provided, which are submitted by Brockway Engineering, PLLC and Lawson Laski Clark, PLLC, for 106 West Channel Lane on the Big Wood River. Documents reviewed include:

- A Blaine County Stream Alteration Permit application form dated May 17, 2022
- A Joint Application for Permits to USACE, IDWR, and IDL dated May 25, 2022;
- A “No-Rise Certification”, dated May 25, 2022, from Charles G. Brockway, Ph.D, PE, with supporting HEC-RAS modeling output summary data and cross-sections illustrations;
- A “No Adverse Impact Statement,” dated May 25, 2022, from Charles G. Brockway, Ph.D, PE dated May 25, 2022, and;
- A project narrative and permit exhibits from Brockway Engineering detailing the proposed project work.
- Correspondence from James R. Laski (Lawson Laski Clark, PLLC) stating the project site’s existing lawn is an existing, nonconforming use established prior to Blaine County’s riparian setback requirements. This correspondence references the 2003 *Smith vs. City of Ketchum*, Blaine County Case CV-02-08795 decision as clarification that Idaho law does not allow new application [approvals] to be conditioned upon removal of all or part of an existing nonconforming use, unless such a nonconforming use is determined a public or private nuisance.

Following are my comments from reviewing these documents.

PROJECT STATED OBJECTIVES

The project narrative indicates this project site, although located on a “relatively straight” river channel with “no severe high velocity impinging on the west bank,” experienced erosion during the 2017 flood event “ranging from minor to a severe bank undercut and scour hole that is threatening a mature cottonwood tree.” This narrative continues....“Without stabilization measures the bank will continue to erode and the cottonwood tree will fall, causing unknown shifts in the flow pattern.” The narrative also identifies “legacy” riprap at the north end of the project site in need of revegetation “to stabilize and enhance the riparian value at that location. As a result of this project site assessment, this application proposes to:

- Stabilize approximately 90- to 100-feet of streambank identified as prone to further undercutting and bank loss;
- Address the existing severely undercut bank at the cottonwood tree, and;
- Selective revegetation of approximately 55-linear feet of existing ripped streambank.

County Engineer’s Comments:

While I agree this project site is currently located on a “relatively straight” channel as presented in the project narrative, I have a slightly different assessment of the project site location regarding the threat of erosion the project site streambank might receive during spring runoff events. Upstream from this project site, the Big Wood River experiences a split-flow scenario. While recent main river channel flow has changed from the east channel to the west channel, essentially “straightening” the main river channel flow, this project location is still located just downstream of where the two channels come



together, and where this main channel appears to be associated with the outside of an existing, slight meander, or where the river might want to form a more pronounced meander. Such locations on the Big Wood River are historically susceptible to streambank erosion, and sometimes avulsion, during spring runoff events, and the erosion experienced in 2017 supports this observation. The development of such a meander would be problematic for existing residences and the need to pass the river under the East Fork Road bridge, located approximately 450 feet downstream of this project site. Also, the application's hydraulic modeling summary data indicates flow velocities of approximately 8.5 feet per second at the project location. Such flow velocities have been observed to cause streambank erosion on the Big Wood Rive, especially on steeper, primarily cobble, gravel and sand streambanks without established riparian vegetation, and again, the erosion experienced in 2017 supports this observation. Therefore, for the above contributing factors, I believe this project site is susceptible to the continued erosion during spring runoff events as stated in the project narrative.

While addressing the severe undercut streambank at the existing mature cottonwood tree might buy some time for that tree to remain standing, the project narrative is not clear in stating that the proposed work at this location is a long-term solution to the apparent concerns regarding "unknown shifts in the flow pattern" associated with the inevitable fall of that tree. Without such consideration of a longer-term solution, a future permit application seems unavoidable with the fall of that tree.

The "legacy" riprapped streambank appears to be stabilized from at least up to the erosive forces experienced in 2017. Improvements to the riparian habitat around and within such existing stabilization measures is encouraged.

PROJECT SUMMARY

This application indicates a streambank stabilization and riparian habitat enhancement proposal for approximately 180 total linear feet of streambank. This total project length includes:

- Approximately 90- to 100-linear feet of reconstructed cut bank utilizing the installation of 18"-24" diameter toe logs with incorporated root balls, reconstructed and matting-protected 2.5:1 streambank slopes revegetated with native riparian grasses above the ordinary high water mark and riparian woody shrub plantings near the streambank toe.
- Approximately 35 linear feet of 12" to 24" rock scour fill around and under the existing cottonwood tree extending from the top of the existing cut bank approximately 5- to 6-foot waterward, planted with riparian woody shrubs, and chinked with a sand, gravel and cobble mix
- Approximately 55 linear feet of selective revegetation of existing riprapped streambank by temporarily removing individual riprap stones to plant riparian woody shrubs below the ordinary high water mark and around remaining stones, replacing the temporarily removed stones, and then chinking the riprapped streambank with a sand, gravel and cobble mix.

Construction materials volumes to be placed below the ordinary high water mark are estimated in the application to be:

- Angular stone (i.e. 12"-24" rock) = 16 cubic yards
- Bank re-grade fill (i.e. cobble and gravel, native or imported) = 25 cubic yards
- Granular fill (i.e. "chinking") = 6 cubic yards
- Woody material (i.e. 18" to 24" diameter toe logs and root wads) = 12 cubic yards

County Engineer's Comments:

The existing cut bank is approximately 7.5' high for most of the streambank reconstruction portion of the proposed work. Therefore, the proposed 2.5:1 constructed streambank slope represents approximately 19-feet of reconstructed streambank waterward of the existing top of bank. The toe log installation appears to be a simple bury of the log at the streambank toe with no additional anchoring or ballast. A similar streambank stabilization technique was implemented recently just upstream from the SH75 bridge near St. Luke's Hospital (Vanoff-Grossman SAP, 2020). This installation also implemented toe logs, but with log and root wad structures on top of the toe logs. As can be seen in the Photo 1 below, this installation included the plantings above the ordinary high water mark, but did not include the riparian woody shrub plantings near the toe.

Photo 1: Similar to Proposed Streambank Reconstruction and Stabilization on Big Wood River



The scour fill proposes a reconstructed slope of approximately 0.8:1. I understand the intent is to fill in the existing scour, again about 7.5-feet high from top of the existing bank, and match the existing slopes in the immediate area of the existing cottonwood tree. This proposed fill results in a reconstructed streambank approximately 6-feet waterward of the existing top of bank. The new streambank is mostly below the ordinary high water mark, and will be revegetated with willow cuttings. Streambank stabilization associated with this technique relies heavily on the establishment of the riparian woody shrubs and a continued lack of scour at the streambank toe. As noted in the review of the project objectives, the anticipated eventual fall of the existing cottonwood tree may expose a new and unstable cut bank, but also as noted, the actual outcome of a fallen cottonwood is unknown.

A (Improvements to the riparian habitat around and within the existing riprapped streambank is encouraged.) The proposed revegetation effort is typically successful when the plantings are placed to extend below low water surface elevations, the sand, gravel and cobble mix is tamped-in to fill inter-spatial voids providing a sufficient growing medium for the plantings, and the plantings are left untrimmed to grow to full anticipated height.

The construction materials estimated volumes appear appropriate to the drawings provided with the application. Planting quantities are not available for review, since a detailed revegetation plan is not included with the application. The application states such a plan will be prepared as part of the construction documents.

BLAINE COUNTY SAP STANDARDS OF EVALUATION

County Engineer's Comments:

1. No other agencies permit authorizations or Joint Application reviews were made available for review.

The application identifies construction is anticipated to be completed from on top of the streambank and during low flow periods, but does not specify that the project will install temporary coffer dams to complete work "in-the-dry." The application notes anticipated turbidity monitoring and turbidity increases associated with the project's construction. However, this review notes this project is subject to compliance with Idaho DEQ water quality monitoring and mitigation requirements specific to the Big Wood River. Specifically, Tier II Protection water body recognizing if an authorized project causes a visible sediment plume on the Big Wood River, then turbidity monitoring is required. Monitoring requirements are that turbidity shall not exceed background turbidity by more than 50 NTUs instantaneously, or more than 25 NTUs for more than 10 consecutive days.

2. Blaine County Code requires a statement to address potential beneficial and adverse impacts of the project, including the areas upstream, downstream and across the stream. In addition, the application shall include a written statement by a licensed engineer that the project will have no adverse impact or that such impacts have been identified and mitigated to the maximum extent feasible. The project objectives address the potential beneficial impacts of the project, and Charles G. Brockway, Ph.D, PE has included the following "no-adverse impact" statement with this application:

"The Skjonsby bank stabilization project as designed will not cause deleterious impacts in terms of any quantifiable pertinent parameter contained in the code. There will be no effect on flood peaks, flood stage, or water quality. There will be no effect on flood velocity excepting possible local changes in immediate vicinity of bank toe. There will be no deleterious effects in terms of erosion and sedimentation."

With Blaine County SAP permit authorization subject to all conditions of approval determined by the Blaine County Board of Commissioners including approved construction plans and specifications, I do not identify any additional potential adverse impacts beyond those identified in the statement by Dr. Brockway.

3. Blaine County Code prohibits placing an encroachment, structure, fill, deposit, obstruction, storage of materials or equipment in the floodway, unless certification by a registered engineer is provided and accepted by the County Engineer, demonstrating that encroachments shall not

result in any increase in flood levels during the occurrence of the 100-year flood discharge. In addition, FEMA's "no-rise" certification requires the County must have a record of the engineering analysis supporting the "no-rise" certification.

Charles G. Brockway, Ph.D, PE has included a "no-rise" certification statement and summary of site-specific measurements and calculations supporting this statement. Upon completion of the project per approved construction plans and specifications, this "no-rise" certification indicates 100-year flood levels during the occurrence of the 100-year flood discharge in compliance with FEMA's "no-rise" certification procedures.

4. The scope of this review does not include comments regarding the policies or purposes of the Floodplain Management District and the Stream Alteration Permit program.
5. This scope of this review does not include comments regarding "local public interests" as identified in this Standard of Evaluation.
6. This application identifies extraordinary circumstance "e" ("If severe erosion or severe sedimentation of land is threatened") as applicable to possible favoring the authorization of this stream alteration permit. While I do not disagree land associated with this application is threatened by potential erosion, the extraordinary circumstances identified in this Standard of Evaluation appear more applicable to emergency stream alteration permit reviews, that is, and with regards to "e," when active severe erosion is threatening land.

Please let me know if you have questions regarding my review of this SAP application.

JEFF LOOMIS, PE
Blaine County Engineer

