MEMO

State of Idaho
Department of Water Resources
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To: IDWR Stream Channel Protection Staff

From: Tim Luke, Water Compliance Bureau Chief TJL

Copy: Mat Weaver, P. E., Deputy Director, Idaho Department of Water Resources
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Subject: Processing Joint Applications for Permit Proposing Beaver Dam Analogs and Post Assisted Log Structures.

Purpose of Memo

This memo directs Idaho Department of Water Resources ("IDWR") staff regarding processing of stream channel alteration permits (or Joint Applications for Permits) that propose construction or installation of Beaver Dam Analogs ("BDAs"), Post Assisted Log Structures ("PALS") or similar treatments that simulate beaver dams or beaver dam activity on perennial streams. For purposes of this memo, BDAs and PALS are collectively referred to as BDA/PAL structures. This guidance is considered temporary to address pending or new applications proposing BDA/PAL structures until IDWR develops a long-term policy for processing such applications.

Background

IDWR has received a number of Joint Applications for Permits ("Joint Applications") over the past year that proposed the installation of a series of low impact restoration structures on certain stream reaches. Some Joint Applications received by IDWR propose 15 to over 50 BDA/PAL structures over river reaches from one to several miles.

BDAs are hand-built structures that mimic beaver dams. BDAs are permeable, channel-spanning structures with a constant crest elevation, constructed with a mixture of woody debris and fill material to promote temporary ponding of water (Utah State University, 2019, 23). PALS are hand-built structures that mimic beaver activity and promote the processes of wood accumulation. PALS consist of woody material pinned together with untreated wooden posts driven into the substrate (Utah State University, 2019, 23). PALS may span channels, attach to banks, or may be located in the middle of a channel to split flow around the structure.

The construction of BDA/PAL structures may temporarily or permanently impact downstream water users. Impacts depend on the type of structures, the number of structures, the timing of construction, and the proximity of construction to downstream water users. To prevent

downstream water users from alleging injury, IDWR should permit BDA/PAL structures to ensure downstream water users are not meaningfully impacted or surprised by construction.

Guidance for Processing Joint Applications Proposing BDA/PAL Structures

To minimize potential reductions to streamflow that may be caused by BDA/PAL structures proposed by a Joint Application, IDWR staff are directed to implement the following procedures:

1. Applicants must include a detailed plan map or maps showing the location or approximate location of each proposed BDA/PAL structure. Each structure must be numbered or labeled on the map with a cross-reference list that describes the type of structure at each location, whether the structure is channel spanning, bank attached or mid-channel, and the type and volume of construction material at each structure. Cross-sectional diagrams (perpendicular to flow) of each type of structure with sufficient detail should be submitted with the application consistent with diagram requirements outlined in the Joint Application instructions.

2. Prior to permitting, applicants must measure and report the streamflow for stream reaches where they propose to install BDA/PAL structures. The purpose of measuring the stream is to establish baseline data on stream reach gains or losses before the construction of any BDA/PAL structures. Measurements should be taken by a professional engineer, professional geologist, hydrologist, or other person having at least one year of experience taking streamflow discharge measurements. Measurements must be taken at base-flow conditions during the non-irrigation season, such as late autumn or early winter. Measurements should be taken on the reach immediately above and below the series of BDA/PAL structures. Additional measurements on the stream reach or tributary sources may be necessary to account for tributary or spring source inflows or to account for diversions or other outflows from the stream reach. If an applicant experiences difficulty in obtaining timely measurements, IDWR may require, as a condition of permit approval, that measurements be submitted to and reviewed by IDWR before construction. IDWR may consider waiving the pre-permitting or pre-construction baseline measurements on a case-by-case basis. Criteria for waving the baseline measurement requirement may include, but are not limited to, the number and type of structures proposed or the proximity of structures to other water rights. IDWR may, for example, waive the requirement if the proposed structures are located in a remote headwater stream that is far removed from any downstream water rights.

3. Applicants must include calculations estimating streamflow impacts resulting from the type and number of proposed BDA/PAL structures. Estimates may be limited to structures that divert or backwater above the Mean High Water Mark (MHWM). The applicant must identify and explain all assumptions used in the calculations. Where practicable, estimates should be supported by data, including baseline measurement data identified in item 2 above.

4. Applicants must submit a list of water rights from the same stream source and the immediate downstream source to which the source is tributary. Applicants should apply judgement to the extent of rights searched on the downstream tributary source. For example, the search may be limited to a water district area or some logical stream reach rather than extend great distances downstream to the next order tributary source. Stream

Channel Protection staff should verify the information submitted for accuracy. Staff may consult with the Compliance Bureau Chief for any assistance related to the identification of water rights.

5. Generally, downstream water user concerns may increase the closer a proposed project is to their water right diversions. Applicants should seek comments or support for the proposed project from downstream holders of water rights from the same stream source and the immediate downstream source to which the source is tributary. It may be helpful for the applicant to complete the information outlined in items 2 and 3 above and advise the downstream water users of that information when soliciting comments or support. If no comments or letters of support are submitted with the application, the applicant should explain the reason for the omission. If downstream water user comments have not been solicited and staff believes downstream water use comments are warranted, then staff should seek those comments at the same time as soliciting regular comments from other potential interested parties including state agencies (IDFG and IDL) and adjacent landowners.

6. Any application that does not include the information outlined in items 1 through 5 above shall be considered incomplete and may be returned to the applicant with a notice requesting the missing information. IDWR may void the application. If the application material outlined in items 1 through 3 above is submitted and found to be complete, or if staff determines the application is otherwise complete, staff may proceed to process the application as normal. All BDA/PAL applications that staff draft for permit approval must be reviewed by the IDWR Compliance Bureau Chief before issuing a final stream alteration permit. All draft permits must include the following condition elements:

    a. Construction shall be limited to the non-irrigation season only. The non-irrigation season for any area should be consistent with the non-irrigation season found on most water rights in that area. However, the period of construction may be modified depending on the local irrigation season of use for the area, comments received by downstream water users, or justification presented by the applicant. In general, construction should usually not occur before October 1 or after April 1 of any year. IDWR may consider some limit on the number of structures that may be installed in a stream reach over a period of time depending on the location of structures, the period of construction or concerns about potential impacts to streamflow.

    b. IDWR may require the applicant to remove individual BDA/PAL structures upon receipt of one or more written complaints from downstream water users alleging that permitted BDA/PAL structures interfere with downstream water rights, and upon a site investigation and determination by IDWR staff that such structures divert or back water above the MHWM[1].

    c. IDWR should generally require post-construction streamflow measurements at the same locations where the baseline measurements were taken. Post-construction measurements should be taken within 21 days of final construction. IDWR may require one or more sets of post-construction measurements beyond the 21-day

[1] Staff may measure streamflow above and below structures to aid in this evaluation or to determine stream reach gains/losses.

period depending on the number, types, and location of proposed structures. Post-construction measurements and reporting should not extend beyond one year.

d. Include the general condition that IDWR may cancel or amend the permit when it determines such action is necessary to minimize adverse impacts on the stream channel.

REFERENCES

Utah State University Restoration Consortium, 2019. *Low-Tech Process-Based Restoration of Riverscapes Pocket Field Guide.*