Wyoming Water Strategy: Quality Assurance Guidelines for Stream Restoration

Basic Checklist and Standards

Planning

- ☐ Identify habitat loss and need
- ☐ Identify reach boundaries
- ☐ Determine land ownership and boundaries
- ☐ Contact local stakeholders
- ☐ Conduct a catchment assessment for the area upstream of the proposed reach
- ☐ Conduct an existing condition assessment of the proposed reach
- ☐ Determine restoration potential based on catchment assessment and reach existing condition
- ☐ Develop goals and measurable objectives among all stakeholders
- ☐ Evaluate and gather expertise and funding needed to develop a plan and/or design
- ☐ Determine project management roles among partners and stakeholders. It is best to have a single point person in charge of the project.
- ☐ Develop a restoration design
- ☐ Identify project phases that allow annual work to be completed and paid
- ☐ Develop a restoration timeline and schedule
- ☐ Develop a budget
- ☐ Develop short term and long term monitoring plans (preferably quantitative where applicable) that are tied to project objectives
- ☐ Develop an adaptive management strategy
- ☐ Collect quantitative baseline data
- ☐ Develop a communication plan that identifies how the project will be communicated to various audiences during various stages of implementation.

Funding

- ☐ Review Wyoming Water Strategy: River Restoration Potential Funding Sources and Contacts
- ☐ Identify funding sources with goals that overlap or are consistent with project goals
- ☐ Identify the ratios needed to meet matching requirements
- ☐ Identify in-kind values and possibilities
- ☐ Identify funding that is based on invoice reimbursement
- ☐ Chart project timeline alongside funding timelines to insure the funding meets reimbursement
- ☐ Double check federal funding nexus for permitting and budget needs
- ☐ Determine a strategy for which funding partner handles financial aspects of project management

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Permitting

- ☐ Contact U.S. Fish & Wildlife Service with Notice of Intent letter re: T&E species impacts
- ☐ Contact WY State Historic Preservation Office with Notice of Intent letter re: Historic impacts
- ☐ Contact WY Game and Fish Department for a Letter of Concurrence re: Fishery impacts
- ☐ Review FEMA restrictions
- ☐ Notify upstream and downstream neighbors
- ☐ Complete a U.S. Army Corps. Of Engineer Permit Application with concurrent submittal to the WY Dept. of Environmental Quality for a 401 Certification where applicable
- ☐ Complete a WY Dept. of Environmental Quality Turbidity Waiver Application as appropriate

Implementation

- ☐ Develop and finalize contracts
- ☐ Take “before” digital photos
- ☐ Release a Request For Proposals (RFP) to contractors (project oversight and construction)
- ☐ Prepare staging areas and access routes
- ☐ Perform project walk thru with design, oversight, and construction contractors
- ☐ Clean all equipment to prevent invasive species introduction to site
- ☐ Enact adaptive management plan
- ☐ Establish daily turbidity monitoring sites
- ☐ Construct project
- ☐ Reclaim disturbed sites
- ☐ Perform as-built project walk thru with design, oversight, and construction contractors
- ☐ Perform as-built topographic survey to document adherence to design and serve as basis for monitoring.
- ☐ Document measurable objectives and in-kind contributions
- ☐ Take “after” digital photos

Monitoring / Reporting

- ☐ Enact short term and long term monitoring plans. At a minimum, monitoring should occur following at least two bankfull flow events to evaluate structural performance, channel stability and fluvial function, resource benefits and assess attainment of objectives. Quantiative data collection is preferred where applicable
- ☐ Perform post runoff maintenance by adjusting rocks, boulders and other structural features.
- ☐ Compare with existing data and other ongoing projects
- ☐ Develop interim and final reports and share with partners and stakeholders
- ☐ Develop presentations about “what was learned” to stakeholders

- ☐ Share monitoring, adaptive management processes, and results with stream restoration community

Special Considerations for Municipalities

- ☐ Stream restoration in communities provides an opportunity to serve a broad variety of interests and make meaningful improvements to quality of life, land values, wildlife habitat, and esthetics.
- ☐ Harness the power of many by assembling a coalition representing a wide variety of interests.
- ☐ Spend lots of time early in the process discussing values and goals among the stakeholders and interested parties
- ☐ Flooding is a common challenge for communities. Understand that a river restoration project may or may not be able to alleviate issues associated with flooding.
- ☐ A common constraint in communities is having enough area along the stream that can be used to attenuate high flows, build stream meanders (beltwidth), and promote vegetation. There are more options for greater benefits if access, deed, and other easements are in place to provide greater belt width.
- ☐ Transportation and utility corridors provide common challenges in communities. Bridges or other stream crossings are often a source of issues in the stream channel.
- ☐ Stream restoration projects can be very expensive and take multiple years. The good news is there are multiple funding sources and expertise available. Be patient.
- ☐ Be thinking about long-term plans and flood control, even if short term plans can only tackle short reaches of stream.
- ☐ Develop master plans that alleviate or reduce flooding risk and begin implementing before disasters occur.
- ☐ Maintenance is commonly needed in the first year or two following a restoration project as boulders and trees and other features shift during runoff.

Special Considerations for Landowners

- ☐ Determine need, comfort, and/or confidence regarding Non-Governmental Organization and federal funding
- ☐ Ask questions to be sure you understand timelines, possible roadblocks, tax liabilities, who needs access, project duration, etc.
- ☐ Restoration work requires time for streambanks to re-grow the vegetation vital for long-term protection. Be sure you have a clear idea what type of vegetation is expected, how long it is expected to take to develop, and what the expectations are for using that vegetation.
- ☐ Determine if riparian fencing is needed
- ☐ Determine if you or others will be responsible for long-term maintenance of fencing or any other structures associated with the process

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- ☐ Your time and resources are valuable! Think about how your time or materials (trees, logs, rocks, fences, weed spraying, etc) can contribute and be reflected in the total project value. More funding from outside sources can be gathered with additional in-kind match.

- ☐ Maintenance is commonly needed in the first year or two following a restoration project as boulders and trees and other features shift during runoff.
- ☐ Communicate with upstream and downstream landowners about the proposed project. Convey the risks and benefits of the project. You may find others are willing to expand the project onto their properties resulting in greater benefits. Where possible, integrate improvements to water delivery systems with stream restoration

Special Considerations for Restoration Implementation Practitioners

- ☐ Contractors with improper equipment are one of the key failures in river restoration. Ensure they have (list various common equipment needs here)
- ☐ Manufactured block (lego block) can provide a relatively easy and inexpensive option. However, block can also disrupt sediment movement depending on how they are used.
- ☐ Wood is becoming more commonly used. Shy away from "Disney park" approaches and toward more natural approaches. A mark of a successful restoration is one in which it is difficult to tell anything was done!
- ☐ Daily construction oversight is often vital for effective projects, depending on skill and experience of construction operators.
- ☐ Additional apparent expense for experienced operators may end up saving money as they work efficiently and effectively.
- ☐ Traditional hard structures (gabion, rip-rap, etc.) should be avoided where possible. In many circumstances, "softer" approaches with combinations of wood and rock may accomplish the same objective with often less cost, enhanced fluvial function and more aesthetically pleasing.
- ☐ Know the risks associated with the project. Time spent up-front evaluating and designing a project to minimize risks increases the chance of success and acceptance by stakeholders
- ☐ Treatments are not a "one-size-fits-all". Tailor the number and types of treatments to the issue and project objectives along with consideration of any constraints, etc.