

EXECUTIVE SUMMARY

The Ausable River Association (AsRA) has developed a set of engineered design plans for a stream restoration at Project Area 13, which was identified as part of the East Branch Restoration Program and considered a top priority for implementation by the Town of Jay. AsRA coordinated the survey, design, landowner agreement, and public outreach efforts as part of the plan development. The project design would improve sediment transport, flood resilience, and instream habitat, increase riparian buffers, and protect public/private infrastructure and development along both sides of the river. AsRA met with town supervisors in Jay and Black Brook, presented the project to the Town of Jay board at a public meeting, and hosted a public information session at the Town of Jay office. We entered the towns and a landowner into a U.S. Fish and Wildlife Service Landowner Agreement and developed bid documents so that the project is shovel-ready should any funding opportunities become available.

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1. PROJECT SYNOPSIS

The Ausable River boasts forested streams, scenic views, and recreational opportunities, but such measures are deceptive as indicators of water quality or stream health. Historic land clearing, industrial operations, alterations to stream channels, and development in the floodplains of the Ausable valley altered the physical characteristics of the river, leaving it in what hydrologists consider a state of disequilibrium. As a result, in both low and high flows, sediment transport is poor in many sections, and erosion of streambanks adds thousands of tons of excess sediment to the river each year. Tropical Storm Irene exacerbated these problems, especially in the hamlet of Au Sable Forks. In any spring flow (a bankfull flood or higher), excess sediment that moves through the 30-mile sediment prone East Branch system combines with the West Branch and stalls as it meets the badly damaged, overwide channel just below the confluence. This is the Project Area 13 (PA13) site.

This project moved a priority natural channel restoration project (PA13) in the Town of Jay to shovel-ready status. The project site sits just below Au Sable Forks and the confluence of the East and West Branch Ausable Rivers. The river in this section lacks the capacity to efficiently move sediment downstream, resulting in a large aggradation of material within the reach. This has resulted in extreme erosion of banks as higher flows are forced around aggraded sediment (cobbles, boulders, and fines). The developed land surrounding the site was already flood prone – the town was built up over 100 years ago – and is vulnerable to storm flooding and significant winter and spring ice jamming and flooding. After Hurricane Irene, poorly informed clean-up efforts in the channel moved large amounts of material into the formerly dominant (northern) channel, further exacerbating the instability of the river and lack of flood resilience for the hamlet.

PA13 was identified through a comprehensive assessment and prioritization process undertaken in 2018 by a team of stream restoration experts and funded by New York's Governor's Office of Storm Recovery, the East Branch Restoration Program. The Ausable River Association teamed with the US Fish and Wildlife Service (USFWS), Ecosystem Planning and Restoration (EPR) of Maryland, and Fitzgerald Environmental Associates to conduct a geomorphic assessment of the East Branch Ausable River (following Harman et. al. 2012). We identified the critical areas for restoration in the downstream half of the East Branch (13 miles) that would (1) improve and restore river system functioning by mitigating channel widening, improving floodplain and stream channel areas, restoring instream habitat, and alleviating ice jamming, and (2) mitigate flooding impacts during storm events by protecting infrastructure, public and private assets, and making the town and its most vulnerable hamlets more flood resilient.

Of 13 projects identified as critical throughout the lower 12 miles of the East Branch Ausable River, PA13 was the priority for the Town of Jay to move to the full design and implementation phase. Unfortunately, the funds available could not be used in two counties and the river bisects Clinton and Essex County in the project area. Working with the original design and assessment team – the USFWS and Rich Starr of EPR – the AsRA moved the project from conceptual design to shovel ready.

One of the main challenges to design development is that almost no floodplain exists on the north bank of the north channel and south bank of the south channel due to development encroachment and Grove Road, respectively. The lack of a floodplain area in these two locations increases the potential for bank erosion and damages to existing development and

Grove Road. PA13 has excessive sediment deposition because of a high width/depth ratio and split flow from a second, smaller channel on its south side. Additionally, the growing depositional areas were exacerbated by post-Irene recovery work which pushed material toward the north channel and, as a result, the south channel carries the majority of base flows. There is moderate to high bank erosion due to the moderate riparian vegetation on the banks of Grove Island and very limited vegetation on the banks of the north and south channels. Approximately half of the south channel is rip rapped and as a result has less bank erosion in that area. PA13 has poorly to moderately defined riffles with some deep pools and little to no instream structures to provide habitat.

The restoration goals for PA13 achieve water quality gains by improving sediment transport, instream habitat, riparian buffers, and protecting public/private infrastructure. To reach these goals, an engineered design plan has been developed with the following objectives: the width/depth ratio will be reduced by building a bankfull bench/toe wood along both sides of the channel. Decreasing the width/depth ratio and excavating a new channel through the center of the project area will increase stream energy and improve sediment transport. The bankfull bench/toe wood will provide instream habitat, aid in development of a riparian buffer, and protect the adjacent development. It also will reduce the potential for bank erosion along the adjacent development, thus reducing the need for future bank stabilization maintenance activities. Two w-weirs constructed of natural, native boulders will provide grade control and improve pool habitat by providing deeper, longer pools.

The objective of this funded BMP B effort was to move the project from a conceptual design to a project that can be bid and built. Four primary tasks were involved in this project: (1) a detailed geomorphic and topographic survey that met the needs of the design; (2) a refined design stage that will compare this disturbed reach with a reference condition and create permit-ready plans to be implemented with the oversight of the USFWS; (3) outreach and education about the project to the public and to engage relevant landowners as partners in the project; and (4) the development of draft construction bid documents.

This project is in line with the Clean Water and Healthy Ecosystem goals of the LCBP OFA, section I.C.1.b: programs to protect or enhance river corridors for nutrient reduction and flood resilience; II.A.1: reduce impacts from land use and climate change; and II.B.1.c: protect and restore native species. Reduction of eroding banks also reduces opportunities for expansion of invasive plant species.

2. TASKS COMPLETED

Task 1 – Develop QAPP: AsRA developed a QAPP to cover the collection of geomorphic and topographic survey data. The QAPP was approved on May 31, 2021.

Task 2 – Identify Design Contractor: A Request for Qualifications (RFQ) was released on August 13, 2021 with a deadline for responses of September 3. Only one response was received. The single bidder was selected, with permission from LCBP. EPR entered the selected bid of \$90,951 for design services on September 3.

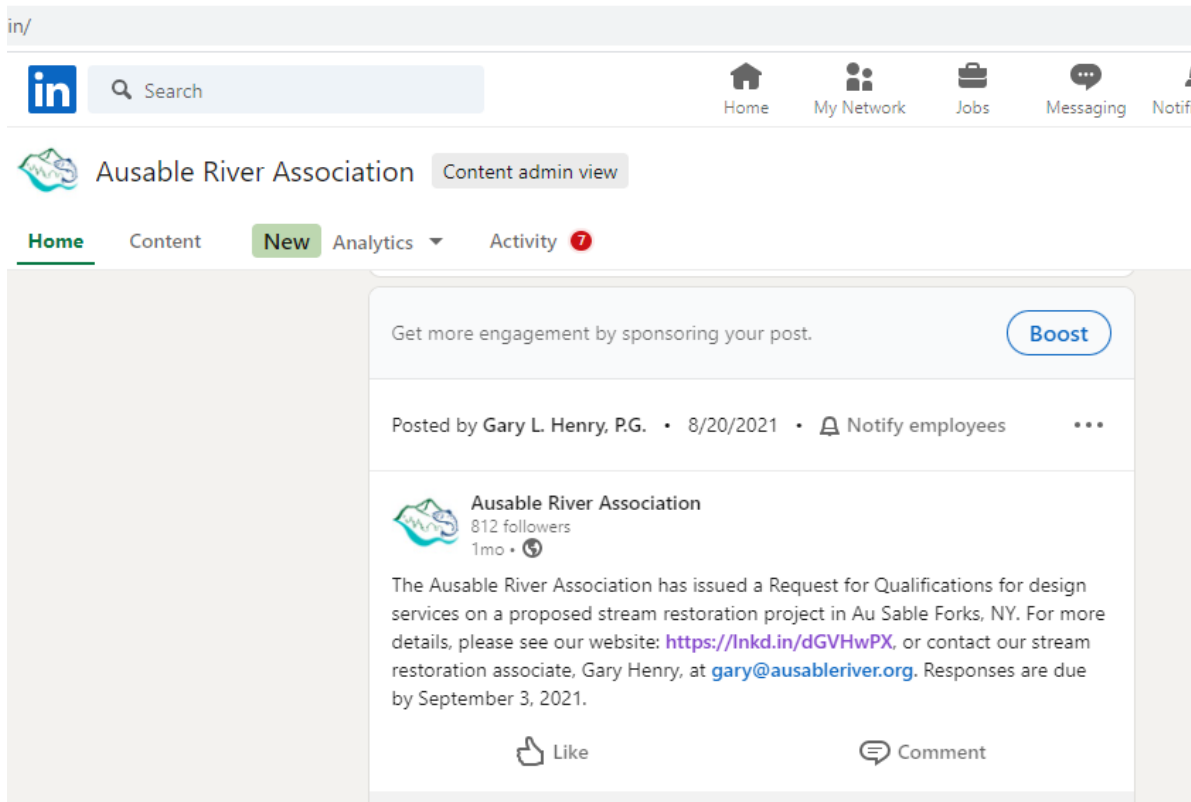


Figure 1. A screenshot of the RFQ posted to our LinkedIn page.

Task 3 – Complete full geomorphic survey: AsRA partnered with Fitzgerald Environmental Associates (FEA) to complete the survey of the project area. EPR confirmed that the survey would meet their design needs for the development of hydrology and hydraulic (H&H) modeling and cut-and-fill estimation from changes in the existing surface to design surface. AsRA completed evaluations of particle size distribution in the active riffle while FEA oversaw the collection of surface topography data. Survey activities were completed in December 2021. EPR reviewed the survey data over the following month and confirmed that it was sufficient for their design needs.

Task 4 – Design Phase: Using survey and assessment data and first-hand knowledge of the site, EPR developed a detailed design that meets permit standards of USFWS, NYS Adirondack Park Agency, and NYS DEC. At the 30% design phase, EPR presented 3 alternatives for restoring PA13 to address its deficiencies and protect infrastructure. The alternatives included utilizing the existing north channel to handle the majority of flows (the *North* option), sculpting a new channel through the center of Grove Island, where an existing channel is currently being scoured during high flows (the *Middle* option), and diverting flows into a channel that is partly within the existing south channel and removing the southernmost portions of Grove Island (the *South* option). To move to the 60% design, one of these options needed to be selected. AsRA met with the Town of Jay supervisor individually and at a public meeting with the town board. After much discussion and a thorough evaluation of the pros and cons of each alternative, the Middle option was chosen because it (1) has straight alignment and steepest slope, so it exhibits the highest shears and velocities for effective sediment transport; (2) keeps the design channel farther from roads and private property than the other options; (3) is the most conservative for flood water surface elevation reductions; and (4) is likely to result in no increase in base flood elevations. The town unanimously passed a resolution in support of the Middle

design option (#071422-141). A copy of the final design and technical specifications (Appendix A) and accompanying memorandum (Appendix B) are attached. A copy of the Town of Jay board meeting minutes is included as Appendix C.

Task 5 – Landowner outreach and agreement: Landowners with property in the river channel were engaged by AsRA’s stream restoration manager and have begun signing the USFWS Partners Agreement, which will form the basis of the permitting process if/when the project moves to the construction phase. The landowners include the Towns of Jay and Black Brook and Wally and Corrine Pulsifer. A copy of the agreement is included as Appendix D.

Task 6 – Public education, share design: One public meeting was held at the Town of Jay Offices to allow all interested parties to be briefed and ask questions. The session was held on October 25, 2022, from 4 to 7 PM. AsRA’s stream restoration manager met with several interested parties and explained the project to those in attendance. The 60% design was shared and was received positively by the group.

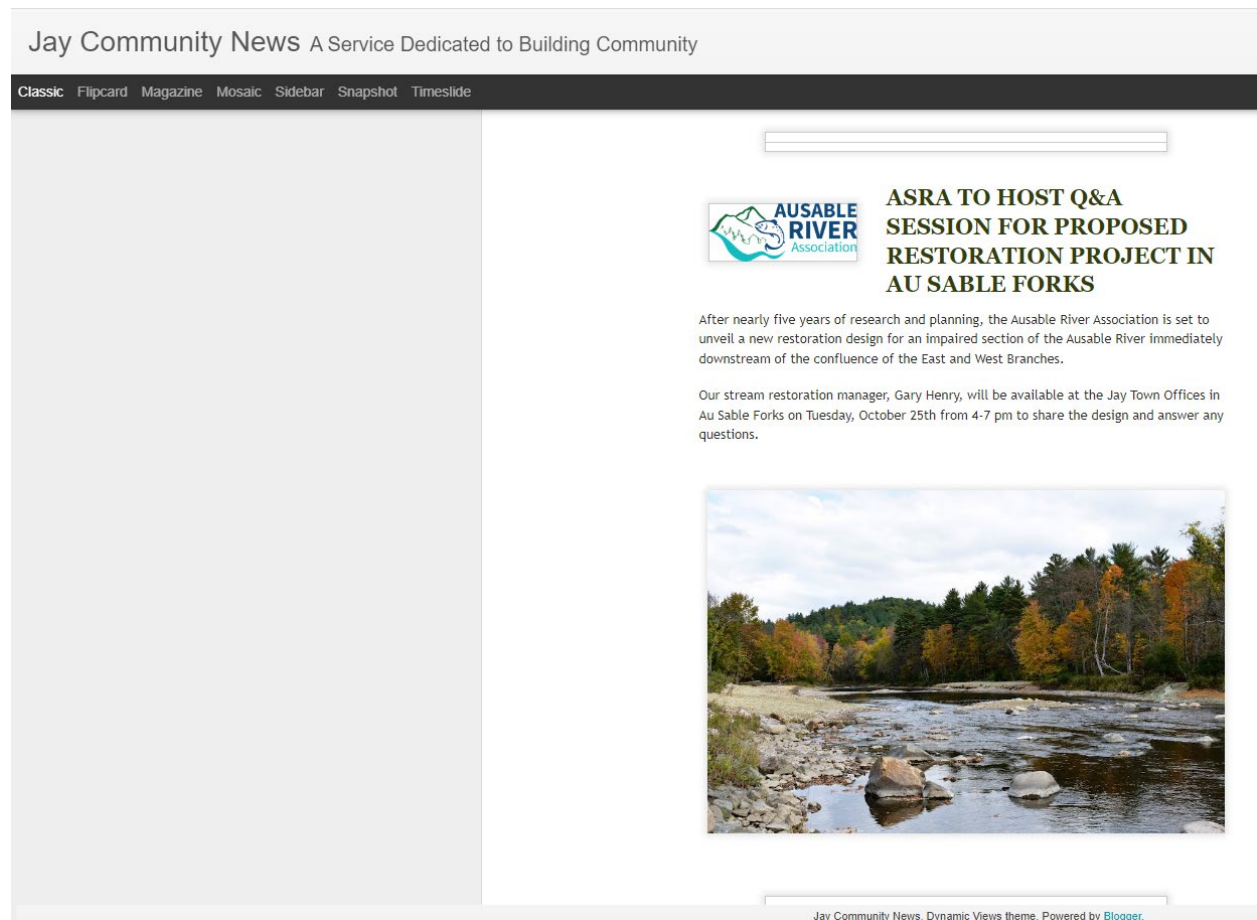


Figure 2. Screenshot of post to the Jay Community News announcing the public information session in Au Sable Forks.

Task 7 – Bid documents: AsRA developed a set of draft bid documents for construction of the project.

Task 8 – Quarterly and final reporting. AsRA staff completed quarterly reports with updates on project tasks and deliverables, submitted to LCBP in April, July, and October. At the conclusion of the grant period, AsRA staff completed a final report with full project summary.

3. METHODOLOGY

Survey methodology involved the protocols outlined in the project QAPP for collecting topographic and geomorphic data. The design contractor used standard industry methods for the development of fully engineered stream restoration design, including H&H modeling of existing and proposed design alternatives. AsRA presented alternatives to the Town of Jay in a public meeting before the project advanced to 60% and final design development stages.

4. QUALITY ASSURANCE TASKS COMPLETED

AsRA contracted for surveying activities with a contractor (FEA) with experience in collecting topographic data for H&H modeling. All of the topographic survey data met the quality objectives for precision with horizontal and vertical accuracies better than 0.1 survey feet. AsRA and EPR reviewed the survey data output to confirm that it met the H&H modeling requirements. AsRA conducted a pebble count in accordance with the protocols identified in the QAPP. The QA officer reviewed the data collected in the field and compared it with the electronic data to confirm that it was digitized accurately before sending to EPR for use in the H&H modeling effort.

5. DELIVERABLES COMPLETED

Task 1 deliverable was the QAPP, which was completed in May 2021.

A single quote for design services was received in September 2021. With permission from the LCBP grant administrator, the bidder, EPR, was selected to design the project. A contract with EPR was executed in February 2022. (Task 2 deliverables).

Survey data were collected in October and November 2021, and design activities occurred from March to November 2022 (Tasks 3 and 4, respectively). The results are included in the attached design memorandum and design plans appendices.

AsRA prepared a USFWS Partners Agreement to engage the landowners that have property in the channel where construction activities will be occurring. A copy of the agreement is attached as Appendix D. (Task 5) signatures are ongoing.

AsRA held a public information session on October 25, 2022 at the Jay Town Offices (Task 6). The design was displayed with copies available to any interested parties. The meeting notes are brief and included below:

Site 13 Design Public Meeting Notes October 25, 2022 from 4 to 7 PM at Jay Town Offices

- *Session began at 4PM. The stream restoration manager (SRM) began taking questions from two lifelong residents of the hamlet of Au Sable Forks, Geoff Hewston and Louis Garso. Both had several questions about how the proposed design would improve some of the problems at the confluence of the West and East Branches, specifically flooding and ice jams. After approximately 45 minutes of detailed review of the plans, both residents felt that the proposed design was in the community's best interests.*
- *Tim and Beth Rowland, both residents of the Town of Jay, arrived at 4:30 and spent approximately 45 minutes listening to the prior discussion and then offering their own questions and continued discussion on how the design will affect the hydrology and habitat in the river through the project area.*

- *The town historian and lifelong hamlet resident, Sharon Hewston, stopped by in the final hour of the session and spoke at length with the SRM to learn more about the project and to share her experiences with some of the past flooding events. She was very supportive of the proposed design.*

AsRA developed a set of draft bid documents (Task 7) for use when funding for the project is secured. The draft bid documents are included as Appendix E.

6. CONCLUSIONS

This project has allowed AsRA to develop a shovel-ready engineered design for a high-priority restoration project identified through a comprehensive planning process. While a funding source has not been identified for the construction of this project, having a shovel-ready design will help make this project more competitive for funding as opportunities are identified in the future. It should be noted that this project also strengthened the relationship between AsRA and the Towns of Jay and Black Brook. These relationships are critical to the protection of our natural resources in the watershed as we share our respective strengths and expertise to achieve common goals.

7. REFERENCES

N/A

8. APPENDICES

The appendices will be uploaded separately, as they are in PDF format and unable to be combined with this Word document.