

Why and how should pre-qualification be implemented for stream restoration construction projects?

Pre-qualification is “[a] process of evaluating and determining whether potential bidders have the skill, judgment, integrity, sufficient financial resources, and ability necessary to the faithful performance of a contract for construction or repair work”¹. There are multiple factors that suggest entities pre-qualify contractors for stream restoration construction projects. Stream restoration construction is highly specialized and vastly different from most other construction projects up for bid. As the science, design, and implementation of stream restoration has advanced, a fundamental need for contractors with skill, judgment and ability in this specific area has been revealed. Therefore, it is valuable, and possibly critical, to hire and/or pre-qualify contractors, so projects can experience the highest degree of success.

Private, government, and non-government organizations go to great lengths, expending significant resources, to hire trained and experienced companies to design stream restoration projects. Just as these entities want to hire experienced stream design practitioners who understand stream function, so it is in an entity’s best interest to hire a contractor with stream restoration project experience and training. Stream restoration implementation is most effective as a combination of professional services and construction.

Because of this combination, many organizations are realizing that skill, judgment and ability in stream construction are prerequisite to effective restoration implementation. Private, government, and non-government organizations typically have allowed only experienced contractors to provide bids; 1) implemented pre-qualification prior to project bidding or 2) required qualifications to be submitted as part of the project bid. There are many reasons why these entities have chosen pre-qualification prior to bid submission or as part of the bid submittal process.

The goal of stream restoration is to restore, as dictated by management goals and objectives, a stream’s pattern, dimension, and profile in order to achieve the greatest ecological uplift to a degraded stream. The ability to restore a stream channel and associated floodplain is dependent upon the designer’s knowledge and understanding of why the stream system exhibits instabilities, resulting in reduced or altered function and how the stream can be modified to rehabilitate both form and function. A stream design may reflect the most effective manner to restore the channel but, if construction of the stream dimensions, in-stream structures, and stabilization methods are not implemented correctly, the stream restoration project will not achieve its goals and functional uplift. This may even result in greater degradation. Hiring a specialized, professional stream contractor includes having personnel who understand geomorphic data and are capable of implementing the design using an excavator with a hydraulic thumb. Implementation of key components of the detailed design plans is required so the stream functions per the plans of a specialized, qualified designer.

Streams are dynamic systems. Most general contractors are used to constructing projects that involve static systems. Frequently, current pre-construction conditions of a permitted stream are different than those surveyed during the initial assessment and design which may have been completed several years before the project. In these cases, the contractor will have to work with the designer to integrate any plan adjustments to ensure the channel is stable and functional as originally planned, though possibly different than original designs.

Value is a key reason to hire and or pre-qualify a specialized stream contractor. This will probably save

money for the project sponsor for several reasons. Hiring an experienced contractor will enable the sponsor to minimize the field time needed for Construction Administration. Additionally, the hiring of an experienced stream contractor eliminates or minimizes the need for the designer to be on-site full-time directing the contractor thereby decreasing costs for the project sponsor. In our experience, two meetings/field visits may be needed the first week (and possibly a second week) of construction for the contractor and designer to come to understand each other, the plans, and how to best implement the project. These meetings equate to 8-16 hours of Construction Administration for the first several weeks, and then 4 hours a week or less until project construction is completed. From a construction administration perspective, there is an anticipated benefit in hiring a contractor with skill, judgment and ability in stream restoration construction in that the administrator does not become involved in the contractor's operational direction to construct the project, thereby decreasing any liability which likely exceeds the company's liability insurance. Another potential downside in this situation are claims or legal action against the project sponsor or designer for involvement in the contractor's operation. Finally, hiring a qualified stream contractor likely reduces the amount of channel or in-stream structure re-work because of improper construction by inexperienced workers. Particular items of concern include but are not limited to slope and angle of in-stream structures and keying into the bank of coir fiber matting. As you can see, the value proposition surrounding hiring of experienced and specialized contractors can be significant.

In many states, legal requirements have been established to allow for pre-qualification or may mandate the need for a specialized contractor. In 1995, the NC General Assembly established the option for pre-qualification when it passed General State (GS) 143-135.8 which says "Bidders may be pre-qualified for any public construction project". With the original law, there were not any guidelines specifying how or when to pre-qualify, nor did it state how to resolve pre-qualification with lowest responsive, responsible bidder standard of award. In 2014, the NC General Assembly amended GS 143-135.8 and 'established specific procedural requirements for when and how local governments may prequalify construction contractors to bid on construction and repair contracts'². In NC, the law requires a qualified stream contractor to implement a project stream restoration projects for the NC Division of Mitigation Services (NCDMS). The NCDMS is the entity responsible for the state's in lieu fee program and completing all off-site mitigation work, including stream restoration, for the NC Department of Transportation (NCDOT). The NCDMS requirement to pre-qualify contractors for its design-bid-build projects is found under NC Session Law 2011-343.

In addition to likely cost savings and legal requirements for pre-qualifying contractors for stream restoration projects, there are other benefits. Assuming pre-qualification of contractors occurs before a public bid, the request for pre-qualification notifies the construction community that a bid is coming and allows the desirable, 'qualified' firms to be shortlisted to submit a bid. This upfront notification enables the qualified contractor to plan its estimating capacity to provide a bid for the project. Advanced qualification also ensures that a submitted and read bid does not influence Bidder Recommendation for Award and prevents political influence. This also negates wasted time for unqualified contractors to develop a bid, and it enables contractors with questionable experience to determine if they meet project qualification requirements. Integrity may be questioned if an entity accepts bids without advance qualification and reviews the qualifications after the bid opening. There will be much discussion to justify why the apparent low bidder with limited to no qualifications should be awarded the project over the 'second place', but qualified bidder. At this point, politics may influence to whom the contract is awarded, and staff would have to expend much political capital to justify why the second place contractor should be awarded the contract over the apparent low bidder. As you can see, the more efficient method with the greatest integrity goes back to pre-qualification prior to the bid or pre-qualification prior to bid opening.

One final benefit of pre-qualification by a project sponsor has to do with regulatory and resource agencies. In my observation, regulators look favorably on sponsors who utilize this step in their project process. Agencies will recognize the sponsor's commitment to the project and to the environment because of the effort to have the project implemented with minimal, future maintenance activities. This provides value to all involved when a sponsor is well regarded by regulatory agencies and partners.

Lest it appear that there are only upsides associated with the pre-qualification process, there are some limitations to consider and be aware of. Pre-qualification may limit the pool of contractors who bid on any given construction project. The possible advantage, however, is that the contractors most appropriate and available for the project are most apt to bid. Pre-qualifying creates a barrier to entry for contractors without this experience. Another potential negative is the costs involved in implementing the process. These costs are in both time and possibly money. The time to include this process must be added to the project implementation schedule. Both the project sponsor and designer will need to be involved in this pre-qualification review. However, these costs are likely offset on the implementation end of the project through better efficiency.

There are several items to consider when planning a pre-qualification process. The first consideration is whether the pre-qualification should be a single project or a comprehensive/multi-year process. If the project sponsor anticipates multiple upcoming projects, a general pre-qualification is beneficial and more efficient than doing so for individual projects. The second consideration is the timing of the pre-qualification. Four options exist with regard to the timing: 1) advanced pre-qualification several weeks before the bid; 2) at the bid opening with the pre-qualification information having been reviewed prior to opening of the bid; 3) at the bid opening with the pre-qualification information reviewed subsequently 4) within a pre-determined 'reasonable' time after the bid opening. Benefits and limitations exist for the contractor and project sponsor with each timing option, however, I recommend option 1 or 2 for reasons previously discussed. The third consideration is the content of the pre-qualification application. In NC, the General Assembly specifically requires under G.S. 143-135.8(c) that a local government's prequalification criteria policy must:

1. Be uniform, consistent, and transparent in its application to all bidders.
2. Allow all bidders who meet the prequalification criteria to be prequalified to bid on the construction or repair work project.
3. Clearly state the prequalification criteria, which must comply with all of the following:
 - a. Be rationally related to construction or repair work.
 - b. Not require that the bidder has previously been awarded a construction or repair project by the governmental entity.
 - c. Permit bidders to submit history or experience with projects of similar size, scope, or complexity.
4. Clearly state the assessment process of the criteria to be used.
5. Establish a process for a bidder to protest to the governmental entity its denial of prequalification. The protest process must be completed prior to the bid opening to allow sufficient time for a bidder whose protest is successful to submit a bid on that project.
6. Outline a process by which the basis for denial of prequalification will be communicated in writing, upon request, to a bidder who is denied prequalification.

With regard to evaluation of company information, the area of past performance is not as straightforward as the other areas and deserves further discussion. Past performance indicators include, but are not limited to:

- projects of similar dollar value,
- projects with similar challenges and components,
- company portfolio, and,
- staff experience and training.

A weighted scoring system is advantageous in reviewing the company information. This allows quantitative assessment of a company's actual experience as it relates to the job they are being considered for. The quantitative assessment removes any potential bias that a qualification was not established in an attempt to make sure that a certain contractor secures the work.

In some instances, the project sponsor may not implement a pre-qualification process. Reasons for this may include: no need to implement a pre-qualification process; the lack of legal standing to implement pre-qualification; time challenges; and, budget challenges. There are some entities which have implemented several stream restoration construction projects, and while engineering staff and consultants have urged the municipalities' purchasing division to consider a pre-qualification process, the purchasing division does see the need for it, believes it would limit competition and/or does not have the staff time and/or budget to implement a pre-qualification process. Legal challenges refer to the sponsor's understanding that it cannot legally implement a pre-qualification process. The sponsor believes that it may be sued because a pre-qualification would not allow for open competition. There is also the thought that an entity would not have the sufficient number of bids so the bid opening can occur. A pre-qualification process does require additional money and additional time. In some instances, project sponsor's may feel pressure due to grant funding and time constraints that it cannot implement a pre-qualification process.

If a project sponsor chooses to not implement a pre-qualification process for any of the previously mentioned reasons, then there are ways for it to ensure that a quality project is implemented. The greatest likelihood for a quality, implemented project is implementing and utilizing sound and thorough construction contract documents (construction contract, construction plans, details, technical specification, bid addendum and other relevant documents) and hiring a qualified construction administrator. Sound and thorough contract documents limit potential change orders or liability from a contractor with no to limited with skill, judgment and ability in stream restoration construction. Such documents prevent the contractor from trying to recoup losses under the bid contract and prevents lost schedule time and resources to review the change order or liability claim. In many instances, the design engineer of the stream restoration project is hired by the project sponsor to be on-site during construction and handle construction administration. Many municipalities have construction inspectors on staff, and while these individuals may have many years of construction experience and are knowledgeable about construction, these individuals may not have the appropriate training and expertise to handle inspection responsibilities for stream restoration construction.

The design engineer would serve as the sponsor's agent, and it is the designer's responsibility to oversee that all of the construction contract documents are being implemented and followed. The time for a designer to be on-site can range from 20-30 hours at project commencement, and it may be reduced to 8-16 hours a week until project completion. The amount of time which an inspector spends at a time and frequency of return visits will vary directly to the skill, judgment and ability of the contractor and its crew with

the intricacies of the design and how it should be implemented. The designer/ construction administrator's responsibilities include, but are not limited to:

1. Conducting a pre-construction kickoff meeting with the contractor to ensure that the contractor fully understands the plans and specifications and to answer any questions with regards to this them. At this meeting, the designer's expectations are clearly defined, specifically regarding sedimentation and erosion control measures, procedures to follow before deviating from the plans and specifications, scheduling, notifications, and contractual details and obligations.
2. Reviewing the setup and implementation of sedimentation and erosion control measures to ensure proper installation and use of materials. Throughout the construction period, it is recommended that the designer regularly inspect all sedimentation and erosion control measures to ensure proper maintenance of these measures, such as silt fences and sediment traps. Again, the plans and specifications are very explicit and serve as a clear guide to the contractor, making any required enforcement unambiguous. Another key to supervision of this component is familiarity with and understanding of all required products (i.e., stone type, seeding mixes, etc.).
3. Verifying, before grading on the site begins, the construction, staking through spot-checking, that the staking has been done according to the plans, specifications, and the designer's direction.
4. Validating, once grading begins as well as depending on the project area and work schedule of the contractor, channel and floodplain dimensions by pulling tape and cross checking with the plans. The other option is for the contractor to provide 'as-builts' to the construction administrator of what has been constructed, and this data is to be overlain on the design. The goal of this verification is to calibrate the eye of the construction supervisor and ensure the channel and structures are being constructed appropriately. The thalweg and bankfull elevations are verified by the designer throughout the channel construction through construction surveying. Elevations are verified through repeated spot-checking until the construction administrator is satisfied with the methods and standards of the contractor.
5. Confirming, once the channel is constructed, that the station, elevation, angles, and slopes of **all** structures that have been installed. Typically, the design plans or specifications include a "Structure Tables" section, and this table serves as initial check prior to as-built surveys. With this methodology, it is easily determined if the structures are being installed according to the plans, details, and specifications intended by the designer.
6. Ensuring, during the construction stake out, that all notable vegetation has been flagged and/or fenced for the purpose of avoiding and protecting vegetation from disturbance as noted on the design plans. Prior to construction commencement, the contractor should flag all potential transplant or live stake material that is on-site to prevent damage during the clearing and grubbing operation. The project specification should provide very detailed vegetation specifications on how these materials are to be harvested, stored, and installed.

7. Reviewing all seeding tags and plant orders are reviewed by the construction administrator or vegetation specialist to ensure proper selection of material. It is recommended that this review take place twice: once during the submittal review period, prior to beginning construction, and immediately prior to planting. Most design plans have a unique project planting plan. The designer may have to approve changes to the planting plan due to availability and source of the vegetative materials. Upon completion of the plantings, the designer reviews the site to ensure proper installation of the plant materials.

Pre-qualification for stream restoration construction should be implemented because it leads to the selection of an experienced, qualified contractor. Pre-qualification works best when implemented in advance of a project bid or on bid day, prior to bids being read. While general company information is commonly requested in the pre-qualification application, particular attention should be paid to past performance. These qualifiers will most accurately determine an experienced bidder and likely lead to a successful project. If a project sponsor chooses to not implement a pre-qualification process, then it will likely require the sponsor to have a qualified inspector on-site during construction to ensure that a quality project is being implemented per the project's plans and specifications. The amount of time that the inspector spends on-site will vary depending on the experience level of the contractor that is hired to implement the project.

Reference:

- 1 – North Carolina General Statute. 143-135.8(f)(2)
- 2 - New Construction Contractor Prequalification Requirements - Coates' Canons. (2014). Retrieved September 26, 2016, from <http://canons.sog.unc.edu/new-construction-contractor-prequalification-requirements/>

Author: Phillip Todd
Email contact: pctodd70@yahoo.com