Legal views

CONTRIBUTING WRITER
Elizabeth Dietzmann, J.D.

What You Never Learned

about Hiring an Engineer and Negotiating an Engineering Contract

One of the big differences between large cities and smaller communities and rural water/wastewater systems is the frequency and scope of construction projects. A larger city will usually have a steady stream of construction projects and regularly hire engineers to design them. Small rural utilities may go years between projects, and at any given time, may have board members and staff who have never had to hire an engineer for new construction. These same folks have to figure out how to hire the right engineer and how to negotiate an engineering contract. In addition, they may not have an attorney who works with them full time, or they may not have an attorney who understands the process any better than they do.

Frankly, until I started doing work in this field, I had never really studied an engineering contract. Once I started looking at them, I realized how different they are from normal business contracts. In fact, the whole process of hiring an engineer is different from any other type of service for which most rural utilities will contract. So assuming a rural utility district or small town doesn't know how to start the process of hiring an engineer, here are some guidelines.

First of all, engineers are not supposed to bid for engineering services. (Actually, attorneys and other professionals are not supposed to either.) That sounds odd, but it is true. There is even a U.S. Supreme Court case that states this. Engineers do not bid on price, but they are supposed to compete based on their qualifications. Check out the National Society of Professional Engineers Web site (**www.nspe.org**) for a good explanation of the process as well as the engineering code of ethics. Ideally, selecting an engineer should go something along these lines. The client (small town, rural water district, etc.) prepares a Request for Qualifications and Experience statement, usually called the RFQ. The RFQ should give information to the engineers—it should describe the project as thoroughly as possible. That is, it should detail the work to be done and the result to be achieved, so that the engineers can decide if they have the expertise to do the project. It should also ask for information from the engineers, such as a company profile, experience on similar projects, and references, but not ask for a price quote.

The RFQ is then published in a newspaper, mailed out to firms within a certain radius, posted, etc. The Internet makes it very easy to get an RFQ widely distributed. In fact, more and more towns and districts are asking for replies to the RFQ via e-mail. The RFQ should contain a deadline, which should be strictly followed, much like a bid opening. Once the responses are received, the board/council should meet and create a short-list of engineering firms. Most boards are comfortable with a short- list of between three and five but let's face it, in rural areas you may be lucky to get that many firms to respond at all. So you may end up interviewing all the firms that respond anyway!

The next step for the board is to request a proposal from the short-listed firms. That is, ask them to outline how they would do the actual work on the project—what personnel they would commit, how they would approach it, what sequence of events they see happening, etc. I have seen smaller towns/districts decide to combine the RFQ and the RFP, especially for less complex projects. As long as all the sections are broken out and the responses clearly address both components, this can be a good idea.

The next step is to interview the firms selected. This should be done one at a time without the competing firms in the room. The board should ask lots of questions, although they can allow the engineer to make a presentation. Presentations are nice, but the board should not let the engineer take control of the interview. This is a common problem with both engineers and lawyers. Other people do not always understand what we do, and we are often treated with too much deference because of that. We are so used to standing up in front of people and lecturing them about things they do not understand that we sometimes forget that the client is the boss. The board should not be afraid to ask the engineer to explain things in simple terms. I know that I do not know as much as an engineer, so I always ask them to dumb it down for me!

Once the board/council chooses an engineer based on the interview, the hard part starts. The board finally gets to talk money and negotiate a contract. The prob-

lem is that even boards that have worked their way through the RFQ/RFP process do not always succeed in negotiating a good contract. Part of the problem is that they don't negotiate. Once they reach this stage, they simply have the engineer prepare a contract that contains price provisions and they often accept whatever the engineer hands them. Somehow they have the idea that once they have selected an engineer, they have to abide by his/her pricing structure. This is not the case. If the board cannot negotiate a price they like, they are free to decline to enter into a contract and go back to one of the other finalists and negotiate with them. I have even seen boards negotiate with and ultimately reject all the candidates, then go back to square one with a rewritten RFQ/RFP and start the process over.

This is a good place to add that the type of funding will also impact this entire process. If the town/district is using its own money for a project, then it may only have to follow state law requirements (if any) on RFQ/RFPs and engineering contracts. If the town/district is using U.S. Department of Agriculture/Rural Development (USDA/RD), community development block grant, or state revolving fund money, then each agency will have very detailed procedures that must be followed for RFQ/RFPs and engineering contracts. This can be good because the agencies assume that smaller entities do not have expertise in this area, so their procedures outline all the necessary steps and don't leave much to the imagination. The downside is that often times many of the forms that are provided are out of date, and the sample engineering contracts themselves often contain antiquated language that even the engineers don't understand. These form contracts also lack items that should be included, and the board/council can choose to add things to these contracts as well. For this reason, even if project funding is coming from a state or federal agency, the board/council still needs to understand the elements of the contract and propose changes to these agency forms if they don't fit the project.

Every engineering contract will have basic elements that must be addressed. The contract should basically answer the following questions:

- Who is the client?
- What is the scope of the project—what is all the work that needs to be done?
- When will the work be done and in what order—what is the project schedule?
- How much will the engineer be paid?
- When will the engineer be paid?
- What is the actual work product—maps, plans, specifications, and permit applications?
- Who owns the work product—the engineer or the client or both?
- What additional services will be provided and how/when will the engineer be paid for them?
- How can the contract be terminated and who gets to terminate it?

There are other items that all contracts include, such as choice of venue for lawsuits, damages, etc., but I am going to focus on the issues unique to engineering contracts and save the rest for a legal seminar on Contracts 101. I'll use the terms client (i.e. town/district) and engineer for simplicity.

Identifying the Client

This seems simple, but of course if an attorney is explaining it, it won't be, will it? The key here is to make sure that the entity identified in the contract had the authority to sign the contract. Who has the authority to request the engineer's services, and who will be legally responsible for paying the engineer? For example, a utility subcommittee of a city council may be allowed to negotiate the contract, but the actual city council has to be the one to sign it. Another problem involves new rural water/wastewater districts or unincorporated villages. Usually a group of concerned citizens will gather together to form a district or village, and they may start the process of hiring an engineer before they are even legally formed. The legal formation may take place long after the contract is signed with an engineer. (Although I usually shudder when this happens because this means they have had little if any guidance in selecting an engineer.) This is incredibly common. In fact, the USDA/RD engineering services contract even has a special attachment that says the contract will still be binding even after the volunteer citizens group is replaced by the official governing body.

Project Scope

The contract needs to spell out exactly what work is going to be performed by the engineer and it should be in simple, clear language so that the client can understand. It is the engineer's job to clarify all parts of the contract, especially if the client is not experienced enough to toss around terms like *deliverables* and *work product*. Is the engineer just preparing drawings? Is he/she drafting plans and specifications? Is the engineer responsible for filling out loan/grant applications or drafting a feasibility study, preliminary engineering report, or final engineering report? Preparing and submitting regulatory permit applications? Surveying and obtaining easements? How many changes to the project by the client will be allowed before the cost increases? Will the engineer perform construction inspection? Is the project contingent upon obtaining state/federal funding? If the engineer does the preliminary work but the project doesn't get funded, will he/she get paid for that work or is that just the engineer's risk? Ideally, the RFQ/RFP will cover some of these issues, but the client and the engineer should sit down and discuss these matters before the engineer just hands the client a contract. Is the board going to request written monthly project reports in simple language? A smart engineer will educate the client about the construction process and want to provide progress reports. If the client knows what is supposed to and does happen, the client will be much happier with the engineer's work and will understand why the engineer charges the rates he/she does.

Project Schedule

The contract should have an outline of the actual work to be performed and clearly define the order in which the items need to be performed, as well as some estimated dates if possible. These tasks to be performed are commonly referred to by engineers as "deliverables."

CONTINUED ON NEXT PAGE

The whole project is really one huge deliverable, but it is made up of lots of individual steps that are deliverables as well. Generally, on a state/federal-funded project, a very rough outline of some of the tasks the engineer may do might be as follows:

- feasibility study (an initial assessment of the economic alternatives—helps client choose best solution and apply for funding);
- funding applications (may include feasibility study and other forms);
- preliminary design;
- final design and specifications;
- easement preparation and acquisition;
- permit applications to regulatory agency;
- response to funding and regulatory agency comments;
- bid preparation, opening, and tallying;
- preconstruction conference;
- construction staking;
- construction inspection, system testing, and authorization of payments to contractors;
- final cleanup; and
- final approval by regulatory agency and final payments to contractors.

Again, a good engineer should be ready, willing, and able to explain how he/she will handle all these steps and what they mean. A project schedule should also include a timeline or what is sometimes called a Gant chart. Another option is a critical path chart that spells out the sequence of events that need to occur in order for the project to be finished as quickly as possible. State and federal funding agencies are sometimes helpful in listing the critical path, but often they focus on the critical path for funding, and there should also be a critical path for the actual construction. These timelines or critical paths are also helpful because they can and should spell out what the client is responsible for and when that item must be completed. For example, if the engineer is responsible for preparing easements, but he/she has to wait for the client to provide a list of the names and addresses of all the landowners who need to sign easements, the schedule should spell that out.

Cost

The client needs to understand what the engineer is going to charge for and how he/she is going to charge for it. Engineers have a number of ways in which they charge for the work they do, and this is one of the concepts that may be new to many clients. Engineers can charge based on cost plus, time and materials, lump sum, a "not to exceed" a set price, or a percentage of the construction cost. Cost plus is basically time and materials with an additional percentage added to it. Time and materials is the cost of any materials and the hourly rates of the engineers and his/her employees. Lump sum is just a fixed price. A "not to exceed" is like a top-end estimate the engineer sets. He/she may charge less but can't charge more than the upper limit. The percentage of construction cost is the method commonly used by state/federal funding agencies, so this is set out in advance and determined on charts.

Not only are these different formulations a bit confusing, but also normally a contract will have a combination of payment options. The main body of the construction may be based on a percentage of construction costs, but a special attachment may state that any additional work requested by the client, construction inspections, or easement work may be charged on a time and materials basis. You must know what these terms mean and be able to understand how the engineer proposes to charge you.

Back during the RFP interview phase, the client should ask for specific numbers on similar projects. Many engineers may not want to provide this, but if they worked for a public entity, this is public record. The entity itself might help out with information. It is always interesting to see how much a project actually did cost compared to what the engineer said he would charge to do it. Did the engineer exceed a "not to exceed" because of problems with the construction? Did he/she charge a percentage of construction cost but add on a large sum for work outside the scope of the contract at the request of the client?

The next question is when will the engineer be paid? The standard USDA/RD project specifies that the engineer is paid 70 percent when the project goes out to bid, another 10 percent upon completion of construction, and the final 10 percent about 11 months after construction is completed. Maybe the client wants the engineer to do some work for free, in the hope that the project gets state/federal funding and moves ahead. Engineers are not supposed to work on contingencies like this, but many do, and frankly, that can benefit the

client. If the project doesn't get funded, the client doesn't owe the engineer any money. It is always a good idea to keep some funds on reserve until the engineer has completed certain phases of the project, no matter which payment formula will be used.

Work Product and Who Owns It

Depending on the type of project, engineers do work that is both tangible and intangible. Intangible work product consists of things like advising the client, researching products and talking to manufacturers, negotiating with regulatory agencies, responding to regulatory comments, attending public meetings, setting construction stakes, and interfacing with the contractors. Tangible work product consists of things like preparation of plans and specifications, easements, reports, and permit applications.

It used to be that one way to tell the two apart was to think of tangible items as anything on paper. But what about e-mail? Electronic files? Is that tangible or intangible? Who cares? Well, the reason the client cares is because the contract should specify who owns the work product. Do not assume that the client owns the tangible work product just because the client paid for it. It is now accepted practice for an engineer to use software to design and draw up the plans and specifications or system maps. The client may receive a copy of those plans and maps but not receive the electronic file unless that is negotiated in advance.

This is a hotly contested area between engineers and clients. Engineers like to keep the usable electronic copies of plans, specifications, and maps because they don't want other engineers piggy-backing off of their work, and they probably hope to get the client to come back to them in the future. Engineers will tell clients that they cannot give them the electronic files because their engineering seal is on them and to give the original plans out would expose the engineer to liability. They will say that they can only submit the plans to the regulatory agency but no one else can have an electronic copy.

Well, that is nonsense. All the engineer has to do is to remove his seal and the plans can't be submitted. If another engineer is hired to extend a water/sewer system and pick up where the first engineer left off, he is supposed to identify any parts of any plans he didn't design, anyway. This becomes a problem in system mapping, where small systems hire an engineer to map their system, but they never think to ask for the electronic files so that they can update the map in the future. The client and the engineer need to agree in the contract that both sides will own the work product and that the engineer will provide transportable, translatable, useable electronic versions of the work products in a format agreed upon by the parties.

Additional Services and Change Orders

During the course of the project, the client may decide to request additional services, such as additional sewer connections or an extension of a water main two streets further. The contract needs to spell out how the engineer will be paid for those additional services and whether or not they can be treated as change orders. Extensive changes can enlarge the scope of the project. In addition, significant changes to the scope may require the engineer to redraw plans or resubmit plans to a regulatory agency. The client needs to understand that these add-on requests will cost more money. The contract also needs to spell out when the engineer will be paid for this work. At the same time as the other payments? At the time the work is performed? Some change orders are inevitable and are necessary in order to make the project successful. The client needs to understand the difference between necessary and unnecessary change to the scope of the project.

Terminating the Contract

Typically, a contract for engineering services can be terminated in writing within a certain number of days by either party with payment for services due up to the date of termination. The client should definitely make sure that the contract spells out what payment is due and for what. If the contract is terminated and the plans and specs are not finished, the engineer should receive considerably less money than if the project has been let out for bid.

The key for a termination is to agree that the client receives the same types of electronic files and all work products as discussed above in whatever state of completion they exist. Many engineers have gotten fired and then refused to give the client the electronic files even after they were paid or have given the client files that could not be used. If the relationship has soured, do not assume that the engineer will give you the files even if you do pay. Make payment contingent upon receipt and examination of the files by another engineer.

Hiring an engineer and negotiating a favorable and clear contract may be the most important thing a town/district does on a project—besides hiring a good attorney of course! The world of engineers and engineering contracts is not a simple one, and looking to state/federal funding agencies for their checklists and guidelines can be helpful. Mostly, towns/districts need to be informed consumers and take nothing for granted. Do not assume that you can turn your project over to the engineer and let him handle it. You need to become knowledgeable about the project. Ask lots of questions! If an engineer will not take the time to answer your questions before you have hired him/her, then it is doubtful that you will get any answers once the project has started.

Elizabeth Dietzmann, J.D., is a consultant in the planning, development, and management of decentralized wastewater systems. She can be reached at **edietzmann@earthlink.net.**