

ADDENDUM No. 6

**Boiling Spring Lake Dams Construction / Reconstruction
Project Number 35
City of Boiling Spring Lakes, NC
Addendum Date: March 20, 2023**

Engineer
McGill Associates, PA
712 Village Road SW, Suite 103
Shallotte, North Carolina 28470
(910) 755-5872

BID DUE DATE & TIME (REVISED): March 31, 2023, 2:00 PM

A questions and answers (Q&A) conference for the Project was held on Wednesday, March 15, 2023, at 2:00 pm online. Bidders were allowed to ask questions during the Q&A conference and answers were provided verbally, where applicable, and summarized in an attachment to this addendum.

The following changes and clarifications shall be made to the Contract Documents:

1. Article 4 of the Instructions to Bidders requiring participation in the Mandatory Pre-bid Conference is waived.
2. Pre-qualified prime bidders may substitute subcontractors consistent with Article 11 of the Instructions to Bidders.
3. Section 312319, 1.8 PERFORMANCE REQUIREMENTS, A.1 - dewatering minimum depth of 2 feet deleted for areas containing bed rock. In these areas, work shall be performed "on a dry and stable subgrade".
4. The Bid Forms were revised to receive Unit Price Bids based on the Estimated Quantities. Contractor's Quantities are no longer requested in the Bid Form. Articles 3.01 B & C in the Bid Form have been revised accordingly. An MS Excel based Bid Form has been included in the email to all pre-qualified prime bidders.
5. A Bid Item has been added for Cutoff Wall Cement (bags). Corresponding measurement and payment details have been added to Section 013000.
6. An upset limit has been added to section 4.06B of the Agreement: "The maximum limit for reimbursement by Contractor is set at \$15,000 for each day that expires after such time until the Work is completed and ready for final payment."

Attachment 1

Question and Answer Conference

Clarifications

Michael Hanson, PE, LEED, AP of McGill Associates, PA restated some of the key bidding requirements, as well as updates to the project:

1. Per Addendum 5 - BID DUE DATE & TIME: March 31, 2023, 2:00 PM
2. As part of the Rebid process, all original eight qualified bidders are invited to participate. Article 4 of the Instructions to Bidders requiring participation in the Mandatory Pre-bid Conference is waived.
3. Pre-qualified prime bidders may substitute subcontractors consistent with Article 11 of the Instructions to Bidders.
4. The Q&A Conference period is being expanded to allow for submittal of written questions until close of business March 16, 2023. Answers will be provided as part of Addendum 6 following the Q&A Conference without disclosing the source. Addendum 6 is anticipated to be issued before close of business on March 22, 2023.
5. See figure provided by Schnabel. Adam Paisley, PE addressed general character of rock and karst features observed and reported in the GDR.

We hope that this meeting and anything that's included in Addendum 6 will help improve contractor sentiment about the project. The point of sharing this information kind of summarized here is in part response to some unsolicited feedback that we got after the bid. What's shown on the screen is somewhat of a summary of information that has already been made available to contractors.

This information can be found in the geotechnical data report; a lot of it in the appendices. What's shown here is a summary of voids that were reported on boring logs, broken out spatially. Before getting into into the data too much, I wanted to speak to the two photographs that are included in the figure here, one called Calcirudite, one called Calcarenite. Just to provide a bit of explanation, the Calcirudite is the rock layer that is expected to be first encountered at top of rock. The geotechnical data report text will say that on average in borings performed by Schnabel, that layer ended up being somewhere between about 10 and 12 feet thick before getting into the underlying Calcarenite layer, that went well...where the bottom of that the calcarenite layer is much deeper than say height of the dam, below top of rock.

I guess first thing to say about those two layers. And again, this is just repeating what's already in the geotechnical data report. Calcarenite layer...contains many vugs, shell mold. Basically, the voids left behind by dissolved shells that tend to be about the size of #57 or 467 stone, on average. And this is where the majority of voids tends to be.

In the underlying Calcarenite layer, we actually didn't encounter any voids. You'll see in the table, the bottom 2 rows, one says voids encountered in Calcarenite here, there were none reported. The voids that would be encountered during construction would be in that upper 10 to 12 feet. That's based on the thickness, again based on borings in the damn footprint.

Any contractor that is interested in looking at this rock core is welcome to come take a look. We've got them in a storage unit very near to our office where we keep project rock cores until construction is complete. You'd like to set up a time to come do that. Please feel free to reach out to me. We'd be happy to let anybody look at that rock or if they'd be interested.

So, the data that is tabulated, again, represents voids that were reported on boring logs. So, these boring logs are available in the appendices in the GDR. The columns represent spatial categorization of the borings containing where say, voids were encountered. And the intent there is to show that within the near, the very near vicinity of, say, the footprint of the dam we encountered only two voids. Let's say 2 voids were encountered in and reported on logs for borings that were drilled within the footprint or very close to it. Now, that's of course not to say that there aren't voids in that just weren't encountered in the borings that are shown at the bottom of this figure. If we go outside of that 150 foot zone, outside of the footprint of the dam and we expand that really more in the downstream direction, there's one or two that's outside the buffer upstream.

What this doesn't include is many Army Corps borings that were drilled in the 1970s. Should be in Appendix A2 If I'm not mistaken. I'm sorry, Appendix A1 in the MOTSU, Army Corps MOTSU sinkhole report.

The descriptions that were used to populate this table from that report include descriptions noted below the table there of numerous small cavities. In the report text, they define numerous small cavities as a cavity between 0.3 and 0.5 feet in height; just something like 4 to 6 inches. There were multiple descriptions that said something like numerous small cavities and we wanted to represent that data. So, it is a small interpretation, but it's clarified here. We stated that that we intended to represent that descriptor as one cavity per foot of reported interval. So, if there was a four foot interval where there was a description applied that said numerous small cavities, we said there were four cavities encountered that were four to six inches in height or represented encountered in over that interval. And the reason that we're that we're showing this, I mentioned this some unsolicited feedback that we got. We got the impression that one or more contractor expressed, felt some concern about the potential loss of material in in the Karst during installation of the cut off wall.

So, the overall intent of showing this figure describing this data today is to give the impression that this this Karst is not the same kind of Karst that's encountered in Missouri, Central Tennessee, Kentucky, where you've got basketball / beach ball sized voids or caves. It's not that it's not Karstified. There are voids in the rock, but the voids are very small. We don't expect that there is a considerable risk of losing hundreds of yards of material. Especially, since the cutoff loss specification was written with the intent of the wall being installed with a deep mixing method. The condition that we have observed in our borings and which is communicated in borings drilled by others, led us to choose the deep mixing method as the method for installing the wall as opposed to something like a slurry wall method where we would be far more concerned with losing the slurry that would keep it trench stable.

And so again to summarize overall here, the intent is trying to communicate that this Karst is different from Karst which is found in in other places in the country with

larger cavities, and this is not expected to be that Karst and in that space as you can see in the table on dozens of borings. If anybody has any questions about what's shown here or what you know, what's in GDR, we're happy to provide some clarification during this session.

6. Section 312319, 1.8 PERFORMANCE REQUIREMENTS, A.1 - dewatering minimum depth of 2 feet deleted for areas containing bed rock. In these areas, work shall be performed "on a dry and stable subgrade".

Bidders Questions

The following is a summary of the question-and-answer portion of the meeting. The text below represents an approximate transcription of the verbal exchanges during the Q&A conference. Verbal details related to site conditions were provided with the intent to summarize some of the data included in the Phase 1 and 2 Geotechnical Data Report, Revision 1 (GDR) dated January 8, 2021. The content in the GDR supersedes any inadvertent discrepancy which may be interpreted from the verbal details provided during the Q&A conference.

- Q: While there is an understanding based on the explanation by Adam of voids being a lot smaller than what was previously interpreted, this data needs to be relayed to geotechnical subcontractors or specialty subcontractors to see if they're more comfortable. But it goes back to a risk sharing question more than anything. If the City is only willing to go 10% over in cubic yards – or however they price it – or 20% over and it ends up being 50% over, who is responsible for that? Is the City willing to share that risk with the contractor? Is that something that the general contractors are still going to have to put in their bid?
- A: We are going to be reevaluating exactly how risk sharing, or more directly, how the bid form is set up and how the final pricing is going to be applied to the project. Based on feedback received, we are investigating how we can proceed in a different manner that might make it a little easier to identify the level of risk and the participation of the different parties in that risk moving forward. So, not quite sure how that's going to end up being resolved yet. We will have some revision in that as we move forward as part of the next addendum. – Michael Hanson

Added later, the way the bid document now is written is that quantity that is in excess of the bid quantities will be paid at the unit price. So, if that is not clear and that might answer the question from Crowder, they mentioned that if they are in excess of the bid quantities that is paid at the unit price, it's a unit cost item. If we can get clarification, we can address in the addendum. – Dori Sabeh

- Q: For the dirt material – the on-site dirt material, reading through the Geotech report and there wasn't a lot of information on the failure envelope of the on-site material. Would there be any consideration, kind of following the same logic of some sort of risk sharing on that as well. Maybe have a bid item for on-site dirt and a bid item for off-site fill? Because we can't get samples of the excavated material that's on site.
- A: We have triaxial test results included in the GDR, and those results were taken from a test on soils that were combined between a sample from a test period taking an Upper Lake Dam and sample from a test pit taken at Sanford Dam. We can't say broadly, how uniform the soils in the general vicinity of the City are. The samples and Cuspate samples that were

taken at all four dams show there is some degree of uniformity given that these soils in the area are regional scale, coastal deposit. But we didn't do a lot of testing on the existing fill material that would be excavated. I'd say there is a limited amount of material that will be excavated compared to the volume that will have to be placed. Say less than 50% of the placed volume is available at the site within the zone that will be excavated. I'd say the majority of the materials are going to have to come from off site. That said, I think the index test results do indicate some degree of uniformity of the soils. – Adam Paisley

At the industry day that we held, we offered the ability for any contractors who attended to take samples with them. You know, so there was an opportunity at that time for contractors to take soil samples on which they could perform their own testing. I don't know without a conference with McGill and the City if that same opportunity would be made available again, and I'm not sure I could say too much else about it at this point. I think the index tests that have been provided in the Geotechnical Data Report on existing site soils should probably provide enough information for any potential risk related to the question to be managed in the bids. – Adam Paisley

Q: Would it be possible to get an Excel bid form for this instead of a PDF?

A: Yes. – Michael Hanson

Q: So based off of the one test, where there was a combination of two materials. Particularly in the Sanford Dam, we have to excavate material out of that to some depth and I don't think that we can go get a sample halfway through the cut to figure out what you know and then run a track. So we'll test on that to figure out whether it meets the failure envelope requirement of the soil to figure out what needs to be blended and what doesn't need to be blended. And so the question is, based off the information, if it appears that it is uniform and that some of that material can be used on site, would it be possible to put a bid item in? For general fill from onsite and general fill from offsite, so that as we're excavating, if we find out that the soil isn't uniform, we're sharing in that risk.

A: It would be difficult to – while it may be fair – to include an additional bid item for on-site soils, as they will be handled differently and may have different material properties than borrow soils proposed by the contractor. I think it would be difficult to arrive at a quantity for that bid item. And that it may be more appropriate if we assume that there's at least a portion of the existing site soils that can be used...a work change directive could be issued during construction based on the volume of any of any site soils that were considered to be unsuitable as based on that strength requirement that is in the technical specifications. – Adam Paisley

Sanford Dam, the select common fill must have a minimum strength, so carried in that requirement is the assumption that we will be holding the contractor to providing borrow soils that meet that requirement, while we're holding the contractor to that, we're also stating these onsite soils can be used. – Adam Paisley

I don't know that we'll arrive at a definitive answer today. I think that it we will certainly explore the option of including an unsuitable bid item. I can see where that would potentially work at least consistent with other projects that I've been involved with. We'll need to look at that in more detail, we have certain constraints that go beyond the normal way of setting up a bid process because of the various sources of funding that we have in involved in this project. So, we need to not only look at what might be fair, but also what's allowed for each

one of the different funding partners that we have in this project. Some have more strict criteria for what can and can't be done in the bid process than others. So, for right now let's just say that we'll take that under consideration and we'll hopefully have that more thoroughly addressed in the addendum when it comes out. – Michael Hanson

Clarification added as part of this addendum, not provided in the Q&A conference: since the contractor will be paid at the unit price for excavation and for fill material based on estimated quantities, there is no need to add unsuitable material excavation bid line item. Provisions for handling unsuitable material have been added to the revised Section 312316 (Paragraphs 3A to 3C).

Q: Special conditions paragraph 5.04 it states, "...provides no entitlement if the owner contends existence of such condition could have been discovered pre bid". Is it the owner's expectation that we're on the hook for exploring every piece and part pre bid and not be compensated if something is found to be differing site conditions or may this being what was proposed as a new bid item for different site conditions or unsuitable soils?

A: I would say that particular item that you're referring to probably has a broader interpretation on the project beyond just unsuitable materials. We may be able to address that related to material use on this particular item. I don't know that we'll dig into that in more detail related to how it might affect other things associated with the project. As Adam mentioned, we did have the industry day. We did make the site fully available to everyone. I do know that there were at least one or two parties that chose to collect samples while they were there, and hopefully they were able to utilize those to their advantage as they were starting to try and address some of these issues as they and preparing their bids. So that information I think is available and has been made available to everyone. – Michael Hanson

I think the prior observation was also made that it wasn't practical to try and obtain materials from the depth at which you might be exposing materials further down in the dam, and I would add that there has been a breach of the Sanford Dam and there is an exposed area of cut going down to...well, it doesn't go down to the foundation of the dam because we still have water flowing through it. There is a depth of available material that would not have to be say coral core drilled through in order to obtain samples through a reasonable profile of say the upper 30 feet of that dam. And if anyone wants to come out to the site between now and bid to try and obtain materials for further testing, I think we could probably make arrangements to do that with the City if that's if you feel like that's going to somehow benefit your decision making on your bid. – Michael Hanson

Q: There's a couple of pages, and I can send you those specific pages from the Geotech, that list the water table. The existing water table almost as high as the existing road. Is that a mistake? I don't think that that's correct.

A: There are multiple borings which were drilled outside of the footprint of the dam. Some as far South as a few 100 feet South of the dam, in the near vicinity to the to the stage of the Sanford Dam main excavation. What I remember in preparing the design the water table was approximately around elevation 20, about 20 feet above top of rock, which is expected but above elevation 0, which is generally what is expected to be top of rock. – Adam Paisley

Yes. And that that's consistent the top of the dam is near elevation 39 if I remember correctly. The lakebed is down near elevation 20 in that proximity and that's where when the breach opened up, it drained down to near the bottom of the lake bed. I think that there are

elevations that go down maybe as low as 15 or so in the Creek itself. So as of right now, yes, groundwater is if it was shown to be in close proximity to the ground surface that was not in the dam itself, but on the perimeter where borings have been taken outside of the damn footprint. – Michael Hanson

Q: The cutoff wall is paid per square foot of wall, so if you have an overage because of a void, you're still only getting paid the needed square footage? I mean my understanding was that each square footage of the face of the wall, so it wouldn't. Your overages for quantity wouldn't come into play unless you change that to a cubic yard volume.

A: That is an interesting point to make there. As stated when we were looking at the figure in the beginning of the session, we chose the deep mixing method as the method for a cut off. Now, based on the understanding that the that the karst, the karstified Calcirudite layer has small voids in it. And again, contractors are welcome to come look at the rock cores that been obtained in the in our here in Greensboro. Given the method that was selected in the specifying, we don't consider there to be a considerable potential for large, large losses of volume. And, let's say that we had specified in a cubic yard or say some sort of volume rate, that volume is mixed volume. It's not placed volume of material. If we were to compare to the method of slurry wall where the trench excavated and it's maintained open by a slurry, there could be lost to the formation, it's a lot easier to account for what that loss is. But what we're talking about potentially losing into the formation is what we expect would be a small amount of slurry that may get pressure filtrated out of the soil mix out of out of the deep mixed material and until the mixed material clogs the small voids that are encountered in the the mixing process. It's unlike installation of a wall, slurry wall method where you could have some sort of catastrophic loss or where you're having dozens or hundreds of gallons make it into a trench just to keep the slurry level up until concrete is placed. We expect that there may be some small losses but overall, the amount of losses are expected to be limited. – Adam Paisley

Response from Bidder: Yeah, I hear you on that, Adam. And we'll talk with the Geotech specialty subcontractors. But I mean, they have something they're going to mix with the soil and if they mix more than what they estimated, you know, and lose, then somebody's got to be on the hook for that. Now if you're saying that Schnabel and McGill and the owner are going to be on the hook for that overage, I'm perfectly fine with it. But, you saying that there's not going to be much loss and then a contractor having to eat hundreds of thousands of dollars is different.

Response from Adam Paisley: That's very well understood and it's a fair statement that all of the challenge here is the same challenge that's faced on any project site where the contractor has to work in the blind and a formation for which anybody has limited understanding.

What's going to happen first with the cut off wall is the demonstration section and during the installation of that demonstration section, the contractors are expected to develop the mixes that are going to be used, the binder slurry mixes that are going to be used, to create the deep mixed material. And the contractor will have complete control over how thick that mix needs to be. And we'll have an understanding after the demonstration section is installed of how the mixing needs to take place and what the consistency of that binder slurry – that grout – needs to be. And, I don't think that anybody can have a clear expectation of exactly what's going to happen until that demonstration section is installed.

Clarification added as part of this addendum, not provided in the Q&A conference: we are adding a bid line item for 50,600 bags of cement to be used, which will be paid based on unit cost. This should alleviate risk to the extent that is deemed reasonably practicable by the design team and owner.

Q: In regard to funding based on the amount of risk that's in this project, you know the different funding parties that there are. Does the city feel that they have the funding adequate to provide for this project? Do you have you updated your budgets accordingly or kind of where does where does the funding stand?

A: Yes, the City believes that they have adequate funding to construct this project. There's been a good amount of effort made over the last two years and as we've finalized the all the permitting and all the design associated with this project to make sure that we kept abreast of the conditions that were in the construction market at the time. The effect of changes of materials, material costs, et cetera. So, all of that's been represented and updated to the degree that we feasibly can, and at this point we believe that the City has the funding in place to proceed with this project. – Michael Hanson

Q: Is that amount available?

A: No, we are not making the engineers estimate available, just consistent with the public bid process and with the various funding partners that we're working with that's not something that we're making available at this time. – Michael Hanson

Q: So one other thing, and this is mainly with our corporate office/executive office, they always ask if all the damages are definable, and you guys do have a liquidated damage in there, which is good, but you also have another clause that says that we will be billed actual damages that will cover and that was a handful of areas that it would cover but would be determined at a later date. Is there a way to put a Max on that at all, like a Max of \$10,000 a day or \$15,000 a day? I mean, obviously you guys don't know what the cost is going to be, but if we could at least put a hat per day on it, then we could say, hey, there's a chance we could be 60 days late and we could take that into our contingency matrix.

A: We'll take a look at that specific one if we can put a maximum cap on it. At this point, anything that we could anticipate from damages, we included it in the liquidated damage. Unless something completely unforeseen – and that's why we didn't put a specific amount – happens during construction that causes that effect. We'll review if we can put a cap on it, but at this point what we are anticipating is built into the liquidated damage. So as far as really risks that could be factored into the contingency to be competitive, most likely that's the number you would go with, but we will take another look at it and the rest of the language. – Dori Sabeh

Q: So just to confirm what you guys think is the real cost is captured in the liquidated damages. The Paragraph B, under Section 4.0.6 is just kind of a catchall in case there's something you guys didn't think of in the LD's, but you guys think the LD's cover your daily cost?

A: Correct. That was the intent from the LD's to cover the daily costs, anything that we could anticipate at this point. Something that we cannot think of as covered by that catch-all sentence that we have. – Dori Sabeh

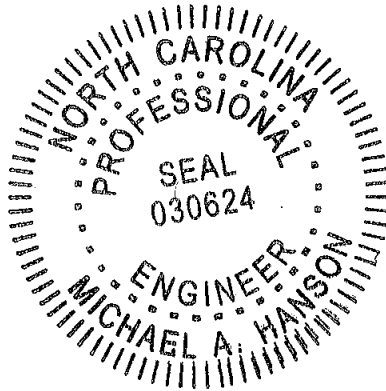
Response from Bidder: OK, we'll talk to corporate and see if they can live with that. Any

chance you can cap that would be helpful for us.

Clarification added as part of this addendum, not provided in the Q&A conference: a cap of \$15,000 was added to 4.06B.

This Addendum Number SIX is issued this 22nd day of March 2023.

Michael Hanson, PE



March 22, 2023



**5400 Trinity Road, Suite 107
Raleigh, North Carolina 27607
919.378.9111
Firm License No.: C-0459**