Pond 8 Procurement Process and Lessons Learned

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Purpose:

The purpose of this document is to outline the process used to restore Pond 8 that might potentially provide a template for future SEHOA pond restorations or other higher cost capital works. The Board decided to use a resident Task Force (TF) approach to oversee the project. There were four resident members on the TF to include a representative of the Board. I volunteered and was appointed Chair due to experience as a registered civil design engineer.

Engineering/Bid Phase

The initial restoration estimates for re-lining this 0.63-acre pond were in the $120K range. The previous approach of the HOA was to sign a purchase order (without any formal contract) after getting pricing between one or two known vendors. The contractor works were informally supervised by the Property Manager or his representative (Garrett).

This Pond 8 restoration approach used a best value, 'as-equal', open bid put together by a professional registered engineering firm. The contract format was to use an industry recognized EJCDC[1] contract (standard engineering industry document) to avoid new contract conditions drafting. Due to the past satisfactory functionality of the Pond since construction on 2002, it was determined that a total physical re-design of the pond was not required. But it was also noted that because the pond is used as the final and balancing pond of the Pond 8 to 11 network that a larger operating water level range was required. Over that operating water level range, the liner required 100% rip rap coverage to protect it from sunlight and thus, UV deterioration. The previous PVC liner being uncovered within the operating range to the direct sunlight was the principle cause of its past failure. The new design included both a new liner specification and associated lower rip-rap placement along with the same original physical design. By doing a 'performance type' specification along with new research on liner material advancement, the engineering costs were kept to a minimum.

The engineer was selected after contacting a number of civil engineers who claimed to have pond liner replacement experience and were local. Some research and discussion for engineers took place before the formation of the Task Force (TF), but the TF essentially started fresh. Each engineer was phone interviewed and asked to present a proposal with an estimate to accomplish a 'performance based' contract using the original physical design. More than half of the engineers felt the job too small or the risk-to-reward too great. Wealthy HOA's are infamous for litigation from both the HOA and individual residents. I agreed to a Limit of Liability to their design fee in that I felt that a replica design did not have the risks that a cold start project would have for

[1] EJCDC stands for Standard General Conditions of Construction Contract prepared by the Engineers Joint Contract Document Committee which is a joint committee collaboration of the American Council of Engineering Companies, American Society of Civil Engineers and the National Society of Professional Engineers.

engineering error. In the end, several engineers who were interested were cost compared. A single engineer (Lamp Rynearson) recommended to the Board. In a desire to provide cost certainty, the engineering contract was in the form a lump sum ($7.5K) for the design; and a cost reimbursable format (~$2.5K) the construction management services to be negotiated after the bids were received a contract let.

In parallel to work period of the Engineer, a survey of a 'best value' attributes were conducted by polling the Board and the TF separately on the valued priority and trade-off between: 1. cost, 2. safety, 3. liner longevity, 4. contractor financial strength and 5. safety considerations. The results of this polling effort downgraded the financial strength of the contractor and upgraded the safety considerations. As a result, the 'best value' input affected the design and subsequent bid evaluations. The end product is measurably safer than the original design through a number of details which include less slippery liner, lower rip-rap shore line and a combination of rip-rap sizes.

After preparing the bid documents, but before the bid invitation, the engineer provided an Engineer's Estimate range ($55 to 75K) and requested permission to bid. The Estimate was presented to the Board with a recommendation to bid. In the future, it is at this point that the Board should confirm the affordability of the project. If the project is too expensive and there is no intention to let the contract that is outside the engineer's estimate range, the bid effort should be stopped.

After agreement from the Board to bid the contract, the engineer allowed 11 days for the bidders to respond to the bid request. (Ideally at least two to three weeks should be provided because site visits from outside the state are often necessary along with factory commitments for cost and delivery dates.) Due to the short construction period and over booked nature of the contractors, only four installation firms were interested in bidding. After bids came in, the engineer evaluated each bid for meeting the design/specifications and financial/bonding requirements. Those bidders meeting the requirements became the "qualified bidders". The qualified bidders were summarized and provided to the TF and a decision was made to negotiate with the lowest qualified bidder. Our negotiations were successful in lowering the low qualified bidder bid from ~$105K to ~$70K by allowing a liner substitute (EPDM) from the specification (RPE45) after it was determined by the Engineer to be an 'as equal' substitution. Also, the contractor requested to have an interim payment for the liner upon delivery. A change order from the bid price was used to reflect the changed liner, interim payment and lower lump sum commitment.

The lowest bid qualified bidder was then presented to the Board with a recommendation to award. The contractor award was executed after Board approval through a Notice to Proceed. Upon the bid award, the Engineer provided an estimate for their construction management (CM) support services. In this case, the extent of the CM services was agreed (3 site visits, contactor communication and evaluation of any requested change orders) for ~$2.5k on a cost reimbursable, not to exceed basis.

The Engineer's contract was amended to include a CM fee and reported and coordinated with the Board Chair (versus going back to the full board).

The total time from starting the engineer search to issuing a Contract Notice to Proceed to the Low Bid Contractor was about nine weeks. In the future I would expect the engineer's selection could be shorter if sole-sourced but the allowed bid period should be longer and they would work out to the same timing.

Construction Phase: As mentioned, the construction phase started with the Notice to Proceed which allowed the contractor to order liner and other materials and mobilize equipment. For this contract, it was estimated that the mobilization time would be two weeks followed by a four-week construction period.

Early in the mobilization period there is a 'kick-off' meeting with the Contractor, SEHOA Property Manager, the Engineer and the TF representatives. The Engineer provided the agenda for that meeting and led it. Subjects for the meeting were: safety requirements, egress of equipment routes, site storage of material locations, discussion of connection points to the existing facilities, contact number exchange, allowable start and stop times. There is also a general discussion of the staging methodologies planned by the Contractor for the construction.

The Engineer' s site visits (3) were planned for the kick-off meeting; at an interim phase of the construction to determine acceptable contract adherence; and at the end of the job for final completion acceptance. In order to save money, I served as a regular daily construction observer, took pictures and communicated progress or issues with the Engineer. One of the conditions in the original contract negotiations was that there would be an interim payment to the Contractor upon the site delivery of the liner material (~$24K). I verified delivery, coordinated the invoice transfer and payment with the Board Treasurer and Property Manager rather than pay the Engineer to do it. I also served to keep the TF and Board Chair aware of progress and any issues through the project through Zoom meetings and emails.

At the Engineer's Final Inspection, the Engineer first issued a Substantial Completion Notice which allow the SEHOA to take charge of the pond filling. The Substantial Completion also provided a list of punch list issues that the Contractor needs to complete before Final Completion Notice could be granted. Final Completion Notice allows the Contractor could issue a Final Invoice. I served as the inspector of the final punch list issues with photos to avoid more visits from the Engineer. After issuing the Final Completion Notice the Contractor sent a final invoice to the Engineer. The Engineer had seven days to approve or deny the invoice. Once approved, the invoice was forwarded with a recommendation to pay to the SEHOA representative for 10-day Net payment.

The last project invoice was the Engineer's invoice for CM services which was processed through myself to the Board Chair to the Property Manager.

In this contract, the Contractor was required to provide a Performance Guarantee for a two-year period to correct any contract requirements resulting from faulty workmanship. In addition, the liner has a 20-year written Warranty from the liner manufacturer (in our case, Firestone). These documents were collected by the Engineer and part of the close out construction package.

Contract Considerations:

The Pond 8 approach was unusual since it had a very fast-track schedule to facilitate the use of near-free ditch water for filling. The impact of missing the ditch-open schedule was the necessity of filling the pond with potable water at $9 per 1000 gal. The pond has about 1.3m gallons or a potable fill cost of ~$11K. When we wrote the contract, we thought the pond was much less voluminous. Earlier, it actually was estimated to be half the size and would require only ~$5K to fill with potable water. As a result, we decided to create a tight 45-day construction schedule with a deadline of October 3rd and a liquidated damage (LD) fine for late delivery of $5K to offset the cost of a potable water substitute. The courts are generally very compassion to contractors for arbitrary relief from LD's if the schedule is extremely short and there is not an off-setting reward for early delivery. We, therefore, had an incentive of early delivery of $500 per day for up to ten days ($5K maximum). Due to the potential early cutoff of ditch water in a dry year, we ran the risk of paying for early contract delivery and still needing potable water. We eventually won this gamble by getting almost 10 days of ditch water after substantial completion acceptance. We only paid one day ($500) of incentivization. With better planning of future ponds this approach might not be necessary as long as there is a deadline to completion.

The contractor did have one significant contract argument with us on the quantity of supplemental rock required. The quality of our contract and the discipline the Engineer had in his contractual process saved any overrun. I believe that had we just had a purchase order and no engineer that project costs would have been at least $10k higher than the contract bid on the basis of a 'changed condition' of rock outcroppings in installing the trench anchoring system.

Overall, the contracting methodology was extremely successful. We finished the contract one day early with no claims or change order variations. We also nearly filled the pond without the use of potable water expense. In construction world, the job was on time and on budget.

Future Implications:

In the future it would be very helpful if each of the pond restoration jobs are sponsored by a resident with an engineering contracting background, like myself, or the Property Manager. Task Forces are excellent for buy-in and collaboration but take more time and project leadership. The required efforts for coordination, communication and limiting

the Engineer's costs are very extensive for a two or three-month period. At the same time, I would still recommend that the HOA use a similar engineered, best-value and 'as-equal' bidding for projects over $50K to protect the community and get lowest price.

At the start of the Pond 8 project the PVC side wall liner was badly ripped only allowing the pond to be about one-third filled (see photo). While engineering started, it was decided to drain the pond completely and allow the bottom sludges to sun dry to reduce wet volume. The bottom sludge turned out to be about 3 inches of fine silt combined with organics. After a month, it dried well in a crusted way to 2" depth but created significant odor. To eliminate odor and to accelerate the construction's starting point, it was decided to remove both the sludge and residual PVC liner by a separate contract. For the Pond 8 schedule this was a good decision for speed but probably cost $3-4K more due to the mobilization of separate company. In the future, if time is less pressed, consideration should be given to including the demolition and disposal of the liner/sludge into a prime contract. To start with a partially filled pond, the old PVC liner in place and wet sludge, would have added about four weeks to the prime's schedule.

Soils are and will continue to be a challenge in future SEHOA civil projects. The top soil of the Open Space (and complete hill) is wind-deposited silt for a depth of 12 to 18 inches. The same conditions exist within the development fenced boundaries (i.e. around Ponds 2 through 7) with the exception that more top soil (4 to 6") has been imported for vegetation support. The silt is non-load bearing or non-compressible (i.e.: does not support weight well) and expands when wet. The dry silt when disturbed by equipment turns to a talc-like powder and creates significant dust. Even worse, when wet, the silt becomes a slippery, putty-like consistency and severely hinders construction vehicles. The implications are that civil projects requiring excavation should be conducted in the dry season of June-September. Pond 8 would have been significantly delayed with cost implications due the silt muds from October to June (snow moisture and spring rains). For the Pond 8 construction period we were fortunate to have no rain.

In starting pond restoration projects in the future, if an engineer search is included, I would start February to April. If an engineer is pre-selected, I would start February to no later than June. This time would assure ditch water in the refilling and better construction weather.

I would be willing to use Lamp Rynearson again as the Engineer. They are very knowledgeable on our selected process and development. I would also be willing to use H2J as a contractor if they were the low qualified bidder. I also think EDPM is an ideal liner for our future projects, if it stays cost effective with low oil prices. RPE45 is my second choice of liner material.

PHOTOS APPENDIX:

Starting condition, May 2020

Liner ripped starting condition, Pond 8 one-third full

Post sludge and PVC liner removal

Sludge and old PVC liner removed, starting condition

H2J Liner Installation Progress

Liner in place, rip-rap sides unfinished

Completed project, October 2, 2020

Pond completed and full, vegetation seeding blankets surround

Pond being enjoyed by dozens of visiting Canadian Geese (Nov 1, 2020)