

My name is Kelly McFadden and I am a candidate for the PIPOA Board.

www.KellyForPIPOA.com

In this week's Island Moon, the candidates were asked to discuss our bulkheads – in 200 words or so.

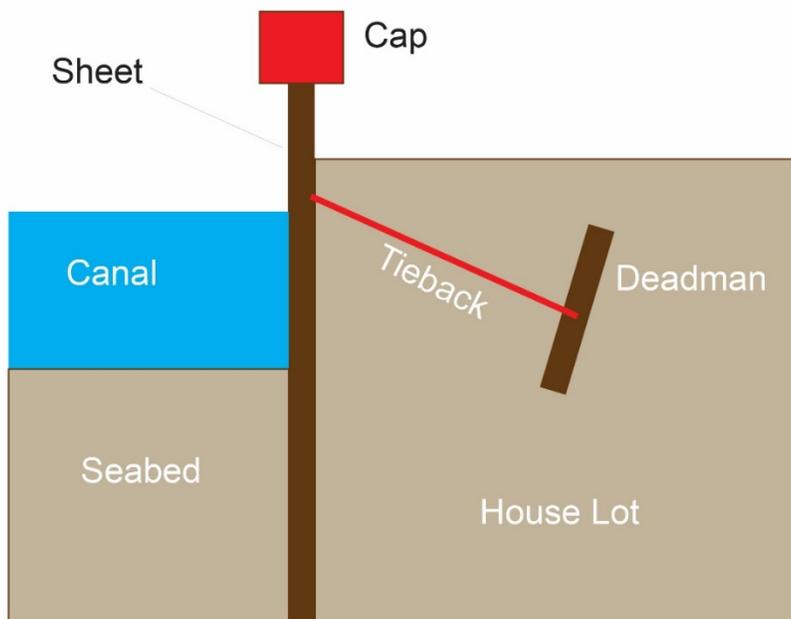
I did so, however, I realized that my 208 word discussion could barely scratch the surface. So, I will continue the discussion here. I know it is long, but it is a lot of important information.

Our 32 mile bulkhead system is made up of five components:

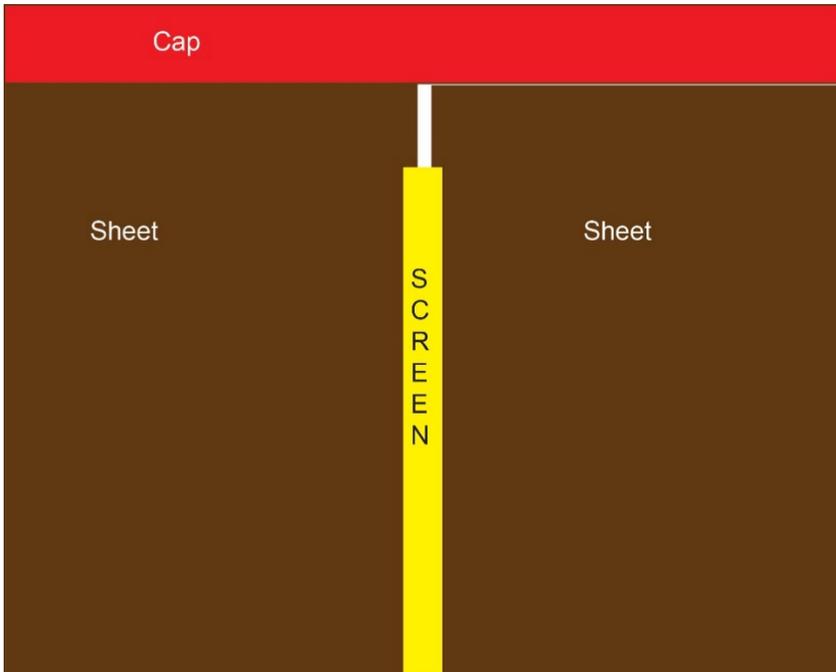
1. 17,000 vertical concrete face sheets with
2. 168,960 feet of concrete cap
3. 34,000 metal tie backs behind the wall
4. Connecting to 34,000 concrete dead men posts with
5. 17,000 metal screens to allow drainage

Our bulkhead system is what allows us to have the high-quality marine community we all enjoy. Our bulkheads are our largest asset, but the concrete and metal has been soaking in salt water for nearly half a century. We must anticipate increased repairs across all components. It's time to shift from reactive to proactive with a systematic program of inspection, projection, budgeting, bidding, repairs, and follow-up review.

At the recent Candidate Forum, I introduced the concept of "proactive" bulkhead maintenance instead of the "reactive" approach we have been using for the past 30 years. You can watch the video clip of my discussion by going to the "Videos" tab at www.KellyForPIPOA.com and click on "Bulkheads".



Let's start this discussing with some pictures and numbers. This picture is a diagram I created of my understanding of our bulkhead system. These are not engineering diagrams but are for illustration purposes only. Our bulkheads consist of concrete sheets, held in place by tie-backs connected to deadman posts. All covered with a concrete cap.



This second picture represents where two sheets join together, there is a screen behind the joint that lets the water drain but keeps the sand from washing out.

I have read that we have “approximately 32 miles of bulkheads”. It bothers me that we cannot say exactly how many feet of bulkheads we have. We have a duty to maintain every foot of it. We should know exactly how many feet of bulkhead we have.

But assuming its 32 miles, translating to 168,960 feet, we can see that the sheets are about 10 feet long. Doing the math, I estimate that we have around 17,000 sheets in our system.

Behind each sheet, about 8 to 12-foot back is at least two deadman posts. I estimate that we have around 34,000 deadman posts in our system.

And from each sheet there is a tieback connecting the sheet to the deadman post. This is a steel rod, covered in pvc, that connects the sheet to the deadman post. This tieback is critical. This is what keeps our sheets from tipping forward and falling into the canal. I estimate we have around 34,000 tie backs to maintain.

Every place two sheets butt together there is a screen behind it. This screen allows water to pass thru without the sand behind the sheet from washing into the canal. So once again, around 17,000 screens that occasionally have to be replaced.

Finally, on top of the sheet, joining all the sheets together in a contiguous system, is 168,960 feet of cap.

It's a tried and true system for marine canals, so what can go wrong with this system? What must be maintained?

The sheets and caps and deadmen posts are all concrete over rebar. This is concrete and iron that has been marinating in salt water for half a century. Rust never sleeps.

Over the years the caps begin to sprawl (crack). This is usually an early sign of bigger problems below. As they repair the cap and chip back the concrete you can see the rust and deterioration of the rebar. Engineering papers I have read say that keeping ahead of the sprawl extends the life of the sheet.

We notice screen failures when sand behind the sheet washes out and you get a sinkhole behind your wall. The solution here is to dig down and put a new screen in place. This is not a major job until you realize that many homeowners have built dock and deck structures over the bulkhead caps, making it difficult to inspect and repair. Many times, there are concrete walkways that must be jackhammered away so the repairs can be done.

The more substantial and hidden problem is tiebacks rusting and breaking. We notice those issues as the sheets begin to pitch forward towards the water. If you catch it early enough you probably can save the sheet. Left unattended, we end up with major bulkhead failures costing hundreds of thousands of dollars.

The next two pictures are of a larger bulkhead failure on the canal leading up to the German Bakery. This is the condition it is in today.



Tucked back out of the way it went unreported until recently. In addition to the obvious split sheet it looks like much of the area is now tilted and getting ready to collapse.

It looks like this failure might be considerably larger than the Primavera bulkhead project the POA just got done paying for, and we know those costs were in excess of \$4,000 per running foot. I understand the POA is currently investigating the repair approach and costs.



So, what is my plan if elected?

We must anticipate increased repairs across all components. That's only common sense. It's time to shift from a reactive to a proactive maintenance program.

We need to institute a program of visual inspection of every foot of our bulkheads. This will be a full-time job until every foot of wall has been inspected. We must know the current condition of our bulkheads.

We need to begin a homeowner program of "See Something Say Something". It's the homeowner who can quickly look at their bulkhead and see if something is wrong. If you question something, call the POA and they can schedule a follow-up visual inspection with a report back to the homeowner on what has been found. This is a partnership and we need everyone to help out.

I don't think this initial inspection is an expensive engineering job. What we will be looking for is cap sprawl, sheets tipping, and sinkholes behind the wall. Suspected problems will be noted for a more detailed review. Those locations would be referred to a higher skilled person who could assess and recommend a specific repair procedure.

While the visual inspection program is underway, we need to begin a process of securing landowner access to all of the bulkheads. That project needs to begin immediately with the PIPOA closing documents that new owners are presented with when they buy. We need to add a permission document to that packet that is signed as part of the purchase of a property. At the same time, the POA needs to track down each current owner and ask them to sign these permission forms for access for inspection and repairs.

We need to begin a program of educating the owners on what happens with an inspection and what must happen if the wall is obstructed with owner property or structures. Perhaps we do this with some simple videos posted on the POA website. Somehow all owners must be made aware of bulkhead inspection and repairs.

We need to put in place a financial model of the costs of the various repairs, and a projection of the types and frequency of failures we have seen. There should be enough data already to begin this model. While it may not be perfect on day one, we can keep improving it until it one day becomes an accurate tool for budgeting purposes.

We need to change the way we award these repair projects. Instead of sending all work to a sole source company we should be breaking these projects into bundles, tranches for the finance folks out there, of perhaps \$25k each. We should be working with more companies to get a better price and to build up a broader set of vendors who can help us in the event of multiple failures during a disaster.

We need to be performing detailed post inspection, including photographs, and keeping it all in a database. Nothing fancy here. An excel spreadsheet will suffice.

It's complicated stuff. One of the very first questions has to do with exactly what does the POA own, and to make sure we are only repairing structures that we own. But, most of all, as this program rolls out, I believe we must maintain our current program of reactive repairs until the new proactive program comes up to speed.

For the past 7 years we have spent approximately \$400,000 each year on repairs. This year the 2019 budget bumps that number to \$600,000. It's time we get an exact handle on what we own and what our projected maintenance costs will be. We must anticipate increased repairs across all components. It's time to shift from reactive to proactive with a systematic program of inspection, projection, budgeting, bidding, repairs, and follow-up review.

I understand that this seat belongs to the Members. I ask you to trust me with your vote.

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