Thank you for the work on the draft memo and the presentation at the

November 2021 meeting of the Measure DD Committee.

**General comments**

Two general notes of disappointment from the draft report are:

1) the lack of mention of the lake as a wildlife refuge -- which should have bearing on any recommendation, and

2) a limited view of recreation as being all about boating. The nature in, on, and around the lake is a source of enjoyment for many more people than those who get in boats.

At the meeting, I think we all had a similar goal of increasing water flow in and out of the lake. Given that it seems the draft recommendation to have lower maximum and higher minimum lake levels, at the present moment, I'd prefer to keep the County's regime over the proposed one.

**Tidal range and tidal velocity**

As Katie Noonan showed in the meeting, from tidal data she has collected from the County, the reduced range would impact the tidal range. This impacts not just the lake levels and what that does for biodiversity, but also the range of tidal velocity, which [also impacts biodiversity](https://news.brown.edu/articles/2010/11/currents).

Ultimately, that biodiversity is reflected up the chain to fish and the birds that inhabit the lake. I think the goal of water quality and enhanced wetland restoration are both in service of biodiversity, not just as things in and of themselves. We should preserve as great of a tidal range and tidal velocity as we can.

**The state of the station and the long term**

It should be noted that the Tide Gate station as a whole is porous. Water still comes through the gates, and water comes through the concrete itself, flooding the pedestrian tunnels on either side. Gate closures still significantly slow things down, but this may have an impact in 100 year storm events and the like. Also I wonder how stable the whole edifice is. I don't know that this ought to be mentioned in the draft, but it would be good to know what the expected lifespan of the current station is, especially considering climate change. I would think that part of the draft would be to propose a once every five-10 year refresh of the manual, and a proposal for better data collection. How do we measure success, how do we have better and more transparent info about the tides. If flooding does occur, or is there a way to track boating problems with low tides, drowning, etc.

**Inaccuracies in the Draft Diagrams**

Finally, there are a couple of inaccuracies of the diagrams. The first is maybe more important to other parts of the document, but I would like to see the basics accurately described.

1) **The -0.3ft figure as the lowest point of the channel is incorrect.** I don't know what the figure should be, but the lowest point of the channel are the concrete abutments on either side of the tidal gates. These are maybe a foot higher than the floor of the channel. The discharge and suction channels may be much deeper, but the key is that the openings of the channels are not. The pump station would prevent low flow from draining the lake before the BART tube did (also I would just note that the BART tube top is not all evident looking into the water in the channel, I want to see if I could see it with my ROV but haven't had a chance).

2) **The configuration of the pipes at the mouth of the channel is inaccurate.**

1. The 24" line is closer to the lake than the 54" Sanitary Main. This is easily seen in Google Maps.
2. The 84" Sanitary Gravity Main is not above ground at all (and is more square as it is encased in concrete), and no water flows below it. Some of it is sometimes above water, but that part of it does not block the channel opening. It would present a "floor" in terms of draining the lake (I have seen water sheeting across it with hardly any depth) -- but from watching the channel behave at low tides and seeing the white water that occurs under the railway bridge with the homeless encampment, the pipe must be decently lower than the channel under 880, and certainly lower than the opening of the Tidal Gate.
3. The two railway bridges are also not mentioned. These possibly affect tides at very high tides (and possibly are a partial cause for the Oakland FD Training yard getting flooded as they are between the two).

From my years of going up and down the channel on a weekly basis, the low water level has never reached a point where no water was reaching the pump station (except when there was the artificial dam to build the 10th st bridge)... even on the 880 side of the pump station at negative tides (this could potentially be partially due to the leakiness of the pump station as these are usually times the gates are closed).

Anyway, I am not a water expert, nor a civil engineer. I am an amateur naturalist, and because of that have spent a significant amount of time at the Channel at all times of the year, 1 or twice a week for 6 or 7 years now. I have even explored both sides of the tide gate station environs with an ROV, so I know it really well, and hope that I can share that knowledge and come to a good draft.

Thanks for your attention.

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