

**BOARD OF COMMISSIONERS SPECIAL BOARD MEETING  
VIRTUAL MEETING VIA ZOOM ~Wednesday, September 11, 2024, at 4 p.m.**

**BOARD MEMBERS PRESENT: Angie Kimpo, Kelly Piper, Dan Graff, Sara Grigsby, Michael Arion**

**STAFF MEMBERS PRESENT: District Manager Ana Linden, District Clerk, District Clerk Lynda Ronell**

**CONSULTANT: Andre Mare Larch Mt. Reservoir**

**AGENDA**

**1. Call to Order** Meeting was called to order at 4:01 pm by Kelly Piper.

**2. Roll Call** All Board members were present via Zoom.

**3. Approval Of Agenda-** Sara Grigsby made a motion to approve the agenda, Michael Arion seconded.  
*(Motion passed 4 yes votes: D. Graff, S. Grigsby, A. Kimpo, M. Arion, K. Piper 0 no votes)*

**NEW BUSINESS**

**1. Larch Mt. Reservoir-**

- Ana Linden gave a summary about the Larch Mt. Reservoir during the winter storm. Corbett Water District had a control valve for the Larch Mt. Reservoir freeze three times and each resulted in overflow events that eroding the overflow area behind the tank.
- Post-storm, we hired Andre Mare to do an initial assessment of slope stability and urgency of the repairs. . Andrea Mare proposed two more phases to not only stabilize the slope, but also to lower the water table and move water beyond the tank in a way that doesn't compromise the slope and drains well. Andre just completed the report detailing soil composition, stability and groundwater.
- Phase 3 will be incorporating gained knowledge into a final design, actually drawing up the plans for the repair.
- Andre Mare walked through the report and showed the results of geotechnical drilling and discussed potential for slope failure in the future.
- Appendix D: The dark red line shows the top of the landslide which is referred to as scarp or head scarp in relation to the tank. This is a moderate landslide, which is big enough to threaten infrastructure for sure.
- Figure 3 shows the yellow line is fill soil, the greenish blue line in the middle represents the interpretation of where the groundwater level water was sitting at the time of exploration and monitoring. The 2 vertical lines represent the locations of our field explorations are boring. The orange line shows previous ground surface prior to entering a reservoir being built before the landslide. The original surface was not only pre-1970 but approximation of where it was prior to January of the year. The diagram gives an idea of how much materials moved on the slope.
- Kelly Piper asked "fighting against nature, if we try to mitigate this and implement what you suggesting to try mitigate this effort, is it just futile because this is what nature is going to do?" Andre Mare advised, yes but also qualifies in report results that there are actions that can be taken to reduce the threat The

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retreat of the stream in the upslope direction is a natural process that's been ongoing for millions of years. Kelly Piper communicated back is siting best to mitigate the current structure or situation by trying to put in riparian or move the tank? Corbett Water District would not want to spend a lot of money if a landslide was going to happen again. Andre Mare advised that where to move the tank so this does not happen again is not his expertise.

- Andre Mare scanned over the documents he had and advised that he did look at everything very carefully and that the cross sections are accurate, he used appropriate methods to measure things. He believes that the massive amount of tree roots and fallen trees have helped hold the slope up temporarily. He indicated that the slide wanted to move in a much larger Arc but it was not able too. During the assessment, he encountered the fill and encountered the loess. It does not have high end values. It is medium, stiff to stiff. This will all be used to slope stability where calculations are done to determine what might happen and what is the current condition of our level and safety against failure.
- The factor safety is not very high under current conditions. His evaluation of current condition resulted in a factor of safety (FS) of 1.6 which really should be considered worst case.
- Kelly Piper asked Andre Mare "if you calculate the factor of safety after we did the mitigating efforts that you propose, what the factor of safety would be after that. Andre Mare advised it would be 1.5, We are not where we need to be, that's what the report establishes.
- Looking at the scale of the map, it shows the output plots and how it needs to be modeled. The green line shows it is getting close to the tank and that we are having a fairly low factor safety.
- The need for drainage has been talked about but it can be very difficult and expensive to do in this environment on the slope.
- Sara Grigsby asked Andre Mare if the the groundwater levels are artificially high and if this is at least partially the results of ongoing leakage in the existing system. Andre Mare has been convinced that there has been leakage from the tank. This is based on that fact there has been a large amount of water getting into the manhole from over the overload inlet pipe.
- Kelly Piper asked Ana Linden if she thinks there is leakage from the tank. Ana Linden said that when this first started the Corbett Water District tested the water going in the manhole, and installed a pump to keep it draining out. Corbett Water tested that and sure enough the water was chlorinated. They have been keeping the tanks at a lower level and the water in the manhole is gone. Ana Linden went back and did a time line on these results but they did not result any conclusion.
- Dan Graff Asked Ana Linden if Corbett Water raised the level back up and see if the water flow came back. Ana Linden said we haven't done so yet. Dan Graff advised every time it is raised up to make sure that's part of the process to check that to see when it starts leaking.
- Andre Mare added that the crew put in a sump pump and started pumping through a hose down to the base of the slope where any extra water gets into the manhole.
- Ana Linden asks Andre Mare the two different outcomes of potential slides in the future is that what those were the scarp to move too? (Appendix B, Penno Treatment) Are these two outcomes based on what? Andre Mare said it is basically the conditions that he encountered is what the groundwater level represents for the groundwater slopes.
- Ana Linden asked if the groundwater contributing to these issues is something we can wait on. Andre Mare said lowering the groundwater level increases the factor safety. That will extend the time we gave until the next failure as far as the probability of failure. If we do nothing even though the factor safety calculated is 1.06 there is not an imminent hazard. Triggers can come in lots of ways. Another overflow, major earthquake. This is just a situation that needs to be addressed due to safety.
- Angie Kimpo asked "how do we lower the groundwater?" Andre Mare shared his slides showing the drainage and that this is typically done with horizontal drains. They are pipes that are drilled in the



slope horizontally or roughly, horizontally from the down slope side. This is getting tracked mounted drill rig down at the base of the landslide and drilling out almost under the tank. This allows the pipe to remain in place perforated pipe collects groundwater.

- Kelly Piper said this is the same logic as if we were to put in a retaining wall. There would be drainage pipes come out so the water doesn't back up against the draining wall and collapse. That is correct Andre Mare advised.
- Angie Kimpo asked and summarized her question for Sara Grigsby, if you get boring equipment and you bore the drainage pipe under the tank intercept the subsurface flow that's happening. Then you build the wall with H beams. What would happen if we were to do this in two phases. We could start with just do the drainage for now? This would also buy us some time for funding to do the rest of the work because what Angie Kimpo is hearing is that the lower the risk factor quite a bit. The slope drained the subsurface the water table lowered. Andre Mare said there is nothing he can contribute to that would recommend against that and that it makes a lot of sense in a lot of ways.
- There is not cost estimate made yet. Andre Mare is still working on that part.
- Kelly Piper wanted to know what kind of equipment would be required and how would they get it down from the slope from the tank to bore those horizontal pipes in. Andre Mare says this is definitely weather construction where it should be dry. Other than an emergency basis site, you can have a much wider, much more difficult conditions in winter. They use a tracked excavator mounted drill, sometimes they use a spider excavator, which is an excavator operates on "legs" and minimizes disturbance to ground.
- Victor Schmidt said even if you build some sort of access road which would be possible to the area down there. It would have to be cleared out; you would have to develop some sort of working pad to do this on. This is not an insignificant part of the project. As far as the remediation of the slide. Victor Schmidt thinks certainly it would be great if we could roll a piece of equipment up to the slope and then bore some drainage holes and mitigate the problem caused by the water table. If you're going build access down to that area. This should be part of a well defined 1 or 2 stage project with the understanding to be going ahead with the whole thing, and ultimately would like to see the backfill behind the retaining wall somewhat restored as Andre Mare mentioned. It's all mud now, and trees that are crisscrossed and very steep slopes it's not a place we even want to walk down, much less get equipment down there.
- Victor Schmidt feels like everything is on track. He has Randy Good working on a design from the point of view because he needs a cost estimate be submit to the insurance underwriter.
- The grey area is, its Victor Schmidts' property and so who is handling what cost and what the insurance might cover.
- Andre Mare said that in order to eliminate all these potential slope access issues, we could do this without horizontal drains at all. It would require tighter spacing on the piles, but you would only need to access that from the top portion up by the tank.
- Kelly Piper asked is there a way to insert horizontal drainage from the top side? Andre Mare advised, no.
- Ana Linden asked if the ground water was found in the end of July. Andre Mare said it was around 15 feet up near the tank, and then getting down towards the slope a little deeper down around 19 feet. Victor Schmidt discussed there was a well on the property, the depth of that well was in that neighborhood of 15 to 20 feet.
- Angie Kimpo is curious with or without the horizontal drainage, how does Victor Schmidt feel about all this proposed solution? Victor Schmidt suspects that implementing a robust, more robust retaining wall that would eliminate the need to do groundwater, and just being able to do it from the top. Someone will have to develop a cost for various alternatives. The retaining wall would be fine. It won't address the restoration on the property If you're going to engineer an overflow system from what can be seen as far



as thinking about that issue is, you may still have access down to the bottom of that ravine with some significant equipment.

- Kelly Piper added that Andre Mare has been very helpful.
- Ana Linden summarized the Grant process. A disaster was declared for that time period where the overflows happened, and we've been working with FEMA to get reimbursed for expenses that happened during the storm, and then things that related to directly after damage that was done. Unfortunately, the damage wasn't to our property and can't be reimbursed by FEMA. Due to this being on Victor Schmidt property and the fact that the district does not own it nor have an agreement with Victor Schmidt or his father we do not qualify for getting the funding from FEMA in the same way that we would for all other expenses we've had from damage from the storm. There is an option to apply for mitigation funds, that the State is given by FEMA, and the the State manages those funds. The State allot the funds to special districts and governmental agencies within each county based on how much money was spent on that county for the damage. Multnomah County they're assuming is going to come in at you get 10% of whatever FEMA gave the County. The State gets this pot of money, they give 10% to of what Multnomah County claimed from FEMA. However, there is only just over a million dollars for all of the State. There is also a mitigation Grant we can apply for. The County has to apply for us because we are not their mitigation plan. We are listed, but we don't have our own hazard mitigation plan, County wide hazard plan because the district. Ana Linden is now working on a plan to get this process going and getting the County to say yes.
- David Gorman is going help with the Grant application as he is a drainage engineer. Jeff Hargens with Earth movers has contacts with getting costing for the project as well.
- Ana Linden brought up that the Schmidt's have offered to do a land swap. That might be something Corbett Water will have to do no matter what to get the Grant. We don't have to own the land when the damage happened, that's why we're applying for that portion.
- Angie Kimpo proposed that when Corbett Water get some budget estimates together that she would like another conversation and also have a logistical conversation with whatever contractors about the price, difference of phasing it and just doing the horizontal drain whether that's feasible because we did allocate money in this year's budget to do work. Ana Linden advised we have not done the budget for next fiscal year yet. Angie Kimpo explained what would be the cost of a horizontal drain? these things are out of our control so if we could do a small piece at a time it would make a big difference and lower the risk. This is a good idea for feasible. A conversation will be good to have about this.
- Sara Grigsby wants to know what will it take to abandon this and start over again, what the cost will be. Ana Linden advised to get the pressure we need we would have to move and find a place way up Larch.
- Kelly Piper would like to see what our options are in to moving the well to another property.
- Victor Schmidt also said a new site would be good, but to find that we would have to move high up in elevation and the cost would be up there. Victor Schmidt also asked for some cost quotes on this.
- Andre Mare said to pressure getting some horizontal drains during the next construction year would be a good idea. He also advised over winter monitoring the groundwater levels in the slope, will determining whether the tank leaking and why. If it is leaking then these things in conjunction could give us a much better handle on whether those levels are likely to change horizontal drains next spring, and whether it's worth doing it.

### **PUBLIC COMMENTS (3 minute limit per person, please sign up)**

- Cloudy Sears asked how much volume of groundwater and ASR worthy question. Dan Graff answered no there is not. Andre Mara stated he did not understand the question. Ana Linden advised it is the depth that the boreholes were at 15 feet, and so cause Cloudy Sears asked do we gave a leaky pipe



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upstream of that reservoir is contributing? Dan Graff advised the reservoir is on top contour of the hill. There is no uphill, just pressure coming from the pipes. Ana Linden agreed there is a pipe. It's number 3. We're at 1 right now. We have 22 projects ahead of it. There is a pipe that is abandoned on our maps that is, charged and we had to repair it. It's just upstream of there. It's a fill line.

**ADJOURNMENT OF MEETING** – Angie Kimpo made a motion to adjourn the meeting at 5:15pm. Dan Graff seconded. (*motion passed 5 yes votes: M. Arion, D. Graff, S. Grigsby, K. Piper; Angie Kimpo*) The meeting was adjourned at 5:15pm.